

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

INTRODUCTION

The College of Agriculture and Natural Resources is one of the six Colleges of the Kwame Nkrumah University of Science and Technology, established by Statute 33 of the University's Statutes (2004). The College seeks to promote agricultural production, rural development and the management of renewable natural resources in Ghana, Africa and elsewhere through excellence in teaching, research, and extension of knowledge and by producing high calibre manpower imbued with the requisite entrepreneurial skills necessary for self-employment and private enterprise development.

FACULTIES

Faculty of Agriculture,
Faculty of Renewable Natural Resources
Faculty of Forest Resources Technology

RESEARCH CENTRES

Bureau of Integrated Rural Development (BIRD),
KNUST Dairy/Beef Cattle Research Station,
Centre for Biodiversity Utilization and Development (CBUD)
Agricultural Research Station, Anwomaso.

ACADEMIC PROGRAMMES

The following undergraduate programmes are offered by the Faculties listed against them:

B Sc. Agriculture – Faculty of Agriculture
B Sc. Postharvest Technology – Faculty of Agriculture
B.Sc. Agricultural Biotechnology – Faculty of Agriculture
B.Sc. Landscape Design and Management – Faculty of Agriculture
B.Sc. Agri-Business Management – Faculty of Agriculture
B.Sc. Dairy and Meat Science- Faculty of Agriculture
B Sc. Natural Resources Management – Faculty of Renewable Natural Resources
B Sc. degree in Forest Resources Technology – Faculty of Forest Resources Technology

Postgraduate programmes include

2 year M Sc. programmes composed of taught courses and supervised research
2 year M Phil programmes by research only, and
4 year PhD programmes with prescribed taught courses in year one.

Plans are far advanced to begin an integrated Graduate program in Seed Science which will train graduates in the following three disciplines, viz., Seed Business, Seed Systems and Seed Science and Technology.

COLLEGE ADMINISTRATION

The College is headed by the Provost who is responsible for the overall administration, academic development and financial management of the College. The Faculties are headed

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by Deans who oversee the academic and research activities of 3 or more departments. The Provost is supported by a Registrar, an Accountant, a Librarian, an Assistant Registrar and a Secretary. The Secretariat of the Provost is located on the first floor of the Faculty of Renewable Natural Resources Building, near Ayeduase.

The College Board which is the highest body regulates all matters relating to the organization of education, teaching, research and study of the courses run in the departments of the College. The Chairman of the Board is the Provost.

The Office of the Provost coordinates teaching, research, income generation, students' welfare and all other matters, which have been extensively reported by the Faculties, Academic Departments and Research Units. The College Administration is constituted by the following personnel:

Provost	-	Prof. Richard Akromah
College Registrar	-	Mr. Solomon Panford
College Accountant	-	Mr. Abdulai Suglo
College Librarian	-	Mrs. Densi Asare-Kyere
Principal Administrative Assistant	-	Nana Adjoa Insaiddoo

STAFF AND STUDENT STATISTICS

The College has a student population of Three Thousand Two Hundred and Fifty-Two (**3,352**) with One Hundred and Seven (**107**) teaching and research staff and One Hundred and Ninety-Nine (**199**) supporting staff.

ACTIVITIES

The College began the construction of a four-storey block of lecture halls and Provost's Offices during the last academic, which is about 97% complete and soon to be commissioned. The project has been funded with incomes from Internally Generated Funds and indirect costs accrued from projects in the Faculties, Centres and Departments. The project, when completed, will solve the current limitation in lecture hall space following the re-location of our Forest Resources Technology Faculty from Sunyani to the main KNUST campus. During the next academic year, we will endeavour to put furniture in the building and put it to full use.

COLLABORATIONS/LINKAGES/PROJECTS

The Alliance for a Green Revolution in Africa (AGRA) continues to support the capacity building initiatives in the Department of Crop and Soil Sciences. The College received a further boost in funding support to the tune of US\$ 2.67 million for the Launch of the Improved MSc. In Cultivar Development for Africa (IMCDA), which is benefiting 30 nationals from five countries in the West Africa sub-region (Ghana, Burkina Faso, Mali, Niger and Nigeria). The first cohort of 10 students began the program in September, 2014 and are expected to complete by September 2016. The graduates from the programme will undergo a 6-month internship in a Seed company for hands-on training to prepare them for the seed industry.

THE SOIL HEALTH PROGRAM

The remaining 9 PhD and 8 MSc candidates on the AGRA-funded Soil Health programme have successfully completed their studies and will graduate this year. This brings to the total of 20 PhD and 15 MSc graduates which the programme supported. The students were selected from five countries, including Ghana, Burkina Faso, Niger, Nigeria and Mali. The College has benefited immensely from the AGRA projects with the provision of equipment for the soil science, soil microbiology and plant biotechnology laboratories to improve teaching and research.

BUILDING STRONGER UNIVERSITIES (BSU) INITIATIVES AT KNUST

The College has successfully steered the implementation of the BUS II projects on two of the three platforms: Growth and Employment, Environment and Climate and Human Health, in partnership with Research and higher education institutions in Denmark, DANIDA and the Universities in Denmark. The College of Agriculture and Natural Resources is coordinating two of the platforms (Growth and Employment and Environment and Climate) with some administrative support from the International Programs Office (IPO). The third platform is being coordinated by the College of Health Science. The development objective of the platforms is to *‘Enhance capacity of the participating institutions to promote sustainable growth and employment through research, education and dissemination of research findings’*. The total support to KNUST is US\$1.5 million over 3 years.

THE GRAND CHALLENGE PROJECT IN POULTRY SCIENCE

The Canadian government is supporting the Faculty of Agriculture, under a Grand Challenge Initiative, to the tune of US\$ 103, 000, to investigate feed substitutes with local ingredients that contain high omega-3 fatty acids for poultry in order to reduce production cost while maintaining product quality.

The College committed US\$22, 467 from IGF to procure a new Incubator/Hatchery Unit and a 640-layer stock from Spain for commercial day-old chick’s production. We are pleased to report that KNUST now produces healthy day-old chicks for farmers in the Ashanti Region. With a capacity of 5040 chicks per cycle, will soon extend supplies to farmers beyond Ashanti region.

FISHERIES SCIENCE PROJECTS

- The College has ongoing projects with Aqua-fish Innovation Lab (USAID) and the University of Arkansas, Pine Bluff, to improve the nutritional quality of farm grown Tilapia by feeding them with diets that contain local ingredients with high omega-3 fatty acids.
- A second project with Aqua-fish Innovation Lab (USAID) in collaboration with Virginia State University and Polytechnic is working on developing high temperature tolerant tilapia strains for cultivation.

VISITORS TO CANR FROM AUGUST 2015 TO MAY 2016

SNO	DATE	NAME	PURPOSE OF THE VISIT
1	17/08/2015	Dr. M. B. Mochia, CSIR-CRI	Discussion on Peanut Mycotoxins Innovation Lab.
2	21/08/2015	Dr. Elmar Vegnendaal, Wageningen	Scientific visit on SOFIA
3	09/09/2015	Mark Huisenga, USAID	Scientific visit, Food Security
4	09/09/2015	David M. Kolleh, Cuttington University, Liberia	Study tour, Natural Resources Management
5	29/10/2015	Neil Anthony, AGRA	Grant/Human Resources
6	03/11/2015	Shobhita Soor, Aspire Food Group	Research, Palm Weevil Larvae (Akokono)
7	25/11/2015	Tony Danklu/Eunice Amoako	Alumni Matters
8	17/12/2015	India Keal/ Lasheda Brooks/Jessica Patel/ Sathya Elavarthi/Marikis Alvarez, Ashley Wilson, USA	Campus visit
9	04/03/2016	Harold Tarver/Sara Gilleski/Kim Koine/Karen Kent/Abdourahmane Ba/Samuel Scott, USAID	ASSESS meeting
11	12/05/2016	Pourrut Bertrand, ISA LILLE	Collaboration/Campus visit

Details of academic and research activities of the Faculties and Research centres of the college are as follows:

FACULTY OF AGRICULTURE

INTRODUCTION

The Faculty of Agriculture has, over the past year strengthened its efforts to consolidate and improve on its teaching research and outreach activities, through its various Departments, Units and Sections to maintain KNUST as a Centre of excellence in the three key areas. The number of international students attracted to the Faculty from the Francophone and Anglophone West African countries as well as from East Africa continue to rise from year to year principally due to sponsorship support from a number of international organizations. The Department of Crop and Soil Sciences continue to attract the highest number of such candidates. The Faculty continues to enjoy sponsorship from a number of funding conglomerates including Alliance for Green Revolution in Africa (AGRA); West Africa Agricultural Productivity Programme (WAAPP-Gambia, Ghana and Sierra Leone); International Institute of Tropical Agriculture (IITA); USAID; SAPEC-Liberia, EHED – Enhancing Higher Education for Liberia’s Development, and Intra-ACP STREAM.

TEACHING AND RESEARCH

The 4 main Departments and 2 Research Stations contribute in the teaching activities of the undergraduate programmes. The Faculty runs six undergraduate programmes: B.Sc. Agriculture (with fourth year options), B.Sc. Agribusiness Management, B.Sc. Postharvest

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Technology, B.Sc. Agricultural Biotechnology, B.Sc. Dairy and Meat Science and Technology and B.Sc. Landscape Design and Management. At the graduate level, a wide range of programmes are run more or less independently by the different Departments. The Department of Horticulture, in addition, runs the M.Phil Postharvest Technology programme under the Institute of Distance Learning (IDL).

A number of staff members have benefitted from local and international collaborative arrangements for research and manpower development. This includes the DANIDA-funded 'South-Driven Research Programme through which one senior member is pursuing a PhD programme under the Ghana Street Food Project and three M.Phil candidates are part of the eight beneficiaries. DANIDA has also offered another PhD Fellowship under the Sustainable Sanitation (SUSA)-Ghana Project for another senior member from the Department of Agricultural Economics, Agribusiness and Extension. The Department of Crop and Soil Sciences continue to attract the highest number of funded Postgraduate students from West African countries including Burkina Faso, The Gambia, Liberia, Mali, Niger, Nigeria and Sierra Leone and from Ethiopia in addition to Ghanaian students. During the year under review the Department had 94 Ghanaian and International students.

The Departments of Animal Science, Horticulture and Boadi Dairy and Beef Cattle Research Station are fast becoming exemplary centres for effectively combining commercial activities with teaching and research. It is the expectation that in the near future, the units of the Faculty will dominate production and sale of meat and meat products, vegetables and milk products such as good quality yoghurt to the University community and beyond. The Department of Horticulture is the beneficiary of an AGRIMPACT Consult Ltd 390m² greenhouse for commercial vegetable production. The Boadi Beef and Dairy Cattle Research Station has established a rabbitry with an initial 100-doe unit for production of seed animals for farmers and meat for consumers.

COLLABORATIONS

In addition to DANIDA-funded 'Building Stronger Universities' (BSU) for graduate studies, the Faculty continues to benefit from different sources. Through the support of the Bill and Belinda Gates Foundation and AGRA (the Alliance for a Green Revolution in Africa) two sponsored M.Phil programmes - Seed Systems and Seed Business Management respectively are expected to commence fully from the beginning of the 2016-2017 academic year. The World Food Programme (WFP) under the Purchase for Progress (P4P) Programme, and the International Water Management Institute (IWMI) have renewed their working arrangements with the Department of Agricultural Economics, Agribusiness and Extension for data collection and research respectively on different aspects of agricultural product and resource use. Preliminary arrangements have been completed between the KNUST through the Boadi Dairy and Beef Cattle Research Station and Peak Investment Capital (PIC) for expanded commercial yoghurt in the country. The year under review saw the PIC starting operations at the Faculty of Agriculture with their yoghurt and other fruit shakes under the brand name "ICYCUP", which enjoys tremendous patronage across the whole KNUST Campus and beyond. The Agricultural Research Station at Anwomanso, with an area of 1,386.32 acres is the main crop-based research station of the Faculty and the KNUST. About a third of the land area has been suffered from illegal sand winning- an issue that is being combated through a number of arrangements between the University and adjoining

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communities. About 200 acres of the Station is covered by different research activities including a dam, meteorological station a tractor and implement grounds in addition to field plots for oil palm nursery, oil palm plantation, citrus, maize, vegetables, medicinal plants among others. Currently the about 160 acres have been demarcated for different commercial and research activities: i) expansion of oil palm fields- 100 acres; ii) establishment of mango plantation – 20 acres; iii) establishment of avocado plantation – 20 acres; expansion of citrus plantation – 20- acres.

As part of its collaborative research and commercial activities, the following areas have been allocated to the following:

a) VRA power station	–	50 acres
b) Finatrade	–	12 acres
c) Mechanical cassava harvester project	-	10 acres
d) Jatropa project	-	5 acres
e) IAAS student farms	-	25 acres
f) Agribusiness student project	-	40 acres
g) Faculty of Renewable Natural Resources teak and cassia project -		200 acres
h) Students' projects (B.Sc. M.Sc./M.Phil./PhD)		20 acres.

An additional 10 acres of land has been allocated to the Department of Theoretical and Applied Biology to facilitate its undergraduate and graduate programmes related to climate change and agriculture.

DEPARTMENT OF AGRICULTURAL ECONOMICS, AGRIBUSINESS AND EXTENSION

INTRODUCTION

The Department continues to support the Faculty of Agriculture in training of 4-year BSc Agriculture programme and house the agricultural economic option of the programme in the final year. The Department teaches courses in Agricultural Economics, Agribusiness, and Agricultural Extension. In addition the 4- year BSc Agribusiness Management programme is run by the Department. The Department offers a 4-year BSc programme in Agribusiness Management at the undergraduate level. All undergraduate students offer all major courses in Agriculture, Accounting, Finance, Human Resources management, Post SSS mathematics, research Methods and computing. In addition each student also offers Entrepreneurship in order for them to acquire some entrepreneurial skills for self employment.

The department also offers services courses to the School of Veterinary medicine, Faculty of Forest Resource Technology

POSTGRADUATE STUDIES

Over the past few years postgraduate have grown in number of programmes and students. The Department offers MPhil programme in Agricultural Economics jointly with other departments with the Department of Economics, Faculty of Social Sciences.

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Postgraduate Programme organized by the Department include:

1. 2-year Master of Philosophy (MPhil) in Agricultural Economics
2. 2-year Master of Philosophy (MPhil) in Sustainable Integrated Rural Development
3. 3-year Doctor of Philosophy (PhD) in agricultural economics
4. 3-year Doctor of Philosophy (PhD) in Agricultural Extension

The MPhil programmes are two-year programmes based on combination of taught courses and research projects. Whilst the Doctor of Philosophy (PhD) are a minimum of 4-year full-time programmes. The PhD degrees are awarded on the basis of research work in which a candidate has made an original and significant contribution to knowledge. The postgraduate level programmes are tailored to produce graduate for industry and career in research and academia.

From 2016/2017 academic year the Department would start admitting qualified candidate to pursue MSc, and MPhil programme in Agribusiness Management. The first batches of PhD Agribusiness Management and MPhil Sustainable Integrated Development students have defended their thesis successfully and are due to graduate in July, 2016

The Department has also intends to mount MSc, MPhil and PhD programmes in Agricultural Development and Policy. The syllabus for these programme has been developed with financial support from Building Stronger Universities (BSU) Phase II project and submitted to the college for review and necessary action and it is likely these programmes would be roll out next academic year.

Graduate in Agricultural Economics /Agribusiness continue to be employed in relevant establishment such as Ministry of Food and Agriculture (MoFA), Financial Institutions, Research institutions and the Universities.

ENROLMENT

Students' population in the Department currently stands as follows:

Agricultural Economics option	— 22
Agricultural Extension option	— 13
Agribusiness Management	— 117
Mphil Agricultural Economics	— 9
MPhil Sustainable Integrated Development	— 18
PhD Agricultural Economics	— 25
PhD Agricultural Extension	— 5

STAFFING

The Department is still having challenges with staffing. Currently all staff exceed their maximum teaching load and this is likely to affect students intake next academic year if not resolved. The department had to admit only 4 MPhil and 2 PhDs for the last academic year due to lack of staff for supervision. During the year under review, the Department had one temporary staff pending interview by the University Appointment and Promotion Committee.

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Senior Members

Professor	Nil
Associate Professor#	1
Senior Lecturers*	6
Lecturers^	4
Assistant Lecturers	Nil
Research Fellows	Nil
Technical instructors	Nil
Senior Administrative Assistant	1
Cleaner	1
Teaching Assistants	12

#On post-retirement contract

One of the Senior Lecturer is on Sabbatical Leave and one is on Post-Retirement Contract

One on post-retirement contract

EXTENSIONWORK

Fred Nimoh

Mr Nimoh has been appointed as the examination officer for the department in February, 2015

Dadson Awunyo-Vitor

External Examiner, Doctoral Thesis, University of South Africa (UNISA)

External Examiner, MBA and MSc Thesis, Ghana Technology University College, Ghana/
Coventry University, UK

External Examiner, BSc dissertation, University of Professional Studies, Accra

Editorial board member -**Asian Journal of Agriculture and Rural Development**

Editorial board member -**Journal of Agricultural Science published by Canadian Centre for Science and Education, Canada**

Dr Simon C. Fialor

External Examiner i) University of Ghana
 ii) University for Development Studies
 iii) Presbyterian University College, Abetifi.

KNUST representative- Presbyterian University College Agribusiness Program

Team member- USAID-sponsored West Africa ASSESS Program-Commissioned Activity.
June-August 2014

Member of National Accreditation Board panel for evaluation of Agricultural Economics/
Agribusiness programmes at i) University of Ghanaii) Central University College, Miotso
(Chairman)iii) Anglican University College, Nkoranzaiv) Valley View University

Member- National Seed Policy Document (Republic of Ghana)

Member of the University-appointed Committee to consider a fitting memorial for Mr. Paul Victor Obeng (Past Chairman of KNUST Council).

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John-Eudes Andivi Bakang

External Examiner, MPhil Theses, Department of Agricultural Economics and Extension
University of Cape Coast, Cape Coast

Member, Independence Hall Council

College Representative, Non-professorial Member of Academic Board

College Representative, University Library Management Board

College Representative, Students Financial Services Management Board

Member, College Board, CANR

Member, Board of Faculty of Agriculture

He also served on several ad-hoc committees within the college and the Office of the Dean of Students during the year under review.

Maxwell T. Asiamah

Workshop Facilitator;

Chairman, Vacation Training Committee;

Patron, International Association of Students in Agriculture and Related Sciences.

Awards

Dr Kwasi Ohene Yankyera and Dr Robert Aidoo's paper titled "*Food-Away-From Home (FAFH) Expenditure Patterns for Ghanaian Urban Households: effects of Income, Gender and Household Demographics*" won the International award of excellence for Volume 1 of Food Studies: An Interdisciplinary Journal.

DEPARTMENT OF ANIMAL SCIENCE

INTRODUCTION

The Department of Animal Science is one of the 13 Academic Departments that constitute the College of Agriculture and Natural Resources and was established to provide instruction, conduct research and extend knowledge and technology in Animal Science. The Department is located on a 40-hectare plot of land and is about 1 km from the main Faculty of Agriculture. The Department has two Sections and two Units namely, Poultry and Livestock Sections, and Meat Science Unit, Nutrition and Microbiology Laboratories, respectively. The Meat Processing Unit which has the capacity to process 60 metric tons of meat annually is currently undergoing minor repair works from a loan of Thirty-three thousand Five Hundred and Twenty-four Ghana Cedis (GH¢33, 524),. While the Hatchery Unit at the Department has been refurbished completely with the installation of a 5000-egg capacity JAMESWAY incubator and hatcher at GH¢ 170, 000.00, all from the University's internally generated funds. These facilities, in addition to Nutrition and Microbiology Laboratories are used mainly to facilitate students' practical training programmes and provide services for individual animal farmers and the feed/animal industry in Ghana. Due to the installation of a new 340kVA transformer at the Department, the persistent voltage fluctuation which was a major setback to production has been curtailed.

STAFF MEMBERS

Staff members at post during the year under review are:

Senior Lecturer	-	4
• Worlah Yawo Akwetey	-	MSc Head of Department

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- Victoria Attoh- Kotoku, PhD - Dean, Faculty of Agriculture

*Professor	-	4
Professor	-	1
Associate Professor	-	2
+ Senior Lecturer	-	1
Lecturer	-	2
Assistant Research Fellow	-	1

* On contract

+ Part time

MAJOR SERVICE TO THE COMMUNITY

The farms of the Department have served the practical training needs of farmers with the on-hands training model. It operates as well as giving students of both the Faculty of Agriculture and other agricultural institutions the opportunity to appreciate the science that backs efficient animal production and processing.

Students are allotted to Sections of the Department's farm for a 'hands-on' training on raising of poultry and pigs, and processing of milk and meat for a 6-week period during the long vacation.

Several students from many Kindergarten, Primary, Junior and Senior High Schools as well as other sister Universities, such as the University for Development Studies, Tamale and the University of Education, Mampong Campus have visited the various Sections of the Department during the year. High School graduates currently receive internship to equip them with practical skills in animal production, hatchery operations and meat processing.

The Department still operates the model farm established with a grant from FINATRADE Group of Companies where students have continued to have practical experiences of raising broilers and fattening pigs with profit as a motive.

The Department's public-private partnership with Akate Farms and Trading Company Limited, in an effort to increase the production of poultry and poultry products for sale to the University and the surrounding communities continued during the year under review and a dividend of Three Thousand Ghana Cedis (GH¢ 3, 000.00) was paid to the Department of Animal Science as 10% of profit from operations in the previous year.

A new production cycle has begun with 9,000 birds, from which two hundred (200) trays of egg are collected daily. The managers of the project currently donate 3 trays of egg to the coffee room of Senior Members in the Faculty of Agriculture.

Also, the Department has entered into a new public-private partnership with ASPIRE Company from USA to use insect larvae ("akokono") as source of protein for human consumption. Currently, the building to house the project is under construction.

In addition to their teaching and research activities, members of the Department continue to put their expertise to other uses to benefit the community. Some staff in the Department namely, Prof. D.B. Okai, Prof. S.A. Osei, Prof. A. Donkoh, Dr. O.S. Olympio, Dr. M. Boateng and Dr. K. Adomako, have been providing on-station and on-farm training on enhanced

poultry production to farmers in nine regions of Ghana with support provided by the Skills Development Fund (SDF) of the Council for Technical and Vocational Education and Training (COTVET). So far, more than 320 poultry farmers in seven regions have received training in biosecurity, in addition to feed formulation and feeding, and poultry management.

The Department, through Professor E L K. Osafo, has won a grant of One Million and Seventy Two Thousand Seven Hundred and Seventy-two Ghana cedis (GH¢1, 072,772.00) for 'Development of Innovative Project-Based Mode and Modules to train dairy producers and processors in Ghana' from the Council for Technical and Vocational Education Training.

UNDERGRADUATE, POSTGRADUATE PROGRAMMES AND SERVICES RENDERED BY THE DEPARTMENT

The Department represents an amalgamation of scientists from the academic disciplines of Anatomy and Physiology, Ruminant Nutrition, Monogastric Nutrition, Digestive Physiology, Environmental Physiology, Reproductive Physiology, Domestic Animal Behaviour, Animal Breeding and Genetics, Animal Health, Swine Production and Management, Cattle, Sheep and Goat Production, Dairy Technology and Meat Science

The Department has since its establishment continued to play its role in training students of the Faculty of Agriculture in the undergraduate programme leading to the award of the composite BSc Agriculture degree. The Department also hosts the BSc (Dairy and Meat Science and Technology) programme.

During the year under review, the Department offered high-quality and challenging graduate programmes leading to the MSc, MPhil and PhD degrees in areas of specialization such as Animal Nutrition, Animal Breeding and Genetics, Meat Science and Reproductive Physiology.

Seminars, tutorials, field trips and laboratory practical training form important components of the teaching programme. The Department also provides service courses to the School of Veterinary Medicine and two Departments namely, the Department of Biochemistry and Biotechnology and the Department of Agroforestry. The Painting and Sculpture and Physics Departments use the facilities of the Farm for student work.

The Department of Animal Science is currently undertaking a major review of its programmes and, as part of this review, will seek to involve the industry in determining programme priorities.

MAJOR RESEARCH BY DEPARTMENT AND STAFF

In addition to its core mandate of teaching, the Department of Animal Science undertakes scientific research to generate information and technologies for effective planning, utilization and management of resources for the animal industry. Owing to the global shift of focus from basic agriculture to advanced research to ensuring food security to meet the animal protein demand of the ever increasing population, the Department has revised its objectives to include three thematic areas namely, Animal Biotechnology Research, Organic Agriculture Research and Animal Agriculture and Climate Change Research.

The thrust of the Department's research interest is finding ways to increase the productivity of small animal holdings, through efficient and cost effective ways of feeding farm animals

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through the use of non-conventional feed resources as well as the use of genetically improved breeds. The Poultry Research Group continues to collaborate with poultry farmers to identify the potential of the local and breeds of birds that can adapt to and perform well under hot and humid environmental conditions. This strategic research is in anticipation of the effects of climate change on animal production.

Members of the Department collaborate with colleagues in other Departments, Colleges of the University and Research Institutions. These include the Faculties of Pharmacy and Pharmaceutical Sciences, Renewable Natural Resources, the School of Veterinary Medicine, the Colleges of Science and Engineering, and Council for Scientific and Industrial Research. In one of such collaborative efforts with the staff of the Department of Agricultural Engineering, a simplified biogas digester has been constructed at the Department of Animal Science for Students' research using different manure types from different animals. The Department believes such collaboration would help improve the livelihoods of the small holding farmers in a holistic way. As part of the University's mandate of disseminating knowledge to outside persons, research outputs are extended to farmers through workshops and seminars organized by some Senior Members. Collaborations outside the University during the year include a close relationship between the Department and the Ministry of Food and Agriculture.

Members of staff, individually and in collaboration with graduate and undergraduate students, as well as international organizations continued to conduct research in the various fields of animal science. Research and development activities during the period under review, focused on the following areas:

PROF.D.B. OKAI

1. Helminth load and types of helminth in pigs reared at a commercial farm near Apromasi a suburb of Kumasi
2. Comparative analysis of feeds used by some pig farmers in the Ejisu Juaben Municipality in the Ashanti region of Ghana.
3. Assessment of the incidence of worms and worm burden in sows at the livestock section of the department of Animal Science, KNUST- Kumasi.
4. Comparative proximate composition of feeds prepared by some pig famers- Afigya Kwabre- Ashanti Region
5. Comparative study of the degree of worm infestation in cattle raised at Aboabo, Tafo, and at the department of Animal Science, KNUST.
6. Physical changes and microbial profiles of locally processed palm kernel cake stored either in the open or under shade

PROF.S.A. OSEI

1. Effects of dietary fats and oils on the performance of broiler chickens- A review
2. Effects of feed restriction on growth performance of broiler chickens in hot humid climate
3. Dietary lysine in the diets of broiler chickens: A review
4. To determine the effects of calcium and phosphorus on production performance and eggshell quality in caged layers

PROF.(MRS.) C.C.ATUAHENE

1. A review on the effects of methods of debeaking on laying flock.

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2. Causes of mortality among layer poultry chickens: A case study within the Kumasi Metropolis
3. Evaluating the potential edible insect (Palm weevil –*Rhynchophorus phoenicis* Larvae) as alternative protein source for humans.
4. Pododermatitis (Foot pad Dermatitis) a possible concern of the broiler industry in Ghana
5. Assessing the survivability of African Palm weevil (*Rhynchophorus phoenicis*) Adult emergence using different substrates at pupal stage
6. Assessment of deep litter housing system and the effects on layer production

PROF.A.DONKOH

1. Influence of dietary Ginger waste meal on albino rats
2. Influence of varying levels of dried yam peel on the internal organs of laboratory rats.
3. Effects of dietary ginger waste meal (GWM) on the growth performance of albino rats
4. Influence of *Fluerya aestuans* leaf meal on some internal organs of laboratory rat
5. Influence of *Fluerya aestuans* leaf meal on the growth performance of laboratory rats as a model for pigs
6. Effect of quality protein maize (Honampa) on the carcass characteristics and organ weight of broiler chickens
7. Effects of dried yam peel meal on the growth parameter of laboratory rats.

PROF.E.L.K. OSAFO

1. Assessing the trends in the indigenous yoghurt production in the two metropolitan cities, Accra and Kumasi
2. Assessing the chemical composition in- vitro gas production, rate and extent of degradation of 3 browses and 3 grasses
3. Assessing the chemical composition and in –vitro gas production of three grasses and three browses as feed for ruminants.

PROF.A.B. OMOJOLA

1. Soymilk as cow milk replacer in yoghurt manufacture: Effects on textural and sensory evaluation
2. Effects of soymilk as cow milk replacer on the keeping quality of yoghurt
3. The use of chicken intestines as extender in frankfurter sausage
4. Raffia palm weevil larvae (*Rhynchophorus phoenicis*) as a meat replacer in frankfurter-type sausages
5. Effect of ginger juice extract on keeping quality of yoghurt

PROF.P.K. KARIKARI

1. Microbial quality of beef, chevon and offal sold at the Kumasi and Bantama markets
2. The shelf life of drinking yoghurt at room and refrigeration temperatures
3. The effect of different levels of ascorbic acid as preservative of stirred yoghurt.
4. Prospects and constraints of dairying on small-holder cattle farms in the Ejisu-Juaben Municipality.

DR.O.S. OLYMPIO

1. Microsoft excel cash flow budget for a single batch of layers

DR. (MRS.) V. ATTOH-KOTOKU

1. Gastro intestinal parasites in goats slaughtered at the Kumasi abattoir
2. Fruits waste as potential feed for livestock and poultry: A review
3. Fruits waste silage as potential feed for ruminants: A review

DR. B. O. EMIKPE

1. Effects of different cooking methods on heavy metals levels in fresh and processed bush meat
2. Liver Lesions in small ruminants (sheep and goat) slaughtered at the Kumasi abattoir
3. Factors associated with perinatal mortality in some selected pig farms in Ashanti Region
4. Skin lesions of small ruminants at the Kumasi abattoir and Suame slaughter slab
5. Hunting practices and evidence of heavy metals in fresh and processed bush meat in Kumasi, Ghana
6. Prevalence and cost implication of skin lesion in slaughtered cattle at the Kumasi Abattoir, Ghana
7. Pathological conditions of visceral organs of game animals.
8. Fauna of ecto and endoparasites of the wild grasscutter in the Kumasi metropolis.

DR. J. ATAWALNA

1. Small ruminant production in urban households in the Kumasi metropolis
2. Reproductive performance and reproductive health problems of sows in Ejisu Juaben Municipality of the Ashanti Region.
3. Animal Health challenges of Dog breeding in the Kumasi metropolis
4. Challenges of Dog breeding in the Kumasi metropolis

DR. T. OPOKU-AGYEMANG

1. Mange in small ruminants: prevalence and management of the disease in rural households communities in Ejisu-Juaben Municipality

DR. V. BURIMUAH

1. Prevalence of Newcastle disease in Ghana (2009-2014)

DR. FOLITSE

1. Prevalence and financial losses associated with Bovine Bruises in Kumasi Abattoir.
2. Prevalence and trends of Avian Aflatoxicosis Diagnosed at the veterinary services laboratory, Kumasi.

DR. TASIAME

1. Major causes of liver condemnation and associated financial loss at the Kumasi abattoir
2. A survey of the causes of cattle organs and carcass condemnation at the Kumasi abattoir.
3. Dog ecology in Ayeduase North of the Kentinkrono-Ayeduase Township, Kumasi-Ghana.
4. Dog ecology in Ayeduase South of the Kentinkrono-Ayeduase Township, Kumasi-Ghana
5. Major causes of lung condemnation and its economic implications at the Kumasi Abattoir – A retrospective study

DR.AMEMOR

1. Common disease and other factors affecting backyard poultry in Kumasi and its environs

DR.C.ANTWI

1. Assessing the quality of elephant grass silage using starch as an additive
2. Nutritional profile on some selected leguminous forages
3. Nutrient composition of the haulm of four improved cowpea varieties
4. Nutritive value of six leguminous forages
5. The block characteristics of urea- molasses mineral block (ummb) using two different binders

DR.J.A.HAMIDU

1. Egg production and consumption pattern in Ghana- A case study in the Asuogyaman District
2. Egg production and consumption pattern in Ghana- A case study in the Pru District
3. The safety of floor eggs for human consumption
4. Egg production and consumption pattern in Ghana- A case study in the Shai Osudoku District
5. Rate of egg consumption and production- A case study in the Teshie Municipality
6. Determination of Bacteria load on eggs
7. Effects of feed composition on egg product and cost in layer birds
8. World egg consumption profile

DR.K.ADOMAKO

1. Egg production and quality performance of Lohmann Brown Layers.in Ghana
2. Separation of frizzle chicks within the first week of hatch and their pterylosis
3. Effects of genotype and storage duration on egg quality
4. Effects of naked neck and frizzle genes on the proximate composition and amino acid profile of eggs.
5. Gene frequencies of various qualitative traits found in the population of local chicks in Ghana.
6. Performance of local birds carrying various single genes within three ecological zones of Ghana.

DR.M.K.BOATENG

1. Nutritional evaluation of some new maize varieties effects on growth performance and carcass traits of albino rats.
2. Effect of worm load on the hematology of large white weaned pigs
3. Feasibility of feeding commercial diets in swine production in Ghana
4. Effects of inclusion of PKC and different levels of synthetic amino acids (l-lysine) on the growth and carcass characteristics of albino rats
5. The effects of different bedding materials on the growth performance of pre-weaning piglets

MRW.Y.AKWETAY

1. Ground melon seed as extender in meat loaf
2. Using *Sierrathrissa leonensis* in bratwurst
3. Using fresh ripe plantain (*Musa acuminata*) in semi dry fermented beef sausages

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4. Ripe plantain as a substrate in fermented pork sausages
5. Pig stomach as filler-meat in smoked pork sausages
6. Effect of the naked-neck gene on marketability, carcass traits, hematological and serum biochemical indices of cockerels
7. Using mackerel (*Scomberomorus tritor*) and catfish (*Clarias gariepinus*) in frankfurter-type sausages

MR. DEKU

1. Effects of Heat and Ultra violet rays on the quality of milk and yoghurt
2. Evaluating the effects of tapioca and corn starch on yoghurt quality and storage
3. Physico- Chemical properties of yoghurt prepared with graded levels of coconut milk and reconstituted milk
4. Effects of probiotic starter culture on yoghurt starter cultural on yoghurt quality and its acceptability.

PUBLICATIONS

Members of the Department continue to make findings of their research available through several peer reviewed journals, conference and seminar proceedings and technical publications. Details of these can be found in the University's Quality Assurance Bulletin for the year under review.

DEPARTMENT OF CROP AND SOIL SCIENCES

BACKGROUND

The Department of Crop and Soil Sciences is one of the four Departments of the Faculty of Agriculture. The Department provides students with excellent knowledge and practical skills, and with options for specialization in Soil Science, Plant Breeding, Plant Protection and Agronomy. The mission of the Department remains teaching, research and transfer of technology in Agriculture as well as income generation through crop production and consultancy services.

The Department has a Tissue Culture/Plant Biotechnology facility which is being expanded to include molecular genetics work. It has adequately furnished Soil Science, Plant Pathology, Entomology and Soil Microbiology laboratories with modern equipment and tools. There are also Insectary, Plant-houses, Teaching/Research and Model farms with vegetables, cocoa, rubber, citrus, and oil palm. The facilities provide services to other departments in the University. The Model farm can be used for crop production all-year-round because of a drip irrigation facility provided on the farm.

UNDERGRADUATE AND GRADUATE PROGRAMMES

The Department continues to contribute to the running of the composite BSc (Agriculture), BSc (Post-Harvest Technology), BSc (Landscape Design & Management), BSc (Agribusiness Management), BSc (Meat and Dairy Science and Technology) and BSc (Agricultural Biotechnology) degree programmes through a number of courses it offers. Bachelor of Science Agriculture (Crop and Soil Sciences Option) students conduct research in Agronomy/Crop Physiology, Plant Breeding and Genetics, Soil Fertility, Plant Nutrition, Forage Crop Production and Management, Entomology, Plant Pathology, Nematology and Biotechnology/

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Tissue culture for their dissertation in partial fulfillment for their degrees. A four-year BSc (Agricultural Biotechnology) degree programme which is housed in the Department had student population of 45 in the final year of their study. The programme is progressing well. The number of fourth year undergraduate students pursuing the BSc Agriculture (Crop and Soil Sciences option) stood at 97 during the period under review, one of the highest in the Faculty.

Postgraduate studies leading to the award of MPhil and PhD degrees in Agronomy/Crop Physiology, Plant Breeding, Soil Science, Forage Crop Production and Management, Weed Science, Entomology, Plant Pathology, Plant Virology, Nematology and Plant Biotechnology, among others, are offered. Postgraduate students enrolled in the Department during the year under review was 94 with 24 foreign students from Burkina Faso, Ethiopia, Gambia, Liberia, Mali, Niger, Nigeria and Sierra Leone. Of the total enrollment, 25 are PhD students. The Department is privileged to be training foreign and local students leading to MPhil degrees sponsored by Alliance for Green Revolution in Africa (AGRA). Nineteen (19) students of the special four-year PhD programme in Soil Science for foreign and local students, funded by AGRA have graduated as of now. Some students are also being sponsored by West Africa Agricultural Productivity Programme (WAAPP-Gambia, Ghana and Sierra Leone), International Institute of Tropical Agriculture (IITA), USAID, SAPEC-Liberia and Intra-ACP STREAM. Research conducted by the postgraduate students aims at solving basic crop and soil problems as well as building their capacity. During the period under review, 10 students completed their postgraduate studies.

MEMBERS OF STAFF

The Department has 16 academic Senior Members including a new lecturer with PhD in Soil Science (Soil Physics) employed at the beginning of the academic year. The Department has pressing need for Agronomists/Crop Physiologists, Plant Pathologist/Plant Virologist and Plant Biotechnologists to support the programmes in the Faculty, especially, in the Agricultural Biotechnology Programme housed in the Department. However, efforts are being made to employ lecturers in these areas of specialization. During the year under review, one Senior Technician obtained sponsorship abroad to pursue an MPhil degree programme.

The department has 4 Professors, 2 Senior Lecturers and 10 Lecturers.

MAJOR RESEARCH ACTIVITIES

Research activities of Senior Members include the following:

1. **Prof. R.T. Awuah**
 - a. Biological control of blackpod disease of cocoa with a yam *Rhizobacterium*
 - b. Aflatoxins studies
2. **Prof. Richard Akromah**
 - a. Transfer and genetics of fresh seed dormancy in peanuts
 - b. Marker-assisted selection of ACMV-Resistant lines in Cassava.
 - c. Crossability studies in the NERICAS (New Rice for Africa).
 - d. Screening for tomato yellow leaf curl virus resistance in exotic and local tomato germplasm.
 - e. Genetic control of morpho-physiological, histological and biochemical factors of resistance to black pod disease in cocoa (*Theobroma cacao* L.)

- f. Drought tolerance studies in cowpea and maize using morphological and physiological variables
 - g. Screening of rice germplasm for tolerance to salinity
 - h. Phenotypic and molecular characterisation of released and elite sweet potato varieties in Ghana.
3. **Prof. J.V.K. Afun**
- a. Assessment of insecticidal properties of crude ethanolic plant extracts (botanicals) for the management of legume and vegetable pests.
 - b. Identification and management of mealybugs attacking yams in storage.
 - c. Population and damage assessment and management of the tomato fruit borer, *Helicoverpa armigera* (Lepidoptera: Noctuidae).
 - d. Evaluation of false yam (*Ipomoea senegalensis*) extracts for the control of stored product pests.
 - e. Integrated pest management in cocoa storage environment in Ghana.
4. **Prof. J. Sarkodie-Addo**
- a. Bambara groundnut agronomy and environmental responses.
 - b. Soybean Nitrogen fixation.
 - c. Mulching in Cassava production.
5. **Dr. Charles Kwoseh**
- a. Host plant resistance studies of nematodes, fungi and viruses
 - b. Integrated pest/disease management
 - c. Evaluation of phytochemicals/essential oils for plant parasitic nematodes and disease management
 - d. Soil amendments for the management of plant parasitic nematodes
 - e. Seed Pathology
 - f. Soil health – What is the soil biology story?
 - g. Diversity of nematodes in cropping systems
 - h. Diversity of *Colletotrichum* species
 - i. Mycotoxin studies
6. **Mr. Thomas Adjei-Gyapong**
- a. Distribution of macro-nutrients (Fe, Ma, Zn and Cu) in the Ashanti Region.
 - b. Simulating site specific optimal fertilizer recommendation for maize production in Ghana.
 - c. Soil fertility evaluation of selected inland valleys in Ghana.
 - d. Site characterization of farmlands and experimental sites.
7. **Dr. E. A. Osekre**
- a. Pest management using pesticides.
 - b. Storage insect pests' management using botanicals.
 - c. Identification, conservation and utilization of indigenous insects for food and feeds.
 - d. Mitigation strategies for post-harvest losses of maize.
8. **Dr. Nana Ewusi-Mensah**
- a. Enhancing the quality of manure through composting.

- b. Biological nitrogen fixation.
 - c. Biochar management for soil fertility improvement.
9. **Dr. A. Opoku**
- a. Nutrient cycling and balances in crop-livestock systems
 - b. Crop residue and manure management in crop-livestock systems
 - c. Management and adaptation of non-responsive soils to integrated soil fertility management practices
 - d. Use of natural and synthetic nitrification inhibitors to control N leaching
 - e. Appraisal of the sustainability of nutrient management options.
10. **S. Duku (Mrs)**
- a. Integration of forage-legume-grass
 - b. Plant hormones on rooting and sprouting of stem cuttings.
11. **Dr. Alice A. Amoah (Ms)**
- a. Effect of mulching and fertilizer application on seedling growth of cocoa.
 - b. Nursery management and the effect of alternative soil media and seedling age on establishment, growth and yield of Jasmine 85 rice variety.
12. **Dr. E. A. Oyewo**
- a. Some aspects of the biology of *Callosobruchus maculatus* on stored cowpea and its control using some selected botanicals under tropical conditions.
 - b. Effect of Diamondback moth on cabbage and control using different types of insecticides.
 - c. Damage and loss assessment of the red flour beetle, *Tribolium castaneum* (Coleoptera, Tenebrionidae) on seven food media.
13. **Dr. V. Logah**
- a. Integrated soil fertility management under tropical cropping systems
 - b. Soil carbon dynamics and nutrient cycling in ecosystems
 - c. Climate – smart agricultural and food security research
 - d. Phytoremediation of degraded mined lands
14. **Dr. D. Nyadanu**
- a. *In vitro* propagation and conservation of crop cultivars
 - b. Production of virus-free cassava plantlets
 - c. Evaluation of lesser known crop species.
 - d. Genotype by environment interaction and yield stability of food crop
 - e. Evaluation of germplasm/crops using morphological and molecular markers
15. **Dr. H. O. Tuffour**
- a. Soil Physical processes
 - b. Measurement and modelling of water and solute transport in field soil and groundwater systems
 - c. Surface runoff and erosion modelling
 - d. Soil structure and compaction/surface sealing/crusting management
 - e. Spatial variability and site specific soil management

COLLABORATION

The Department continued its collaboration with:

- i. Agribusiness for Sustainable Natural African Plant Products (ASNAPP)
- ii. The International Atomic Energy Agency (IAEA), Vienna, Austria and the
- iii. Biotechnology and Nuclear Agricultural Research Institute (BNARI), Kwabena.
- iv. International Institute of Tropical Agriculture, Ibadan, Nigeria
- v. Soil Research Institute and Crop Research Institute of CSIR, Kumasi.
- vi. Ministry of Food and Agriculture (MOFA), Ghana.

In the year under review, the Department initiated collaboration with:

- i. Alliance for a Green Revolution in Africa (AGRA), Bill Gates Foundation and The Rockefeller Foundation, Nairobi, Kenya in the establishment of Postgraduate in Plant breeding and Seed science Centre.
- ii. United States Department of Agriculture (USDA)
- iii. United States International Development Agency (USAID)
- iv. Intra-ACP Mobility Scheme and training a PhD student from Ethiopia under the Scheme.
- v. Michigan State University in Soil health and Nematology with a number of equipment to enhance studies.
- vi. Root and Tuber Improvement and Marketing Programme in yield assessment of 15 cassava fields.
- vii. Kuapa Kokoo (a local cocoa purchasing Farmer-based Organization) in soil sampling and analyses of 24 cocoa farms to assess the initial soil fertility status for on-farm research in the Western Region of Ghana.
- viii. Ghana Rubber Estate Limited (GREL) to providing advisory service in site evaluation for rubber plantation development in selected areas in the Eastern Region of Ghana.

GRANTS TO THE DEPARTMENT

The Department's various grants to support academic and research activities includes the following:

- i. A third Cohort to train 10 students has also been approved for funding by AGRA at a cost of US\$383,200. Five (5) students each from Liberia and Sierra Leone are benefiting on this Cohort and are being trained in Plant Breeding and Seed Science. A special PhD in Soil Science degree for 20 foreign and local students has also begun in the Department, funded by AGRA at a cost of US\$2,100,000 (on-going).
- ii. A GH¢34,000 for Soil Fertility Management Technologies for Efficient and Profitable Production of cocoyam corms and leaves from the Root and Tuber Crops Improvement and Marketing Project (a GoG/IFAD-sponsored project).
- iii. A US\$21,000 integrated management of onion leaf browning disease project from the Food and Agriculture Budgetary Support (FABS) implemented by the Ministry of Food and Agriculture, Ghana.
- iv. A US\$36,000 collaborative research in soil health with Michigan State University, USA for capacity building.

SERVICE TO THE COMMUNITY

Prof. R.T. Awuah was invited by the 'Partnership for Aflatoxin Control in Africa' (PACA) in to deliver and discuss a lead paper titled 'The Groundnut Industry: Past, Present and Future' at a Regional Workshop on Revamping the Groundnut Value Chains of West Africa through

Aflatoxin Mitigation in Dakar, Senegal. He was also invited to deliver and discuss a keynote speech titled 'Situational Analysis of the Aflatoxin Problem in Ghana' at a stakeholder meeting on innovation platform on aflatoxin management at the FARA Secretariat, Accra.

During several periods in 2015, he reviewed several CIRCLE application materials and African Academy of Sciences (AAS) Junior Fellows nomination materials for the AAS. He also led in aflatoxin awareness creation workshops in the Ashanti, Northern, Upper East and Upper West regions of Ghana.

Prof R. Akromah is the Provost of the College of Agriculture and Natural Resources in August, 2014 and a representative of KNUST on the Academic Board of the Graduate School of Governance and Leadership in Accra which is affiliated to KNUST and Co-ordinator of the AGRA (Alliance for a Green Revolution in Africa) MPhil. Programme in Plant Breeding and Seed Science, which is training students from, Ghana, Liberia and Sierra Leone in West Africa. He continues to serve on the Centre of Specialization Management Committee (COSMAC) at Crop Research Institute (CRI) for the Council of Scientific and Industrial Research (CSIR). A representative of KNUST to the National Accreditation Team to review programme accreditation at University of Cape Coast, University of Ghana, Legon and School of Nuclear and Allied Sciences.

Prof. J. V. K. Afun served as Internal Examiner for Post-graduate Theses at KNUST, a Referee to review application document for promotion to Principal Research Scientist at Cocoa Research Institute of Ghana, Member of Interview panel to appoint Research Scientist (Entomologist) at Cocoa Research Institute of Ghana, Member of Interview panel to appoint Director for Oil Palm Research Institute of the Council for Scientific and Industrial Research, Kade. He also served as Referee to review application document for promotion to Principal Lecturer/Associate Professor from Accra Polytechnic, and Member of the National Fruit Fly Management Committee.

Prof. J. Sarkodie-Addo was promoted to Associated Professor grade this year. He reviews manuscripts for Journal of Science and Technology, Kumasi, and Journal of Ghana Science Association. He is also the Pastor of the Deeper Life. He is the Coordinator of Intra-ACP scholarships in Faculty of Agriculture, Moderator for University College of Agriculture and Environmental Studies, External Examiner for Departments of Agronomy and Horticulture, University for Development Studies and Faculty of Agriculture Education, University of Education. He was also the Chairman of Council of Convocation, KNUST and Member of the University Disciplinary Committee (Senior Members), KNUST. He also served as Interview Panel member for Research Officers, Cocoa Research Institute of Ghana, New Tafo-Akim.

Dr. E. A. Osekre is the Head of the Department. He reviewed papers for JUST, KNUST, Kumasi. He is the College of Agriculture and Natural Resources' Representative on the Journal of Science and Technology, Convener of the Working Group for the Development of

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Post-graduate Programme on the IDL Platform. He also served as Member of the 2014 Exhibition and Research Fair Committee, Editorial Board Member of ARTHROPODS (Journal), and Reviewer for Journal of Stored Products Research. He is the Principal Investigator for the USAID-Feed the Future Innovation Lab for the Reduction of Post-harvest Losses of Maize in Ghana.

Dr. Charles Kwoseh is a moderator of examination questions and marking schemes for the University for Development Studies (UDS). He is also the External Examiner for the School of Graduate Studies and the Department of Agronomy (Leader), UDS, Tamale. Review manuscripts for Crop Protection, JUST, Journal of Ghana Science Society and Agricultural and Food Science. He is a Member of Postgraduate School Board and a Member of Unity Hall council.

Dr. Vincent Logah is the Coordinator of the Soils of Forest Islands in Africa (SOFIA) Research Consortium comprising Imperial College London, KNUST, Ghana, Federal University of Agriculture Abeokuta, Nigeria, and the Environmental Institute for Agricultural Research (INERA), Burkina Faso. He is a member of the Research and Product Development Committee of the Ghana Soil Health Consortium (GSHC) under the auspices of CSIR – Soil Research Institute and the International Institute of Tropical Agriculture (IITA), Nigeria with the prime responsibility of supporting soil health consortia in West Africa to facilitate wider uptake of better adapted integrated soil fertility management practices. He is a technical editor of the Journal of Agronomy, Journal of Plant Sciences, etc. and reviews papers for Archives of Agronomy & Soil Science, Acta Agronomica, etc. He was appointed external assessor of Scientists from Ghana, Nigeria, Egypt and Kenya applying for Fellows of the 2016 African Science Leadership Programme under the auspices of the University of Pretoria, South Africa. He is the Departmental students' practical attachment Coordinator. He is also a member of the Committee for the management of the Greenhouse Facility of the College of Agriculture and Natural Resources located at the Department of Horticulture, KNUST. Dr. Logah is a Fellow of Unity Hall and a Floor Mentor of the Hall.

Mr. T. Adjei-Gyapong is a team member of Participatory Technology Development for Sustainable production of Root and Tuber Crops (Cassava, yam and Cocoyam) in the Ashanti Region – under the MOFA/IFAD Root and Tuber Crops Improvement and marketing programme (RTIMP). Supports training tour of International travel course for students of Iowa State University in Ghana. Sectional Head of the Department of Crop and Soil Sciences Research Farm, Anwomaso. Principal Investigator of a 50,000.00 DKK DANIDA Sponsored Project under the Building Stronger Universities (BSU II-KNUST) “The effect of land use changes on carbon sequestration in the Owabi catchment”.

Team Member of personnel undertaking studies on “The feasibility of sustaining Sustainable Land and Water Management Project (SLWMP) activities through Payment for Environmental Services (PES) Market Mechanism. The project was sponsored by the Ministry of Environment, Science Technology and Information (MESTI). Member of Team working on the implementation of the Ghana Soil Information System (GhaSIS), a sub component of the Africa Soil Information System (AfsIS). Soil suitability assessment of portions of the KNUST Agricultural Research Station, Anwomaso for assorted crops. Enhancing KNUST-Private Partnership in developing the University

Dr. Nana Ewusi-Mensah was an External Examiner and Moderator of three Polytechnics of National Board for Professional and Technician Examinations, Ghana. Supporting COMPRO II (Institutionalization of quality assurance mechanism and dissemination of top quality commercial products to increase crop yields and improve food security of smallholder farmers in sub-Saharan Africa) project implementation. An IITA/KNUST Project. Chairman, management committee for the Faculty of Agriculture Computer Laboratory, Kwame Nkrumah University of Science and Technology, Kumasi. Technical Editor, South Asian Journal of Experimental Biology. Editorial Board Member, International Journal of Plant Physiology and Biochemistry. Academic Journals. Manuscript Reviewer, Journal of Science and Environmental Management. Responsible for marking MCQs in Faculty of Agriculture.

Dr. Andrews Opoku is the Principle investigator of the N2Africa Project on Rehabilitation of Non-Responsive soils in Northern Ghana. He is also the Coordinator of the Research and Product Development sub-committee of the Ghana Soil Health Consortium. He has been the Sectional Head for the Plantation Section and the Head of the Soil Science Laboratory of the Department of Crop and Soil Sciences. He served as an external reviewer for Journal of Agricultural Science (Cambridge).

Dr. D. Nyadanu was appointed as Coordinator for the maize breeding pipeline under the AGRAMSc in Cultivar Development for Africa. The aim of the breeding pipeline is to develop high yielding and drought tolerant varieties of maize for West Africa. Date of Appointment; 17th August, 2015.

DEPARTMENT OF HORTICULTURE

STAFFING

The department has eleven (11) Academic Senior Members, four (4) Non-Academic Staff which comprise two (2) Principal Technicians, two (2) Senior Technician and an Administrative Assistant

COMMUNITY SERVICE

Dr. F. Appiah

Vice Dean, Faculty of Agriculture, KNUST
Head of Department, Department of Horticulture
Vice President of Ghana Institute of Horticulturists
Member, Department of Horticulture Examination Questions Vetting Committee.

Dr. Ben K. B. Banful

Hall Master, Queen's Hall, KNUST
Chairman of Committee for the Development of M.Sc. Programme under NPT/NUFFIC/CANR project.
Member of Committee to Organize the International Conference on use of INRM principles in higher education.
Member, Governing Council of Ghana Institute of Horticulturists
Member, college of Agriculture and Natural Resources Examination Questions Vetting Committee.

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Member, Department of Horticulture
Examination Questions Vetting Committee

Mr. P. Kumah

Reviewed manuscripts for ISHS Acta Horticulture, Notulae Scientia Biologica and International Journal of Agricultural Sciences.
Departmental Coordinator for Distance Learning –MPhil. Post-Harvest Technology programme.
Member, Governing Council of Ghana Institute of Horticulturist.

Dr. B.K. Maaleku

Departmental Seminar coordinator (Regular stream and Distance Learning)
Member, Department of Horticulture Examination Questions Vetting Committee.

P.D. Kaledzi

Honorary Treasurer of Ghana Institute of Horticulturists.

Mrs. Hannah-Victoria Azraku

Continued to serve as the Landscape Consultant to the University
CANR Planning Committee member for 49th Congregation.

Dr. Laura Atuah

Departmental Coordinator for Vacation Training for 1st, 2nd and 3rd Year B.Sc. Agriculture students.
Departmental Exams Officer for Regular stream and Distance Learning-B.Sc. Agric., LDM, PHT and MPhil Post Harvest Technology programmes.
Greenhouse Management Committee Member
Senior Member in charge of production
Member, Governing Council of Ghana Institute of Horticulturists

Mr. P.Y. Adjei

Assessor, World journal of Agricultural Sciences/Journals of Agricultural and crop Research, JACR
Consultant: Horticultural services at Sokoban Kumasi
Intercropping and Horticultural practices of some major crops at Adumasa (Ashanti Akim area)

AGRICULTURAL RESEARCH STATION (ARS)

STAFF

Technical Instructor – One (1)
Senior Technicians – Two (2)

NB: three (3) Senior Staff at the station were transferred to other departments of the Faculty of Agriculture in January, 2016.

- | | | |
|------------------------|---|-------------------|
| • Festus Acheampong | – | Pathology |
| • Oteng Adarkwa Bright | – | Soil Science Lab. |

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- Comfort Ahadzie – Dept. of Horticulture

National Service Personnel (3)

LABOUR

Permanent labour (male – 8, female – 4)

DEVELOPMENTS

- Planting of two thousand one hundred and forty five (2145) oil palm seedlings on field 6 has been completed.
- These nuts were procured from Sumatra Ghana – Kusi, E/R in February, 2014, nursed and transplanted to a 36acre land area in May/June, 2015.
- Arrival of tractors and other farm implements to the station from Las Palmas Food Services for the commencement of their arable crop production project. 500acres of the stations land has been allocated to this project.
- Students from the Faculty of Agriculture and other Faculties vis Law Faculty, Business School and Agric. Engineering with permission and guidance from management staff at the station have acquired farm lands at the station for the cultivation of a variety of arable crops and vegetables for learning and practical purposes.

Since the commencement of this initiative, there has been an increase in the number of interested students in the cultivation of a variety of arable crops and vegetables.

PROJECTSANDVISITS

- The team from the Japan International Research Center for Agricultural Sciences headed by Masakadu YAMADA, have their project ongoing. Soil samples have been brought from Northern part of the country for the irrigation project.
- The Department of Agricultural Engineering has acquired a 25acre land area from a research project on Jatropha.
- Upon completion of his PhD at the station, Dr. Bright Amegashies' project site has been assigned to two foreign students for their Master's programme on soil erosion.
- The Department of Meteorological Science and the Physics Department in their collaboration to construct a meteorological station at the Agric. Research Station has installed an electronic rain gauge in addition to the already installed instruments.
- Prospective level 200 students from the Faculty of Agriculture visited the station for a four week vacation training program in June, 2015.
- The station hosted the practical training of level 400 students on plant protection in March, 2016.
- Through the cassava harvester project, a mini tractor (CABRIO 50HP) with registration number GE 5102-12 has been donated to Prof. Bobabee and has been sent to the Agric. Research Station where the project is sited.

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- A PhD student from the Soil Science Department working on soil loss and crop production under different soil amendments and cropping systems in semi-deciduous forest zone of Ghana has his work ongoing.
- The Kumasi Institute of Tropic Agriculture (KITA) visited the station on a mechanization tour in February.
- Work is ongoing on the Bee Project by an MPhil. Student from the Technology Consultancy Centre.
- Staff from the Fire Station – KNUST regularly visited the station during the dry season to educate staff on the prevention of fire outbreaks.
- Visit to the station by the College Registrar on plans to mount sign/warning posts at vantage points on the stations border to curb encroachment by neighbouring residents.

CHALLENGES

- **OFFICE BUILDING:** Need to speed up the construction of an office building at the station.
- **ENCROACHMENT:** There have been several incidents of encroachments of the stations land by neighboring individuals thus obstructing the progress of projects.

DAIRY/BEEF CATTLE RESEARCH STATION

INTRODUCTION

The Station was established in 1974 by the Department of Animal Science of the Faculty of Agriculture for the purposes of teaching and research. The Station currently stocks cattle, sheep and goats for research purposes. It also runs a 100-doe unit rabbitry for commercial and research purposes. The main fields of research are livestock production and dairy processing.

RESEARCH

The following research programmes were completed at the Station during the academic year under review.

1. Evaluation of graded levels of fish-meal and soybean cake on feed intake, growth rate and carcass yield of growing rabbits.
2. Influence of housing type on reproductive performance of primiparous rabbit does.
3. Influence of management systems on growth and reproduction in N'Dama cattle.
4. Economics of incorporating varying levels of soybean cake and fish meal in the diet of weaner rabbits.
5. A study on the preservation of yoghurt using different levels of sodium benzoate.

The Station's on-going research programmes include the following.

1. Yield and quality of milk produced by smallholder cattle farmers in the Ashanti Region of Ghana: Effects of feed supplementation and milking management.
2. Influence of housing type and feeding management on feed intake, growth rate and reproductive performance of nulliparous female rabbits.

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3. Seasonal effect on reproduction of rabbits in a hot humid environment.
4. Effects of heat and ultraviolet rays on the quality of milk and yoghurt.

TRAINING

The Station offered several undergraduate students the opportunity to train in livestock production and milk processing. Many final year students of this University undertook their final year projects at the Station. A lot of students from the Faculty of Agriculture did their vacation training on the Station in the course of the year under review. The Station received several second cycle students on educational visits in the course of the year.

COMMUNITYSERVICE

The Station continued to train many students and non-students in yoghurt processing during the year. Officers of the Station provided extension services to some livestock farmers in the Kumasi metropolis.

INCOMEGENERATION

About GH¢ 100,000 was generated by the Station in the course of the year. This allowed the Station to continue its research and rehabilitation works.

FACULTY OF RENEWABLE NATURAL RESOURCES

INTRODUCTION

The Faculty of Renewable Natural Resources of the Kwame Nkrumah University of Science and Technology remains a major training ground for medium to high level professionals in the sustainable management and utilization of the nation's renewable natural resources. The Faculty is re-known for its high quality education and impeccable contribution to scientific research in development and preservation of the country's renewable natural resources. The Faculty also conducts development-oriented research towards the improvement of the agricultural and fisheries sectors.

The Faculty reaches out to society to promote and create awareness in the need to sustainably utilize the natural resources without sacrificing the integrity of the environment. The contributions of the Faculty's activities are crucial for the socio-economic development of Ghana and the sub-region. The Faculty achieves its mandate through teaching, research and service to the community. It offers opportunity to students at the tertiary level to acquire the necessary knowledge and experiences that enable them to think critically and to develop the needed leadership competencies to embark on scientific activities that are development-oriented.

The Faculty has five academic Departments namely; Agroforestry, Fisheries and Watershed Management, Silviculture and Forest Management, Wildlife and Range Management and Wood Science and Technology. The Faculty offers degrees at BSc, MSc, MPhil and PhD levels in all its five Departments. The faculty also accommodates the offices of the Provost of the College of Agriculture and Natural Resources (CANR) and remains a focal contact for visitors to the CANR.

FACULTY ADMINISTRATION

The Faculty's Central administration consists of the following:

Dean	-	Prof. S. Amisah, PhD
Principal Administrative Assistant	-	Mrs Dora Mensah

DEPARTMENTS AND HEADS

There are five Departments headed by the following persons:

Dr. (Mrs) Olivia Agbenyega	Head, Department of Agroforestry
Dr. Daniel Adjei-Boateng	Head, Department of Fisheries and Watershed Management
Dr. Emmanuel Acheampong	Head, Department of Silviculture and Forest Management
Dr. Emmanuel Danquah	Head, Department of Wildlife and Range Management
Prof. Charles Antwi-Boasiako	Head, Department of Wood Science and Technology

STAFF STRENGTH

The Faculty consists of thirty (30) permanent teaching staff. They are made up of Two (2) Full Professors **and four (4) Associate Professors, ten (10) Senior Lecturers, thirteen (13) Lecturers and one (1) Assistant Research Fellow.** The Faculty runs an additional BSc programme in Aquaculture and Water Resources Management in response to a national demand for experts in that sector and is currently in its fourth year.

STUDENT POPULATION

The Faculty has an undergraduate student population of about Eight hundred and thirteen (813) and about One hundred and eight (108) postgraduate students. The Faculty is working towards achieving a student gender balance of 50:50 populations.

FUNDING OF RESEARCH ACTIVITIES

The Faculty continues to carry on various research projects. New projects are domiciled in the departments including those sponsored by USAID and DANIDA. Others are presented in the reports of the various departments.

TEACHING AND RESEARCH ACTIVITIES

The Faculty continues to tend a teak plantation on the KNUST land at Kwamo near Ejisu. Over 20,000 teak trees have been planted and are doing well. The Faculty is in the process of finalising the establishment of a Modern Integrated Fish Farm at the Faculty Demonstration Farm to conduct training programmes for fish farmers, and also run short courses for professionals to update their skills. Research on Tilapia strains in Ghana are on-going at the Faculty Farm with sponsorship from USAID/ Virginia Tech and Purdue Universities.

INTRODUCTION OF NEW PROGRAMMES

The introduction of new undergraduate and graduate programmes in response to changing socioeconomic needs of the country has started. The details are provided under the respective departments as follows:

Fisheries and Watershed Management

The Department of Fisheries and Watershed Management started a BSc programme in the Aquaculture and Water Resources Management and it is in its Fourth Year. The Department is also in the process of introducing a taught plus research programme in M.Sc. (Aquaculture) to commence as soon as the various authorizations and consents have been sought.

Wildlife and Range Management

The Department has written a draft to run B.Sc. Degree Programme in Conservation and Wildlife Management. It is undergoing reviews prior to implementation.

Wood Science and Technology

The Department has drawn two proposals to run the following undergraduate programmes as soon as authorization have been granted.

- i) B.Sc. Wood Production Engineering
- ii) B.Sc. Furniture Design Technology.

Reviews of the programmes are in progress.

Agroforestry

The Department is in the process of writing proposals for the introduction of Graduate programmes and professional training courses in Agroforestry.

SERVICE TO THE COMMUNITY

The Faculty continues to offer professional advice to the Ghana Forestry Commission. As a scientific authority, the Faculty offers expert advice to the Ghana Timber and Sawmillers Association and the Forestry Commission (Wildlife Division) on Convention on International Trade of Endangered Species (CITES) issues. The Department of Fisheries and Watershed Management remains a national central hub for information dissemination and consultation by the general public on matters relating to fish production in captivity (fish farming).

DEPARTMENT OF AGROFORESTRY

INTRODUCTION

The Department of Agroforestry is one of the five Departments of the Faculty of Renewable Natural Resources providing support to FRNR in the teaching of undergraduate courses in Soil Science, Technical Communication, Agroforestry, Agriculture, Natural Resources Extension and Economics, Social and Urban Forestry. The Agroforestry option in BSc Natural Resources Management Programme continues to be attractive to students. The Department's graduate programmes continues to attract students. In the year under review MPhil/PhD programmes have been registered.

ACADEMIC STAFF

The Department has five full time members currently at post with one on sabbatical leave. Following requests from other Departments and Faculties with the College, some members of the Department provide service lectures.

RESEARCH

The academic Staff in collaboration with other colleagues and graduate students continued to conduct research in the Agroforestry, Natural Resources and the Environment.

Dr. (Mrs) Olivia Agbenyega

- Socio-economic Assessments of Agroforestry systems
- Gender mainstreaming in natural resources management
- Participatory approaches to natural resources management
- Environmental Education with basic schools in Kumasi

Dr. Evans Dawoe

- Nutrient Management in shaded cocoa systems
- Agrarian Communication Network and Consequences for Agroforestry

Dr. Rex Barnes

- Climate Change effects on Vegetation Distribution, Composition and Increment in Different riparian Ecosystems of the Ghanaian Northern Savanna.
- Optimizing Productivity and Perennial Intercrop Diversity Tradeoffs in West and Central African Cocoa farms.
- Effects of pesticides on quality of surface and ground water in agricultural and forest land uses in Akomadan in Offinso District.
- A comparative study on public perception on climate change in urban and rural communities in Ghana.

Community Service

Academic staff of the Department continue to offer their services both to Local and International Institutions.

Dr. (Mrs) Olivia Agbenyega is a technical team member on the Ministry of Food and Agriculture (MOFA), Root and Tuber Improvement and Marketing Programme (RTIMP), Global Environmental Facility (GEF)/promoting a Value Chain Approach to Climate Change Adaptation in Agriculture in Ghana (ProVACCA) collaboration. She is the facilitator on the collaboration with The Energy Center and Basic Schools in Kumasi on Environmental Education and Tree Planting.

Dr. Victor Rex Barnes is a resource person and a facilitator on Agroforestry Practices to Enhance Resource-poor Livelihoods Project being implemented in Fiapre, Dumasua and Ayakomaso communities around Tain II Forest Reserve by FRNR, CANR in collaboration with University of Guelph with support from the CIDA. He is also a member of the Ashanti Regional Disaster Management Committee of the National Disaster Management Organization. Dr. Barnes also a resource person (Ecologist) for FSC/Kumasi Wood Cluster Association Forest Certification Project to Identify High Conservation Values in Six Timber Utilization Contract Forest Reserves in Ghana, and a member of National Inter-Ministerial Pesticides Technical Committee of the Environmental Protection Agency, Ministry of Environment and Science. He is also serving as a member of working group on Pesticide Residues under CODEX a joint body formed by World Health Organization and Food and Agriculture Organization of the United Nation for the protection of health of consumers and ensure fair practices in international food trade.

Dr. Evans Dawoe served as reviewer of Plant Biosystem, Journal of Soil Science and Environmental Management and Journal of Agric Extension and Rural Development.

Dr. A. Adutwum Abenyewa is a Convener/Facilitator- AGRA-DANIDA Agricultural Value Chain Mentorship Project at Tamale, Bimbilla and Yendi and is also involved in Training of Farmers and MOFA Staff on Integrated soil fertility and integrated pest management on yam in the Northern and Upper East Regions. He is a member of Education Committee of S.D.A. Church at Atwima Koforidua, Atwima Nwabiagya District in Ashanti Region.

COLLABORATION

The Department continues to collaborate with local and International Institutions in enhancing teaching and research activities of academic staff and students. In collaboration with University of Guelph, members continue to provide support to the Ghana – Canada APERL Project funded by CIDA. The Project seeks to enhance resource poor livelihood using Agroforestry technologies. In addition, the APERL Project has provided the Department a state of the art Plant and Soil Analysis Laboratory, trained two laboratory technicians and also provide internship training at University of Guelph for MSc/MPhil Agroforestry students. The Department is collaborating with the Energy Center of the College of Engineering on Biofuels and also with the United Nations Environmental Programme (UNEP) on management of invasive Alien Plant species in Africa.

The Department is also in collaboration with The Energy Center and Basic Schools in Kumasi on Environmental Education and Tree Planting.

The Department is collaborating with the Ministry of Food and Agriculture (MOFA), Root and Tuber Improvement and Marketing Programme (RTIMP), Global Environmental Facility (GEF)/ Promoting a Value Chain Approach to Climate Change Adaptation in Agriculture in Ghana (ProVACCA).

The Department is collaborating with the Kumasi Centre for Collaborative Research (KCCR) in their socio-economic studies in Tropical Medicine Human Behavior as determinants for coronaviral zoonoses. Dr. (Mrs.) Olivia Agbenyega is the principal investigator.

The Department through Dr. Rex Barnes is collaborating with Universite Felix Houphouet Biogny (HFHB) de Cocody, Cote D'ivoire and University of Bonn/Rostock Under WASCAL Project, and also in collaboration with CORAF/L'*Institut de Recherche Agricole pour le Development* (IRAD) Yaounde, Cameroun/The Word Bank under Optimizing productivity and Perennial Intercrop Diversity Tradeoffs in West Africa and Central African Cocoa Farms Project.

The Department through Dr. Evans K. Dawoe is collaborating with University of Toronto, Canada researching into Social Networks and Natural Resources Management.

Ms Jennifer Ama Saah Konadu, a graduate student of the Department has obtained a second price award in the Third National Continental Essay Competition held in 2016 after her write up on “How standards contribute to women’s empowerment and development.”

PUBLICATIONS/2015/2016

Details of these can be found in the University’s Quality Assurance Bulletin for the year under review.

AVAILABLE FACILITIES FOR RESEARCH

- **Agroforestry Research Farm**
- **Analytic Laboratory with State of the Art Equipment**

Equipment include: Sulphur Determinator, LECO N2 Analyser, Centrifuge, Chemistry Analyser

DEPARTMENT OF FISHERIES AND WATERSHED MANAGEMENT

INTRODUCTION

The Department has a mandate to train students and personnel for fisheries management, aquaculture, watersheds and wetlands management to facilitate sustainable utilization and management of fisheries and aquatic resources.

STAFFING

The staffing situation has improved considerably over the years with nine (9) academic staff and three Technical and administrative staffs.

TEACHING (Undergraduate and Graduate Programmes)

The Department continues to effectively teach the composite BSc (Natural Resources Management) degree programme through a number of courses it offers and also service other departments in the Faculties of Agriculture and Engineering. Students offering the Fisheries and Watershed Management option stood at 23 and 16 for the third and fourth years respectively during the year under review.

In the 2012/2013 academic year, the Department introduced a new four-year BSc programme in Aquaculture and Water Resources Management in response to a growing demand for more practically-oriented personnel and professionals in aquaculture and water resources management for Ghana and the sub-region. The first cohort of 14 students is graduating this year. The curriculum of the B.Sc. Aquaculture and Water Resources Management programme was reviewed as part of efforts to inculcate the concerns of industry, students and improve practical training.

Undergraduate student research topics are largely centered on Fish Farming, Fish Nutrition, Freshwater Ecology, Aquatic Pollution, Effects of Aquatic Habitat Modification, Watershed Management, prawn fisheries and alternative Sustainable Livelihoods.

The Department continues to attract graduate students (MPhil and PhD degrees). The year under review witnessed the introduction of taught courses for all graduate students in the Department and the appointment of a Graduate Coordinator to supervise graduate studies in the Department.

The number of graduate students enrolled in the Department during the year under review was 8. Graduate research is mainly focused on Aquaculture, Aquatic Ecology, Aquatic Toxicology, Climate change and impacts on livelihoods, Watershed Management.

The Department through its collaborations has acquired some research materials and equipment to improve students training and research. Some of the research materials and equipment are:

- Container-based recirculation system for nutritional research

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- Construction of 15 additional ponds (150m²) for student research
- Acquisition of a foundation stock for tilapia hatchery
- Khedahl machine for protein analysis
- Soxhlet set for fat analysis
- Water quality kit for pond and ground water analysis

FISH PRODUCTION (INCOME GENERATION)

The Department has an active fish farm, where students learn different aspects of aquaculture and use the facilities for their projects. The department has also been producing tilapia for sale. Production has been modest and students and teaching assistants are gaining a lot of practical experience in pond management, culture operations and marketing of tilapia. During the year under review the department generated Gh¢3,000 every quarter to support student research, field activities and maintain the ponds.

RESEARCH ACTIVITIES

Research activities in the Department are focused in the following areas:

- Development of fish feeds using agro-by-products
- Enhancing the delivery of farm-made feeds in the production of tilapia
- Establishment of broodstock for tilapia fingerling production at the Department fish farm
- Development of a hatchery protocol for the breeding and larviculture of the freshwater prawn *Macrobrachium vollenhovenii*
- Assessment of aquaculture agriculture integration systems

AWARDS AND RESEARCH GRANT

The Department has been awarded number of research grants from local and international institutions. During the year under review the Department was awarded the following:

- The Best National Pond Farm in 2015 at the 31st Farmers Day Awards held in Bolgatanga on 4th December 2015.
- AUSAID grant of AU\$59,740 to conduct fish growth trials in small cages on three reservoirs in the Northern Region.
- KNUST research grant of GHC 10,000 for preliminary studies on the breeding and larviculture of the freshwater prawn *Macrobrachium vollenhovenii*

Meanwhile the Department is undertaking the following funded research projects:

- The Outreach Project 2014-2015 under the Growth and Employment Platform (GEP) of Building Stronger Universities (BSU) programme between KNUST and DTU Aqua funded by DANIDA
- “Sustainable Fish Feed Development in Ghana” with DTU Aqua, Denmark as its Northern partner funded by DANIDA
- USAID/ AquaFish Innovation Lab project, **enhancing** the nutritional value of tilapia for human health, in collaboration with University of Arkansas at Pine Bluff, USA.

DEPARTMENT OF SILVICULTURE AND FOREST MANAGEMENT

INTRODUCTION

The mission of the Department of Silviculture and Forest Management is to promote, through teaching and research, knowledge relating to the creation and management of forest resources.

Its objectives are to:

- train professional foresters through undergraduate and postgraduate programmes
- conduct quality research into forestry and its allied sciences
- carry out extension, consultancy services and other income generating activities.

PROGRAMMES OFFERED BY THE DEPARTMENT

The Department provides opportunity for a specialization in Silviculture and Forest Management in the BSc. (Nat. Res. Mgt) degree offered by the Faculty of Renewable Natural Resources.

The Department offers the following postgraduate programmes:

- 2-Year taught and research MPhil programme in Natural Resource and Environmental Governance
- Research Degrees: MPhil and PhD in Silviculture and Forest Management

STAFF

At present there are seven full-time senior members, one post retirement part-time senior member and four supporting staff at post.

STUDENT POPULATION

The student population is made up of 137 undergraduates (third and final year students) and 83 postgraduates.

DEPARTMENT PLANTATION PROJECT

The Department is currently establishing *Cassia Siamea* woodlot at Kwamo. So far, we have established 18 acres of Cassia woodlot and we plan to expand the acreage every year. The Department is also establishing Teak plantations at the same site for the Faculty of Renewable Natural Resources. Thirty (30) acres have already been established and we plan to add 5 more acres this year making a total of 35 acres of Teak plantation.

DEPARTMENT RESEARCH WORK

The Department's research programme is organized around the following thematic areas:

THEMATIC AREA	RESEARCH ISSUES	LEAD SCIENTISTS
Forest governance and livelihoods	Good/responsible forest governance	Dr. Emmanuel Acheampong Mrs. Joana Beulah Echeruo
	Policy analysis	
	Stakeholder roles in forest management	
	Small and medium scale forest business management	
	Education, extension and good governance	
	Spatial knowledge management in forest fringe communities	
	Indigenous knowledge and livelihoods	
	Sustainable energy and livelihoods	
	Forest conflicts in the forest zone of Ghana	
Biodiversity and forest health	Invasive species	Dr. P. D. Kumapley Dr. Dompkeh
	Biodiversity (conservation, assessment, enhancement, etc)	
	Forest genetics	
	Tree protection (Forest pathology, entomology)	
Natural forest management and plantation development	Sustainable harvesting systems	Prof. Boateng Kyereh
	Logging impacts on vegetation and soils	Dr. Winston Asante
	Post logging regeneration	Dr. K. A. Nkyi
	Alien species invasion of forest reserves in Ghana	
	Plantation Silviculture	
	Sustainable energy (Charcoal production firewood, biofuel)	
	Tree improvement	

Climate change and land use	Climate change and biodiversity	Dr. Winston Asante
	Climate change and livelihoods	Dr. Emmanuel Acheampong
	Climate smart agriculture	
	Adaptation to climate change	Prof. Boateng Kyereh
	Climate change mitigation	Ms. Veronica Nana Ama Asare Mrs. Joana Beulah Echeruo

Specific research activities of academic staff are as follows:

Dr. Emmanuel Acheampong:

- Supranational Forest Governance initiatives (FLEGT-VPA and FSC certification) and Environmental Justice
- Access and exclusion along the charcoal commodity chain in Ghana
- Forest-related livelihoods and forest governance in the high forest zone of Ghana.
- Productivity and perennial intercrop diversity tradeoffs in cocoa farms in Ghana.
- Socio-economic implications of industrial biofuel plantations in Ghana.
- An assessment of the feasibility of environmental pollution risks insurance policy for small -scale gold mining communities in Ghana.
- Governance issues affecting mangroves conservation at the Ada estuary in the Greater Accra Region of Ghana.

Prof. Boateng Kyereh:

- Forest regeneration after logging in the moist semi-deciduous forest zone of Ghana
- Spatial knowledge management in forest fringe communities: case study of globally significant biodiversity areas in the Ghanaian high forest zone.
- Alien species invasion of forest reserves in Ghana
- Forest conflicts in the forest zone of Ghana
- Climate change and land-use in West Africa
- Indigenous ecological knowledge of on-farm tree management:

Dr. K.A. Nkyi:

- Forest Plantation Best Practices.
This research is examining the technical and socio-economic aspects of plantation forestry in Ghana with the aim of identifying best practices for plantation development. Specific studies under this research are examining (i) the effect of different plantation development models on local people's livelihoods (ii) species' responses to different nursery practices (iii) challenges of tree tending under expanded plantation programmes in the country.

Dr. P. D. Kumapley:

- Charcoal production and sale as part of the bigger environmental goods and services debate.
- The dwindling resource base for charcoal production, role in forest degradation and potentials of charcoal production as a contributor to global warming.

Dr. Winston Asante:

- Management of shade trees in smallholder cocoa farms: implications for carbon stocks, tree diversity and forest definition within the cocoa landscape of Ghana
- Decision support system for climate change adaptation in smallholder cocoa systems
- Towards a sustainable mangrove exploitation and conservation: A look at governance issues
- Smallholder cocoa intensification, productivity and implications for GHG budget in Ghana
- Exploring the potential of climate change communication in smallholder farming systems for effective adaptation
- On-farm biomass management and implications for soil organic carbon dynamics in annual and perennial cropping systems
- Landuse dynamics and carbon stocks variation associated with cocoa and oil palm cultivation in the High Forest Zone of Ghana

DEPARTMENT RESEARCH PROJECT

Access and exclusion along the charcoal commodity chain in Ghana (AX) project

The Department is currently implementing the “Access and exclusion along the charcoal commodity chain in Ghana (AX) project,” funded by DANIDA with a total grant of DKK 8,876,494 over a period of 5 years. The Project is a collaboration between the Department of Food and Resource Economics of the University of Copenhagen, Institute of African Studies of the University of Ghana, Department of Silviculture and Forest Management of KNUST and Tropenbos International Ghana. Three PhD students are being trained under the Project, two in KNUST and one in the University of Ghana. The Project will also support the fieldwork of a number of MSc and MPhil students in both KNUST and University of Ghana. The Principal Investigators of the Project in KNUST are Prof. Boateng Kyereh and Dr. Emmanuel Acheampong. The AX Project examines how each set of actors along Ghana’s charcoal chain gain or maintain access to benefits.

INSTITUTIONAL COLLABORATION

The Department collaborated with key forest sector institutions and overseas universities on various development and research projects in the country. Senior members who participated on such projects and the roles they played are listed below.

Dr Emmanuel Acheampong:

- Member of project team/Principal Investigator - Access and exclusion along the charcoal commodity chain in Ghana (AX) project. Collaboration between University of Copenhagen, University of Ghana, KNUST and Tropenbos International Ghana. Funded by DANIDA.
- Member of project team, “Green Leaders – Scholarship Program for Commonwealth Forests”. This is a collaboration between University of British Columbia Faculty of Forestry, Canada and Department of Silviculture and Forest Management, KNUST.
- Member of Project Team, “Optimizing productivity and perennial intercrop diversity tradeoffs in West and Central African cocoa farms (Tradeoffs in Cocoa Project)”. Collaboration between research institutions in Cameroon, Cote D’Ivoire and Ghana.
- Local supervisor of two PhD students, one from the University of East Anglia, UK, working on Cocoa Certification in Ghana and the other from Howard University, US, working on Gender and Large-Scale Land Acquisitions in Ghana.

Prof. Boateng Kyereh:

- Member, scientific coordinating team of Tropenbos International Ghana projects. Responsible for the scientific direction and quality of Tropenbos supported research projects in the country.
- Member, working group on Small and Medium Forest Enterprises Development in Ghana (Implementing Agency: Tropenbos International)
- Local supervisor of two PhD students of Wageningen University/Research Centre and Amsterdam University, both in the Netherlands. The students' research topics are (i) Scenario analysis of sustainable forest management in Ghana (ii) Participatory spatial knowledge management and knowledge brokering in multi-level governance: mechanisms for community empowerment in Ghana's high forest zone.
- Member, Network of MSc European Forestry Erasmus Mundus Programme, with focal point at School of Forest Sciences, University of Eastern Finland
- Member, project technical committee for advancing REDD+ in Ghana: Preparation of REDD+ pilot schemes in off-reserve forests and agro forests. Members of the committee were drawn from the Forestry Commission, FoRIG, KNUST and Bern University of Applied Sciences, Switzerland.

SERVICETO COMMUNITY

Dr. F. Acheampong:

Ghana. Organized by Ghana Integrity Initiative, Accra, 02 April 2015.

- Resource person ELECTION VBA and Forest Governance Media Training Workshop

17 July 2014

- IBO Examiner (Environmental Systems and Society), International Baccalaureate Diploma Programme, International Baccalaureate Organization (IBO), Cardiff, UK.

Prof. Boateng Kyereh:

- Coordinator of the FRNR Forest Plantation Project
- Member, project management team of the European Union Supported Project on Developing Alternatives for Illegal Chainsaw Lumbering through Multi-stakeholder Dialogue in Ghana and Guyana. (Implementing Agency: Tropenbos International)
- Member, forest connect working group. An initiative of the International Institute of Environment and Development (IIED) and FAO that seeks to reduce poverty by linking small and medium forest enterprises with markets and service providers.

DEPARTMENT OF WILDLIFE AND RANGE MANAGEMENT

INTRODUCTION

The Department continued to offer courses leading to the award of BSc Natural Resources Management, MPhil and PhD in Wildlife and Range Management degrees. Plans are underway to diversify the graduate and postgraduate degree programmes offered by the Department in order to remain relevant in today's world of emerging oil and gas and also to start a taught Masters Programme. The Department also houses the MSc programme in GIS for Natural Resources Management, collaboration between KNUST and ITC, Enschede, The Netherlands.

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The Department furthermore operates a Grasscutter and Rabbit Research Facility at the FRNR farm which serves as a Field Laboratory for BSc and Postgraduate students in the Department. There are currently 18 graduate students in the Department with 4 pursuing PhD degrees.

MEMBERS OF STAFF

The department has 10 academic and technical staff which includes a professor, an associate professor, a senior lecturer, a lecturer on study leave, 2 part-time lecturers, an assistant research fellow, a senior field technician, a senior technician, a principal laboratory technician and 1 senior administrative assistant.

MAJOR SERVICE TO THE COMMUNITY

Members of staff continued to offer their services to many national and international agencies

Dr. Emmanuel Danquah

NATIONAL

Assessor - National Accreditation Board of Ghana (November 2015)

External Examiner - University of Energy and Natural Resources (UENR), Sunyani
(November 2015)

University of Development Studies (UDS), Tamale
(November 2015)

External Assessor - Senior Lecturer/Senior Research Fellow Promotions

University of Cape Coast (November 2015)

University of Development Studies (March 2015)

Council for Scientific and Industrial Research (March 2015)

National Committee Member - Man and Biosphere (MAB) Committee of Ghana
(May 2014 till date)

INTERNATIONAL

Collaborator - Ecosystems Lab, University of Oxford (October 2014 till date)

Contributing Member – African Elephant Specialist Group - African Elephant Database
(December 2013)

Journal Reviewer - African Journal of Ecology, Pachyderm, AMBIO - A Journal of the Human Environment, International Journal of Biodiversity and Conservation and Journal of Threatened Taxa

Membership of International Professional Bodies

- Member: American Society of Mammalogists (ASM)
- Member: University of Michigan African Presidential Scholar (UMAPS)
- Member: IUCN World Commission on Protected Areas (WCPA)
- Member: IUCN SSC African Elephant Specialist Group (AfESG)
- Member: IUCN Biodiversity and Protected Areas Management (BIOPAMA)
- Member: Society for Conservation Biology (SCB)
- Fellow: University of Michigan Presidential Scholar

SCIENTIFIC PUBLICATIONS

Details of research publications, book chapters, conferences, seminars and workshop proceedings can be found in the University's Quality Assurance Bulletin for the year under review.

COLLABORATIONS AND MAJOR RESEARCH

Dr. Emmanuel Danquah

May 2013–Present: High Conservation Value (HCV) assessments of Oil Palm and Rubber Concessions. This is a series of research which focuses on independent HCV assessments of proposed oil palm and rubber development in various concessions in Ghana and Nigeria. Concession areas include Wilmar's Biase Oilpalm Plantations in Cross River State, Nigeria; Presco's Oilpalm Plantations in Edo State, Nigeria; Okomu's Oilpalm Plantations in Edo State, Nigeria and Ghana Rubber Estate Limited (GREL's) Oilpalm Plantations in Awudua, Ghana. These assessments are ongoing and conducted by Proforest, UK, using a team of local and international experts. The research details the HCVs that are identified in the proposed concession areas and provides recommendations for their effective management, monitoring and maintenance.

October 2013–September 2015: Biodiversity assessments and inventory of several wildlife, forest and community reserves. This research comprised of a series of biological surveys of some of Ghana's protected areas and community forests, including Bia Biosphere Reserve, Krokosua Hills Forest Reserve, Kogyae Strict Nature Reserve, Ghana Kakum Conservation Area and Xavi Community Ecotourism Forest. The research was conducted with the support of the Forestry Commission, using a team of local and international experts. The research aimed at providing the necessary biodiversity baseline data to serve as a basis for monitoring and evaluation of the reserves. The research also detailed species of conservation concern and provided recommendations for their effective management and maintenance.

MAJOR AWARDS

- 2014: SAP-SPDC Award: IUFRO World Congress, Salt Lake City, Utah, USA
- 2014: Best Poster Award (Division 6) – IUFRO World Congress, Salt Lake City, Utah, USA
- 2012: US Fish and Wildlife Service Research Grant AFE-0779 (US\$44,390.00). Red hot pepper solution for crop raiding elephants around Bia Conservation Area, Ghana.

DEPARTMENT OF WOOD SCIENCE & TECHNOLOGY

TEACHING

The Department provides support to the Faculty (FRNR) in the teaching of several Undergraduate Courses including Basic Genetics, Pathology and Microbiology, Environmental Physiology Forest Botany and General Entomology. The Department also undertakes Postgraduate Programmes in MSc., MPhil. and PhD in Wood Science and Technology, Timber Engineering, Furniture Design and Production.

STAFF

The department has 8 members of staff; which includes 4 academic senior members, 2 senior technicians, an administrative assistant and a driver.

MAJORRESEARCH

Prof. Charles Antwi-Boasiako

1. Comparative Wood Anatomy of Primary and Secondary. (e.g. Lesser-Known and Lesser-Utilized) Timber Species
2. Microbiology and Pathology of forest timber/wood species: The use of different strains of micro-organisms (e.g. decay-fungi) in natural durability and Biotechnology of decay of Secondary and related woods using Field / Graveyard and Laboratory tests.
3. Preservative-treatment of solid Wood and Wood Composite laminates
4. Identification, Characterization and Assessment of Extractives as 'Natural Preservatives' in Wood protection.
5. Propagation, Chemo-mechanical Properties, and Utilization of Non-Timber Forest Plant Species (bamboo, rattan, Rubberwood, *Borassus aethopium* and *Moringa oleifera*).
6. Forest Botany and Systematics.
7. Wood Residue Utilization, Biomass/Wood Energy Technology.
8. Health and Safety in the Workplace/ Wood Industry (Ergonomics).
9. Plant/tannin adhesive formulation.

Mr. Jonny Osei Kofi

1. Microbiological applications in wood preservation.
2. Investigations into non-timber industrial materials as supplements to traditional timber species.
3. Bamboo anatomy and its influence and response to preservative methods.
4. Bamboo preservation with candidate plant extracts.
5. Local oil/fat based plant products as potential water repellent materials for bamboo products.
6. Strength properties of laminated bamboo composites for structural applications.
7. Studies on *Borassus aethiopium* as a potential commercially-viable constructional material.
8. Investigation into plants with high yielding tannin production and optimum use of harvested residual materials.

Prof. K. Frimpong-Mensah

1. Forest Policy on Wood Residue Utilization in the timber Industry.
2. Identification of durable Lesser Utilized Species for Construction (Bridges, Timber Frame Houses).
3. Sawing Accuracy of Stellite-tipped Saws.
4. Surfacing and finishing of Wood.
5. Furniture Design for Interior Decoration.
6. Wood Packaging material requirements for the International Plant Protection Convention (ISPM 15).
7. Solid timber waste utilization for briquettes and biomass energy.
8. Remnant trees on cocoa farms.

Dr. K. A. Afrifah

1. Biodegradable and compostable wood plastic composites (WPCs). WPC properties and applications in construction, automobile and packaging industries.

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2. Optimization of formulations and processing variables of composites with design of experiments (DOE).
3. Modification of the physico-mechanical properties of bio-based thermoplastic polymers.
4. Sustainable furniture production. Design, surfacing, finishing and construction of decorative and school furniture pieces with lesser utilized timber species.
5. Development of timber drying techniques for small scale furniture producers.
6. Sustainable packaging systems, life cycle assessment, packaging materials (plastics and lesser utilized timber species), packaging waste scenarios, biodegradation and composition stability.
7. Food Packaging. Food product/package compatibility and interaction, high barrier packaging and modified atmosphere packaging.

SERVICETO COMMUNITY

1. Members of the Department provide support to the FRNR/FCGE/HSB project between Ghana and Switzerland.
2. The initial protocols for the development of a formaldehyde-free adhesive production project in Ghana with Bern University of Applied Sciences, Biel, Switzerland has been discussed. The Kumasi Glue Factory has accepted the role of an industrial partner in this research and production project.
3. A member also participates actively in the structuring and functioning of the Centre for Disability and Rehabilitation Studies (CEDRES) of the School of Medical Sciences. Other services are as follow:
4. A member is the Deputy Chief of Staff (2015 to date)

Prof. C. Antwi-Boasiako

The **Head of Department:** Supervision of the Administrative and Academic Staff and students. Provision of chemicals and equipment for Chemical Laboratory and Wood workshop. The first and current Secretary of the Moringa Association of Ghana (MAG).

- a. **Patron:** Renewable Natural Resources Students Association (RENARSA) and RENARSA Christian Fellowship (RCF), AROCHA, KNUST
- b. **Member and Secretary:** The International Moringa Association (IMA) and Moringa Association of Ghana (MAG) respectively.
- c. **Resource person and Facilitator,**Public Teachings & Practical Demonstrations in mushroom cultivation, snail-rearing and bee-keeping & honey production
- d. **Chairman – FRNR Guest House Management Committee regarding the Operations of the two Faculty Guest Houses, their refurbishment and promotion**
- e. **Member,** College Appointments and Promotions Committee.
- f. **External Examiner:** University of Education Winneba, Kumasi Campus, Department of Construction and Wood. MPhil. Wood Science and Technology - College of Technology Education; the University of Development of Development Studies, Tamale – Faculty of Natural Resources.
- g. **Associate Consultant** on conservation and Fire prevention issues, Ghana Assoc. for the Conservation of Nature (**GACON**)
- h. **Facilitator, Bamboo and Rattan Products and Issues: International Bamboo and Rattan (INBAR)** and Efficient use of Kiln in Charcoal Production in Local Communities – A case Study in the Brong-Ahafo Region of Ghana.

College of Agriculture and Natural Resources

- i. **Chief Examiner:** West African Exam council (WAEC) Senior Secondary Certificate Examination (SSCE) - Elective Biology and the International Baccalaureate Organization [IBO], UK. Biology Standard (Diploma) Level, Paper 2.
- j. **External Moderator** – National Accreditation Board (NAB)

Mr. J. Osei Kofi

- a. **Team Member**, Organization of Disabled Peoples Organizations (DPOs) to participate as frontline partners in the Disability Project of SMS with respect to capacity building, identifying research sites, allocating research students to PWDs for field assistance
- b. **Director**, Foundation Africa Next Door, Kumasi – A human development oriented NGO with special attachment to vulnerable groups sourced for funding to set up CEDRES at KNUST
- c. **Member**, Catholic Graduates for Action (CAGA), Kumasi, Ghana.
- d. **Deputy Chief of Staff**

Prof. Nana K. Frimpong-Mensah

- a. The **Adontenhene** of the Domeabra Paramouncy in Ashanti.
- b. **Board Chairman**, Oweriman Schools, Domeabra, - Ashanti-Akim.
- c. **External Moderator/Examiner**, Department of Renewable Natural Resources, UDS, Tamale.
- d. **External Moderator/Examiner** for National Board for Professional Technical Examinations (NABPTEX).
- f. **External Examiner** for Accra, Takoradi, Kumasi Polytechnics, Departments of Furniture Design and Construction.
- h. **Board Member** of Aninwah Medical Centre at Emena, Kumasi International Union of Forest Research Organizations, IUFRO, College of Science Board; Representing the College of Agriculture and Natural Resources, Institute of Professional Foresters, Ghana, National Accreditation Board panel on College of Technology Education programme on Wood Science and Technology and Board of Directors of GACON, an Environmental NGO.

Dr. K. A. Afrifah

- a. Member, Institute of Professional Foresters, Ghana
- b. Member, Society of Plastic Engineers
- c. College Examination Officer, College of Agriculture and Natural Resources

FACULTY OF FOREST RESOURCES TECHNOLOGY (FFRT)

INTRODUCTION

The Faculty of Forest Resources Technology (FFRT) is under the College of Agriculture and Natural Resources (CANR). The Faculty aims at providing expertise who understands conservation and sustainable issues in order to promote pragmatic management and resource use. To maximise the country's natural resource conservation and sustainability both within and outside Protected Areas, there is urgent need to coordinate conservation and sustainable efforts and integrate traditional knowledge practices in modern conservation strategies. We have found out very little attempt has been made beyond the local level to explore and develop the potentials of the country's natural resources especially for biodiversity conservation.

College of Agriculture and Natural Resources

With the current UN Sustainable Development Goals in mind, we have, therefore, submitted a reviewed Degree Programme to the University Academic Board for their approval. The Faculty's ultimate objective is, to produce graduates who have been exposed to both theoretical and practical knowledge within the following four Departments:

- (i) Ecotourism and Forest Recreation;
- (ii) Land Reclamation and Rehabilitation;
- (iii) Social Forestry; and
- (iv) Wood Processing and Marketing.

With these four departments, the Faculty is well placed to lead with teaching, research, development and networking activities in bio-environmental education that address current contextual challenges, capacity building and knowledge exchange. We have thus developed strategies which are pursuing rigorously in order to continue realizing the goal of building a quality bio-environmental education system.

In addition, the Faculty established Research and Community Outreach Unit which is in charge of revitalizing the Centre for Biodiversity Utilization and Development.

OUTREACH STUDENT DRIVE PROGRAMME: The Science, Mathematics and Technology (SMAT) Outreach Programme has expanded its activities by organizing Tertiary Science Fair for 17 Senior High Secondary Schools in Ho, Volta Region. The SMAT Outreach Programme promotes the importance and study of Natural Resources and the Environment, and the Faculty's visibility by interacting with some of the Senior High Schools within the country.

INSTITUTIONALISED INDUSTRIAL ATTACHMENT PROGRAMME: The Faculty has institutionalized one semester industrial attachment programme for the final year students. The exposition of this 3-Month on the job training of our students has really complemented the teaching and research output of the Faculty to a very unique academic standard. In other words, our graduates have always been found to be very versatile in the current dynamic job market. Hence, their early acquisition of jobs after their one year National Service.

SANDWICH PROGRAMME: The Faculty of Forest Resources Technology was given the permission to run a Sandwich Programme for the award of Bachelor of Science (BSc.) Degree in Forest Resources Technology when we were at the Sunyani Campus. The programme had indeed benefited the Certificated and Diploma scholars in Forest Resources Technology in Ghana to upgrade themselves. Remarkably, quite a number of these categories of professionals are still interested to upgrade themselves. Thankfully, the Vice-Chancellor has given approval to continue with this laudable programme now that we have been fully integrated with the main campus of the KNUST for the following reasons:

- (i) To address the need of needy scholars who need to upgrade their academic status;
- (ii) To address the need and the urgency to grow and develop this our infant Faculty financially; and
- (iii) As an alternative approach of advertising the Faculty with a focus of increasing our students numbers.

College of Agriculture and Natural Resources

This report presents an overview of the developments that have occurred in the Faculty during the 2015/2016 Academic Year in relation to teaching, research and dissemination of knowledge to the benefit of the wider community.

POSTGRADUATE PROGRAMME: The Faculty is currently developing Postgraduate programme for the approval by the Academic Board of the university

ADMINISTRATION

Mrs. L.A. Gyiele	Ag. Dean
Dr. D.E.K.A. Siaw	Vice-Dean
Mr. Isaac Dwirah Jnr.	Principal Administrative Assistant

PROGRAMMES AND DEPARTMENTS OF THE FACULTY

The Faculty offers a four-year programme leading to an award of BSc. Degree in Forest Resources Technology. There are four Departments headed by the following senior members:

Dr. D.E.K.A. Siaw	Department of Social Forestry and Land Reclamation and Rehabilitation
Dr. E. Acquah	Ecotourism and Forest Recreation and Wood Processing and Marketing

ACADEMIC STAFF

Within the current Academic Year, two lecturers have completed their PhD programmes one Academic Staff was added while one is retired and on contract. The Faculty Academic staff strength of the Faculty is nine (9). We have, therefore, embarked on a serious *manhunt* for full-time PhD lecturers for the Faculty. We are also grateful to state that the Faculty is privileged to have quite a number of full-time Lecturers from the general KNUST Community who are assisting us with the teaching load and one administrative staff who attends to all administrative matters in the Faculty.

STUDENT POPULATION

Currently, the Faculty runs only undergraduate programmes. The enrolment of the Faculty for the year under review is two hundred and eighteen (218) (see Table 1 below).

Table 1: 2014/2015 Undergraduate Enrolment

Year	Number of Students		Total
	Female	Male	
One (1)	28	57	85
Two (2)	1	29	30
Three (3)	11	25	36
Four (4)	16	51	67
Total	56	162	218

LINKAGES WITH OTHER ORGANIZATIONS/INSTITUTIONS

As already indicated above, the Faculty of Forest Resources Technology has instituted semester Industrial Attachment Programme for our final year students. We are thus, working very closely with both Private and Government Institutions to offer a comprehensive on the Job Training for our students. Among the industries and organizations we are working with are: World Bank, Forest Research Institute of Ghana (FORIG), UNDP Global Environmental Facility Small Grants Programme, Environmental Protection Agency, Newmont Mining Company, AngloGold Ashanti, Cocoa Research Institute of Ghana (CRIG), Forestry Commission and Ghana Tourist Board, Accra Compost and Recycling Plant (ACARP) to mention a few.

In addition, the Faculty has links with University of Finland and some Canadian Universities like University of Guelph, Vancouver Island University and University of Victoria.

DEPARTMENT OF ECOTOURISM AND FOREST RECREATION

INTRODUCTION

The Department of Ecotourism and Forest Recreation is one of the four Departments of the Faculty of Forest Resources Technology (FFRT). Ecotourism is one of the niche developing industries globally and Ghana in particular. This calls for practically oriented graduates that can contribute effectively to the national development.

The year one and two offers a general programme and are made up of thirty (30) and eighty-five (85) students respectively. The total number of students for the Ecotourism and Forest Recreation option classes is fourteen (14) comprising seven (7) females and seven (7) males. Year three is made up of one male and three (3) females while year four is composed of six (6) males and four (4) females.

ACADEMIC STAFF

The Academic staff strength of the Department is six (6), out of which three (3) are full-time lecturers, one part-time lecturer and two service lectures. The Department is looking for additional two full-time lecturers.

COLLABORATIONS AND LINKAGES

The department seeks to produce practically-oriented graduates for industries and continues to link up and collaborate with various institutions and stakeholders for purposes of collaborative research and training of undergraduate students. The key stakeholders of the department are the Wildlife Division of Forestry Commission, Ghana. The department works closely with the following Wildlife Protected Areas: Mole National Park, Kakum, National Park, Shai Hills Resource Reserve, Bomfobiri Wildlife Sanctuary and Kumasi Zoological Gardens. Other key partners are Ghana Tourist Authority, District Assemblies and Non-Governmental Organizations.

MAJOR SERVICE TO THE COMMUNITY

Dr. E. Acquah is currently the Head of Department and Students' Project Coordinator during the year under review. He also serves as a member of both the Quality Assurance sub-

College of Agriculture and Natural Resources`

committee of the College of Agriculture and Natural Resources and the KNUST Tourism Project Committee. Also he continues to serve on the Faculty and College Boards

As part of community engagement activities, Dr. Acquah and the Third Year students of the Department embarked on labelling of trees on the major trails of Bomfobiri Wildlife Sanctuary, Kumawu. This gesture has greatly enhanced the ecotourism potential of the wildlife sanctuary and deepened the relationship between the Department and the Sanctuary.

Mrs. L. A. Gyiele a member of the Department was appointed as the Acting Dean of the Faculty. She is also the Coordinator for the SMAT Outreach Programme of the Faculty and embarked on outreach activities in a number of Senior and Junior High Schools in the Kumasi Metropolis and beyond. She continues to serve on the Faculty and College Boards.

The department plans to develop and roll out postgraduate programme and also short-term courses for ecotourism industry players such as tour guides of wildlife protected areas. The department also seeks to deepened relationship between wildlife protected areas and other ecotourism organizations in the country.

DEPARTMENT OF LAND RECLAMATION AND REHABILITATION

INTRODUCTION

The Department of Land Reclamation and Rehabilitation is the nationally acknowledged Centre of Excellence in land use management and rehabilitation of ecological resources with focus on restoring degraded land into productive use to support ecosystems and livelihoods. The Department thus, seeks to promote land rehabilitation education and research through a search for innovative theories and practices to strike a balance between proper land use, stewardship and ecological restoration, remediation and conservation.

ACADEMIC STAFF

The academic staff strength of the department is four out of which three are full-time lecturers. The Department is on a manhunt for full-time lecturers with terminal degrees.

MAJOR SERVICE TO THE COMMUNITY

The Department, during the year under review embarked on tree planting project at the Anwomaso Research Station, Dr. D.E.K.A. Siaw, the Head of Department is championing this project. Two hundred and fifty *Senna siamen* (Cassia) seedlings have been nursed and planted by the students of the Department of Land Reclamation and Rehabilitation. The Department has four of her 2016 graduates undertaking 12 weeks of the internship at Miro Forestry Ghana Limited at Ashanti-Akim during the long vacation.

Mr. O. O. Antobre is a member of the SMAT Outreach Programme, and was appointed as the Coordinator of the Students' Industrial Attachment Programme and he is in charge of the Faculty's Sandwich Programme. He is also a member of the University Congregation Committee during the year under review.

Dr. N. O. Prempeh is a team member of the Students Industrial Attachment Committee.

The Land Reclamation and Rehabilitation students number 21 in year 3 (5 females, 16 males) and 11 students in year 4 (3 females and 8 males).

DEPARTMENT OF SOCIAL FORESTRY

INTRODUCTION

Within the overall vision of the College of Agriculture and Natural Resources, the Department of Social Forestry seeks to become a nationally acknowledged Centre of Excellence in social forestry education with a focus on conservation, social department and human welfare. The Department is organized under the leadership of the Head of Department who provides among other things pragmatic leadership to achieve this vision. Currently, the Social Forestry Department focuses on undergraduate training and it is the main source of Social Forestry in Ghana. The Department's ultimate objective is thus to produce graduates who have been exposed to both theoretical and practical knowledge within this academic discipline.

PROGRAMMES OFFERED BY THE DEPARTMENT

Students within the Faculty of Forest Resources Technology opt for their Departments in the third year. The enrolment of the Department of Social Forestry for the year under review is thirty-two (32). Out of this number, twenty-five and seven are in the third and fourth year respectively as indicated in Table 2.

Table 2: Undergraduate Enrolment in the Department of Social Forestry for 2015/2016 academic year

Year	Number Of Students		Total
	FEMALE	MALE	
Three	3	4	7
Four	6	19	25
Total	9	23	32

COURSES OFFERED

Among the courses offered for the undergraduate programme within the Department are the following:

Leadership Development, Forest-based Livelihoods Development, Indigenous knowledge in Resource Management, Business Management and Administration for Natural Resources Managers, Social Research in Forestry, Community Forestry Practices, Land Use Planning, Entrepreneurial Skills, Human Resource Management, Agroforestry, Applied Remote Sensing and Geographic Information System, Experimental Design and Data Analysis and Three-month Industrial/Field Attachment.

Postgraduate Research Programmes with emphasis in Conservation Management Education, Social Change and Conservation and Alternative Livelihoods Development and Conservation are currently being developed.

ACADEMIC STAFF

The academic staff strength of the Department is two (2), one full-time lecturer and one on contract. The Department is supported by other Lecturers of the Faculty and Service Lecturers from the University.

MAJOR SERVICE TO THE COMMUNITY

With the initiative of Dr. Samuel Boadi, the Department is working closely with Kumah Farms at Anwomaso. A Memorandum of Understanding is being developed to enable the Department and Kumah Farms team up to develop short courses in: (i) Bee-Keeping; (ii) Snail Rearing; (iii) Grasscutter Rearing; and (iv) Mushroom Farming to support interested community members and KNUST students on livelihood.

Dr. A. A. Adomako has renewed his post retirement contract with the Faculty for another year.

Dr. S. Boadi is currently the Faculty's Examinations Officer, a member of the SMAT Outreach Programme and he is also the Assistant Coordinator for the Students' Industrial Attachment Programme.

DEPARTMENT OF WOOD PROCESSING AND MARKETING

INTRODUCTION

The Department of Wood Processing and Marketing is one of the four Departments of the Faculty of Forest Resources Technology (FFRT). The Department offers training and research into wood technology and marketing related issues. Their main aim is to provide skillful wood processing and marketing scientists who can contribute effectively to the national development. The Department prepares graduates to meet national demand for academic skills to effectively work in Timber Industries, Forest Institutions and Research Institutions.

The year one and two offers a general programme and are made up of thirty (30) and eighty-five (85) students respectively. The current third year and fourth year Wood Processing and Marketing option classes are four (4) and three (3) respectively. The students participated in the 2016 TRATEC and showcase some of their products. It was very successfully.

Department of Wood Processing and Marketing has one permanent academic staff, three (3) part-time lecturers and two service lecturers as indicated below. The Department is thus stressed in terms of full time staff and has embarked on a serious manhunt for full-time lecturers and technicians.

COLLABORATIONS AND LINKAGES

The Department collaborates with the following institutions:

- CSIR – Forestry Research Institute of Ghana (FORIG)
- Wood Industries Training Centre (WITC) – Forestry Commission (FC)
- Timber Industries Development Division (TIDD) - FC
- Furniture and Wood Products Association of Ghana (FAWAG)
- Resource Management Support Centre (RMSC) - FC
- Environmental Protection Agency (EPA)

The collaboration is mainly to produce practically-oriented graduates for the industries.

BUREAU OF INTEGRATED RURAL DEVELOPMENT (BIRD)

INTRODUCTION

The Bureau continues to live up to its mandate of serving as the interface between the University and the communities through its research and extension activities. The Bureau was able to meet all commitments to its clients, both national and international, on time and to execute initiated programmes with success. The activities undertaken by the Bureau during the 2015-16 Academic Year covered the following broad areas:

- research,
- teaching/training,
- outreach and
- consultancy services.

RESEARCH AND CONSULTANCIES

i. The Bureau puts considerable effort into its core activity of research in the broad area of rural and sustainable development. The Bureau has taken note of the change from the Millennium Development Goals (MDGs) to Sustainable Development Goals (SDGs) to be implemented from 2016 to 2030. Consequently, the Bureau is positioning itself to take advantage of the opportunities the SDGs offer in rural development to enrich its research and extension activities. During the year, BIRD, led by its expert in community health, conducted research into community health issues in two major areas as follows: **Strengthening evidence-based practice in local public health work in Ghana.**

This research aims at strengthening the capacity of local public health service workers for increased uptake of evidence in decision-making. The first phase of the research which was completed in December 2015 focused on examining the level at which evidence was used to inform local level public health decisions. The second phase which is on-going focuses on training needs assessment of Municipal/District Directors of Public Health Services. The third phase will be the organisation of a tailor-made training programme/workshop for Municipal/District Directors of Public Health to address the identified training needs. Mr. Ebenezer Owusu-Addo is collaborating with the Ashanti Regional Health Directorate on this research. A paper from the first phase of the research has been published in the *Critical Public Health*

ii. **Health Information Seeking Behaviour of Pregnant Teenagers in Ejisu-Juaben Municipality**

Teenage pregnancy is on the increase in the Ejisu-Juaben Municipality. Pregnancy during adolescence has far reaching social and public health implications for the individual adolescent, the family and society at large. Therefore, decisions about how best to meet the information needs and provide timely care and support to this high-risk population should be of paramount importance to maternal/child health practitioners. As an essential step in this process, this study sought to understand the health information seeking behaviours of pregnant teenagers in the Ejisu-Juaben Municipality so as to design appropriate health promotion interventions that would meet their health information needs and build their health literacy so as to improve maternal and child health outcomes. Mr. Ebenezer Owusu-Addo is collaborating with the Ejisu Municipal Health Directorate on this research. The first phase of the study has been completed and a paper submitted to the Midwifery for publication.

In the area of contract research, the Bureau, within the reporting period, completed work on two major assignments for United State Development Agency (**USDA**) and one for the Crop Services of the Ministry of Agriculture and the three assignments are on-going. The Bureau is rapidly building a very good reputation for herself with two United State of America Agencies, USAID and USDA in the area of research and development. USDA has demonstrated its commitment to partner BIRD to undertake baseline studies for the poultry industry in Ghana. This is a major research activity that would involve other staff members from CANR. Apart from these short term assignment, BIRD continues to lead the University in a bigger and longer term engagement with the USAID in the implementation of the Analytical Support Services and Evaluations for Sustainable Systems (**ASSESS**) project.

The Analytical Support Services and Evaluations for Sustainable Systems (**ASSESS**) Project

The five-year ASSESS project is meant to evaluate the Regional Economic Growth (**REG**) portfolio of the US Government's foreign assistance programs to the West African Region and beyond. This portfolio includes programs in agriculture, trade, environment, and the energy in 21 countries.

ASSESS provides analytical services to USAID missions across West Africa. The broad objectives of ASSESS is to ensure that systematic and meaningful feedback of USAID activities is expanded for evidence-based decision making to Advance Economic Growth and Environmental Resiliency in the West Africa region.

Through the extensive partnership with USDA and university partners including the University of Rhode Island (URI), Delaware State University (DSU), Kwame Nkrumah University of Science and Technology (KNUST) and other partner Universities and institutions in the West Africa region, the project accesses technical expertise from a wide array of fields both internationally and within the region to deliver high quality and timely analytical services to USAID. ASSESS will run for 5 years with a budget line of about Twenty-Five Million Dollars (UN\$25ml).

LOCAL AND INTERNATIONAL COLLABORATION

BIRD maintains collaborative association with both national and international institutions and organisations as follows:

- Institute of Development Studies (IDS), University of Cape Coast
- Institute of Social and Statistical Research (ISSER)
- Ministry of Local Government and Rural Development (MLGRD)
- Ministry of Food and Agriculture (MoFA)
- United State Development Agency (USDA), Accra Office
- United State Assistant for International Development (USAID) Accra Office
- United Nations University (United Nations University), Japan
- University of Rhode Island, USA
- Delaware State University (DSU), USA
- Centre for Development Innovation, (CDI) Wageningen University and Research (WUR), the Netherlands

VISITS TO BIRD

During the period under review, BIRD hosted a number of important visitors and these included:

College of Agriculture and Natural Resources`

ASSESS Partner working visit from 3rd to 4th March 2016. The visit was used to review and plan for ASSESS activities.

The Chief of Party (**COP**) of the ASSESS Project together with a number of the staff at the Accra Office made periodic visits to work with the Principal Investigator (IP) at BIRD.

Visit of the President of University of Rhode Island on 18th April. The visit afforded the President and his entourage to interact with the staff of BIRD and to understand how the Bureau operates within the general University setup.

Dr Richard Burroughs visited BIRD and later to the Executive Campus under construction at Moree in the Central Region.

BIRD played host to some Staff and Students from the Delaware State and Maryland Universities. The visit offered the visitors the opportunity to get insight into the rural development. As part of the visit, the visitors were taken to Newmont operations area in Keyanse in the Brong Ahafo Region to learn at first hand, the operations of the Mines and the impact of mining operations on the lives of the mining communities.

Prof Masafumi Nagao Project Professor Global Leadership Initiative, Graduate Program in Sustainability Science Graduate School of Frontier Sciences University of Tokyo visited BIRD from 6th to 7th. The visit was used to brief the KNUST member of the ESDA working committee on the ESDA activities and to plan for the 3rd ESDA Meeting to be hosted at KNUST of which BIRD is coordinating.

TEACHING AND SUPERVISION OF THESES

The Research Fellows at the Bureau devote about 20% of their time in teaching and related activities in different Departments of some Colleges of the University including

College of Social Sciences

- Department of Geography and Rural Development

College of Agriculture and Natural Resources

- Faculty of Agriculture
- Faculty of Renewable Natural Resources (FRNR)

College of Art, and Built Environment

- Department of Land Economy

SHORT COURSES

The Bureau in collaboration with Centre for Development Innovation (CDI) of the Wageningen University and Research (WUR). The Netherlands continue to design and deliver top niche international short course in Rural Entrepreneurship which continues to attract large participation from Africa, Asia and Latin America. The two weeks course is fully funded by the Royal Dutch Government through NUFFIC.

INTERNAL AND EXTERNAL EXAMINERS

Nana Dr.S. E. Edusah continues to act as an External Examiner for the Institute of Development Studies (IDS), University of Cape Coast and Centre for Sustainable Development (CESDEV) at the University of Ibadan, Nigeria.

PROJECTIONS FOR THE YEAR 2015/16

The Bureau has made tremendous efforts in establishing herself as the foremost University-based institution in development in Africa. It is anticipated the Bureau will deepen its relationship with USAID and USDA for the benefit of the University. It is expected that more effort will be put in the proposed restructuring of the Bureau to make it responsive to the changing University environment and to Global trends. The restructuring will also enable the Bureau to take on more responsibility with flexibility.

• Acquisition of equipment (computers, printers, vehicle, air conditions etc.)

During the year, the Bureau acquired a number of equipment such as computers, printers and other accessories to enhance its activities. BIRD also acquired a 33 seater Costa bus for its field activities. With that acquisition, BIRD would be in a position to carry out its mandate and to be competitive in the consultancy industry.

PUBLICATION

Six (6) papers were published by Fellows at the Bureau during the 2015-16 academic year are listed in the University's Quality Assurance Bulletin for the year under review.

TECHNICAL REPORTS ISSUED

Technical reports issued by the Bureau include the following;

- i. Environmental and social impact assessment of community Senior High School, Ashanti Brong Ahafo
- ii. Environmental and social impact assessment of community Senior High School, Northern, Upper East and Upper West Regions
- iii. Advance II Baseline Studies for Northern Ghana
- iv. Tracer Study on Effectiveness of Business Development and Marketing Training, and how it has changed Behaviour of Farmers and Processors under RTIMP
- v. Impact of ICE Materials Distributed by RTIMP, Report

CONCLUSION

BIRD continues to make major contribution to creating visibility for the KNUST nationally and internationally by the numerous linkages it has developed with clientele in various fields of development in the country through outreach, training and consultancy services. The Bureau has the potential to grow to become a major center of excellence in research and development.

COLLEGE OF ART AND BUILT ENVIRONMENT

INTRODUCTION

The College of Art and Built Environment comprises of two Faculties and a Research Centre with the status of Faculty. Each of these has departments as presented below:

Faculty of Art

- Department of Communication Design
- Department of General Art Studies
- Department of Industrial Art
- Department of Integrated Rural Art and Industry
- Department of Painting and Sculpture
- Department of Publishing Studies

Faculty of Built Environment

- Department of Architecture
- Department of Building Technology
- Department of Planning
- Department of Land Economy

Institute of Land Management and Administration

- Centre for Settlement Studies
- Land Administration Research Centre (LARC)

PROGRAMMES OFFERED

The Departments in the College offer both undergraduate and postgraduate programmes in academic disciplines and they are presented as follows:

Department	Undergraduate	Postgraduate
Communication Design	BA Communication Design	MPhil Com.Design MA Com Design
General Art Studies		MPhil in Art Education MPhil African Art & Culture PhD in Art Education PhD in African Art & Culture
Industrial Art	BA Textiles BA Fashion	MFA Ceramics MFA Textiles MFA Metal Product Design
Integrated Rural Art and Industry	BA Integrated Rural Art Industry	MA Integrated Art MPhil Integrated Art

College of Art and Built Environment

Painting and Sculpture	MFA Painting BFA Sculpture BFA Painting & Sculpture	MFA Painting MFA Sculpture MFA Painting & Sculpture MPhil/PhD Sculpture MPhil/PhD Painting MPhil/PhD Painting Sculp.
Publishing Studies	BA Publishing Studies	MA Publishing Studies
Architecture	BSc Architecture	PG. Dip in Architecture M.Arch
Building Technology	BSc Construction Technology Management/ BSc Quantity Surveying and Construction Economics/BSc Building Technology	MSc/MPhil/PhD Building Technology MSc Procurement Mgt. MSc Construction Mgt. PhD Building Technology
Planning	BSc Human Settlement Planning BSc Development Planning	MSc Dev. Plg. & Mgt. MSc Dev. Policy & Plg. MPhil Planning MSc Urban Mgt. Studies MPhil Settlement Plg. MPhil development Studs. PhD Planning
Land Economy	BSc Land Economy BSc Real Estate Management	MSc Land Economy PhD Land Economy

STUDENTS POPULATION

The College currently has **5224** students in the Academic Year under review. Of the total, **4666** are undergraduate students and **558** are postgraduates. The College intends to increase the number of postgraduate students in the subsequent years.

ADMINISTRATION

The following are the officers of the College:

Provost	-	Professor Edward Badu
Ag. College Registrar	-	Mr. OwusuAnsahDebrah
Ag College Finance Officer	-	Mr. Robert OseiOwusu
Ag College Librarian	-	Mr. KwakuAgyen-Gyasi

ACTIVITIES

The College continues to support the training of the Academic Staff to ensure quality research and teaching. Currently, there are four staffs pursuing other terminal degrees in some of the Universities in the country, and others are in Europe, America and Australia. The College also supported some of the staff to participate in international conferences where papers were presented. We acknowledge the support of the University in this aspect of the human resource development.

College of Art and Built Environment

The College also treats promotion issues in the College with the needed attention it deserves in the period under review the following promotions were concluded:

- One Full Professor
- Four Associate Professors
- Six Senior Lecturers
- Nine Lecturers

Some applications are still pending including four applications for Full Professors and six Associate Professors.

RESEARCH, PUBLICATIONS AND SERVICE

Senior Academic Staff in the College continues to make their profession and expertise relevant to the academic community and humanity. The research that staff undertook over the period under review yielded the following publications indicated against the academic disciplines as follows:

Faculty	Research	Publications	Service	Conference
Faculty of Art	4	35	10	7
Faculty of Built Environment	9	15	99	23

INFRASTRUCTURAL DEVELOPMENT

Expansion of Academic Programmes

After the commissioning of Centre of Excellence for Housing Studies which was established in 2014, in collaboration with Ghana Institute of Housing, Ministry of Water Resources, Works and Housing and Ministry of Local Government, launched a programme dubbed 'Homes For All' which seeks to gather the necessary data for the construction of 10,000 homes between two and five years. The Centre has also advertised courses and programmes for professionals in the Housing Delivery Supply Chain.

The Faculty of Art is in the process of establishing an E-Library. Work is progressing steadily and we hope to inaugurate the E-Library by 20th July, 2016.

To augment teaching and learning capabilities, the Faculty of Art with the support of the University has established a television broadcasting laboratory as part of the teaching and learning facilities. The Faculty of Art has begun a programme to enhance visibility of KNUST. In this regard, the Faculty has designed the emblem of KNUST ready to be mounted at the entrance opposite KNUST Police Station. A Metal Murray is also to be mounted at the Manhyia Palace.

The Provost in sustaining the pursuit of academic excellence of students' feted the 450 First Class students in all year groups in the College. The College would continue this initiative to encourage the students to maintain academic excellence.

FACULTY OF ART

INTRODUCTION

The Faculty of Art, College of Art and Built Environment, is one of the academic units in the University. The Faculty was established to train middle and higher level manpower for the management of Art and Craft industry in the country. The Art and Craft programmes were transferred from Achimota College to the then Kumasi College of Technology, now Kwame Nkrumah University of Science and Technology, Kumasi in 1962. The Faculty has six academic departments; Communication Design, General Art Studies, Industrial Art, Integrated Rural Art and Industry, Painting and Sculpture and Publishing Studies. The Faculty also has a small scale Printing Press (Design Press) which serves as a teaching facility for students of Departments of Communication Design and Publishing Studies.

VISION STATEMENT

The vision of Faculty of Art is to be internationally recognized as one of the leading institutions in Africa for higher education, entrepreneurship training and research in art and design; and producing highly competent graduates to promote sustainable management and utilization of art industries, institutions and resources for development in Ghana, Africa and international community.

MISSION STATEMENT

The mission of Faculty of Art is to promote through teaching, research and dissemination of information, the proper management and sustainable utilization of art products and services for socio-economic development of Ghana. The Faculty will continue to produce high caliber entrepreneurial art and creative managers to meet the challenges in the art and design industry in Ghana, and to attract scholars and students from Africa and the international community.

The Faculty offers Four Years Bachelor Degree, Two Years Masters Degree and Three Years Doctoral Degree Programmes (see table 1). Occasionally, short courses in varied areas in visual and literary arts are run.

Table 1.1: Programmes of Study

Departments	Undergraduate	Postgraduate
1. Communication Design	4-year BA. degree programme in Communication Design	Mphil Com.Design M.A Com. Design
2. General Art Studies	Not Applicable	Mphil. in Art Education. MPhil in African Art & Culture. PhD in Art Education PhD in African Art & Culture
3. Industrial Art	4-year BA. degree programme in Textiles 4-year BA. degree programme in Fashion	MFA Ceramics MFA Textiles MFA Metal Product Design

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4. Painting and Sculpture	4-year BFA. degree programme in Painting 4-year BFA. degree programme in Sculpture	MFA Painting MFA Sculpture MFA Painting & Sculpture PhD Sculpture PhD Painting & Sculpture PhD Painting PhD Painting & Sculpture PhD Sculpture
5. Integrated Rural Art & Industry	4-Year B.A degree programme in Integrated Rural Art and Industry	M.A Integrated Art Mphil Integrated Art
6. Publishing Studies	4-year BA. degree programme in Publishing Studies	M.A Publishing Studies

STAFFING

The Faculty has total staff strength of **147**, comprising 81 senior members including Five (5) Associate Professors, 16 senior lecturers and 51 lecturers, as well as 33 senior staff and 43 junior staff.

DEANSHIP AND HEADSHIP POSITIONS

Dr. Patrick Ose-Poku	-	Dean
Dr. Rudolf Steiner	-	Vice-Dean
Prof. Kwasi Opoku-Amankwa	-	Head, Department of Publishing Studies
Dr. John Osei Bobie Boahen	-	Head, Department of Integrated Rural Art & Industry
Dr. Steve Kquofi	-	Head, General Art Studies
Dr. E. K. Howard	-	Head, Department of Industrial Art
Dr. Edward Appiah	-	Head, Department of Communication Design
Mr. Edwin K. Bodjawah	-	Head, Department of Painting & Sculpture
Mr. Harley Anane	-	Faculty Registrar
Mr. Peter Ackam	-	Ag. Faculty Accountant

STUDENT POPULATION

The Faculty of Art has a total student population of 2,694 comprising graduates and undergraduates as shown below:

UNDERGRADUATE PROGRAMMES

	Total	Male	Female
Communication Design			
BA Communication Design	653	487	166
Industrial Art			
BA Industrial Art	403	337	158
Foundation	75	52	23
Ceramics	88	60	28

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Metals	119	98	21
Textiles	121	65	56
BA Integrated Rural Art & Industry	501	321	180
Painting & Sculpture	334	276	53
Foundation (P&S)	62	49	13
BA Fine Art (Painting)	151	129	22
BA Fine Art (Sculpture)	121	98	23
Publishing Studies			
BA Publishing Studies	483	277	206

GRADUATE PROGRAMMES

PROGRAMMES	Total	Male	Female
General Art Studies	112	73	39
MPhil Art Education	68	47	21
MPhil in African Art & Culture	26	17	9
PhD in Art Education	11	5	6
PhD in African Art & Culture	7	4	3
Integrated Rural Art & Industry			
MPhil Integrated Art	19	13	6
Communication Design	23	17	6
MA Communication Design	5	5	0
MPhil Communication Design	18	12	6
Industrial Art	14	11	3
MFA Ceramics	4	4	0
MFA Metals	2	2	0
MFA Textiles	8	5	3
Painting and Sculpture	28	21	7
MFA Painting	3	2	1
MFA Painting & Sculpture	14	11	3
MFA Sculpture	5	4	1
PhD Sculpture	0	0	0
PhD Painting & Sculpture	0	0	0
PhD Painting	0	0	0
PHD Painting & Sculpture	3	3	0
PHD Sculpture	3	1	2
Publishing			
M.A Publishing Studies	7	4	3

STAFF DEVELOPMENT

As part of the Faculty's efforts to promote staff development through capacity building, the Faculty Administration continues to support senior members to participate in conferences both local and international. Additionally, an Inter-Departmental Seminar which is being organized in the Faculty bi-weekly has offered the opportunity for lecturers to share their thoughts, ideas, research findings, exhibitions etc. among themselves. This has recorded high patronage by staff.

FACULTY OF ART LIBRARY

The Faculty library serves the six departments in the Faculty. Currently, the faculty library can accommodate only fifty one (51) students at a time. A space has been created in the library for arrangement for an e-library to be created to augment the library facility. The six departments have been tasked to provide a computer each to the library while the Art Society is also to provide two computers to the library.

Equipment: The Library currently has two personal computers which are in good working condition. The library was also provided with 16 new book shelves. The facility is connected to the internet and students are able to access information at the library. The library also has a printer and a scanner which augment the activities in the library. The Library is currently without air conditioners which makes the environment unpleasant for studies especially during the afternoons. The library is manned by four personnel, two permanent staff, a temporal cleaner and national service personnel.

Stock of Books: The library has a total stock of textbooks of two thousand, seven hundred and forty seven (2747) and two thousand, nine hundred and eighty eight (2988) student thesis/project reports. The library also has in stock some journals, which are African Art, Focus on Africa, CASS News and Ashgate.

LINKS WITH OTHER INSTITUTIONS

The Faculty has established links with a number of institutions including the following:

1. The Pennsylvania State University, USA.
2. Cape Peninsula University of Technology - Cape Town, South Africa.
3. Ecole National Supérieure des Beaux – Arts, Paris, France.
4. Kolding School of Design, Denmark.
5. Arkeshus University, Norway.
6. Port State University, USA
7. National Institute of Design, India

VISITS

Several Basic Schools and Senior High Schools in the country particularly, students studying Visual Arts continue to visit the Faculty for the year under review. Over fifty five (55) Senior High Schools and Basic Schools from Ashanti, Brong Ahafo, Eastern and the Central Regions visited the faculty to learn more about our programmes; how to access them and career opportunities they offer.

PROJECTS/PROGRAMMES

The Faculty has during the year under review embarked on a number of projects and programmes aimed at uplifting its status as one of the leading faculties in KNUST. In order to reposition the Faculty in its proper place in the University, the Faculty administration has also initiated many steps to improve its functioning so as to serve students, staff and the general public very well. Currently, it has in place a Composite Time Table which is fully operational and thus enables courses to be delivered at both the old and the new sites. The Faculty has also strengthened student Tutorial System making student/tutor relationship more friendly and beneficial. The Faculty's five Standing Committees which see to the

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organisation of the Faculty, its programmes and activities with two year period of tenure in office are also operating well with the full support of the Dean's office. The Committees are on: Research and Publication, Curriculum Review, Exhibition, Projects and Fund Raising, and Inter-Departmental Seminar/Lectures.

CONFERENCE

The Faculty in collaboration with the Department of Industrial Art organised a three day conference on Ceramics at the Faculty's Conference Room.

TEXTILES EXHIBITION AND FASHION WEEK EVENT

The Faculty in collaboration with the Department of Industrial Art mounted textile exhibition and fashion show from 4th to 8th April, 2016 at the KNUST Museum

INFRASTRUCTURE DEVELOPMENT

The Faculty is positioned to embark on infrastructure development at its new site. Currently, plans are far advanced for the Development Office to work on the external work of the building. These include construction of car park, road, pavements and lawns. A request has also been made for installation of lightning arrestors, fire protection devices and air conditioners to support the internet connectivity in the new building. Most of the lecture rooms have been fixed with state of the art teaching facilities such as projectors and white boards. The Faculty's Conference Room is well equipped with very good facilities which can be used for international and local conferences. The Faculty has developed schedule of maintenance for its facilities which is being strictly enforced to ensure their sustainability.

DEPARTMENT OF COMMUNICATION DESIGN

INTRODUCTION

The Department of Communication Design continues to be one of the leading departments in the Faculty of Art. The department leads the field of visual communication and multimedia studies and Ghana's best Graphic Design Departments. It runs a 4-year Bachelors of Art (BA) Degree programme in Communication Design, an 18-month Master of Communication Design (MComm Design) programme and 2-years graduate research programme leading to the Master of Philosophy (MPhil) in Communication Design programme. In both undergraduate and postgraduate programmes, students have the option of majoring in one of the following disciplines: Visual Communication, Advertising and Media Studies and Multimedia (Animation and Film Studies). Currently, in 2014/15 academic year the student population stands at approximately 650; 630 undergraduates and 20 MComm Design/MPhil postgraduates.

TEACHING

The Department offers teaching in a number of Communication Design courses designed to equip its students with requisite knowledge and practical skills in Visual Communication Design disciplines including Communication Design, Photography, Animation, Video Production, Advertising and Media Studies. The Department offers service course to other departments in the Faculty of Art. The Department has recently established three state of the art Laboratories for Animation, Sound Engineering and Broadcasting-related programmes. These studios undauntedly are going to enhance teaching and offer practical training for our students.

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- The first batch of 5 Students of the MPhil Communication Design students have successfully defended their theses and are graduating this July while the second batch of 11 students will be graduating in November 2016.
- Our MComm programme has also been reviewed and is now being run as 18-month programme. There is also an addition of Part-Time option (due to popular request) and is taking off this 2016/2017 academic year.
- Through the MOU with CPUT, Ms Ralitsa Diana Debrah is currently pursuing her doctoral studies in Health Informatics and Communication in Design.

STAFF STRENGTH

The department is still reeling under pressure as a result of inadequate staff to run its programme effectively as we expect it. Currently it has teaching staff strength of thirteen; made of up one (1) Associate professor, two (2) senior Lecturers and nine (9) lectures – two (2) of them are on contract. The department is making serious efforts to recruit PhD holders to augment the number of senior members, especially in Multimedia, Photography and other design related areas.

CAPACITY BUILDING

Postgraduate training in the department has significantly improved over the last two years, especially the MPhil programme. While efforts have been made to clear the backlog of masters students, efforts are also being made to start a PhD (Graphic Design) as a way of strengthening the research in graphic design and other design related areas. We are hopeful that the PhD programme will take off in the next academic year. With five (5) of the staff having their PhDs, two (2) in their final stages of completion and an additional PhD staff joining the 12-member faculty, the department is poised to strengthen its research and postgraduate activities. A dedicated senior member has been put in charge of Research and postgraduate programme.

VISITS

During the year under view, the department had the privilege of hosting Prof. Shalom Gorewitz; a renowned Professor of Video Art and New Media, from Visual Arts Department, Ramapo College of New Jersey. Ms. Ralitsa Diana Debrah who was nominated as a Young Design Advocate in Ghana was invited to participate in Cape Town World Design Capital Conference as one of the speakers. The year also saw the visit of Peter Kesten and Kevin Davies of Association of Dutch Designers in series of Packaging Seminars and workshops at the Department, in collaboration of Ghana Design Network.

CONFERENCE/SEMINAR/WORKSHOPS

Academic members of staff attended and presented papers at several conferences. These include “1st Regional Conference on Problem Based Learning & E-Learning, 30th November – 2nd December, 2015.

RESEARCH ACTIVITIES

The academic staff in collaboration with other colleagues and graduate students continued to conduct research in Visual Communication Design and Multimedia studies. This include “Technology impart in Graphic Design Education, especially in Senior High Schools”, “Studio Assessment in Problem-Based Learning, with reference to Communication Design” and “Assessment of Service Design practices and Clients Satisfaction in Public Tertiary Educational Institutions”.

INFRASTRUCTURE

The department continued to develop its spaces. Two (2) Postgraduate Lecture rooms have been fully refurbished with appropriate furniture and modern educational technological facilities installed in them to aid graduates research. As indicated earlier, the Department has reconditioned our old Media Centre into a State of the Art Sound Recording Laboratory which is also open for public use. The laboratory is fully equipped with industry-standard equipment for sound production. A new Digital Animation Laboratory; one of its kind in the country has also been established with state-of-the-art equipment.

Another state-of-the-art Broadcasting-related Laboratory is also completed and is going to be used to train our Multimedia students. Plans are far advanced to start transmission of Educational Broadcasting activities in next the couple of weeks, and also use it as a Channel for disseminating KNUST researches and other campus-related activities. The primary objective of the TV Station (TEK TV); which is educational is to offer Ghanaians the best in TV transmission and educational/academic programmes in Science, Technology and Arts. The central University Administration, College and Faculty of Art have strongly supported this multi million cedis. All ancillary Studios to produce high-end content are in operation with dedicated staff and students. The Department intends collaborating with the Ministry of Education, to broadcast programmes in the Senior High School WASSCE programmes nationwide from endowed Senior High Schools that will help less-endowed schools to leverage their access to some of the syllabuses in the Senior High Schools.

COMMUNITY SERVICE

The academic staff of the department continued to offer their services both to local and international Institutions. Project proposal on “Developing sustainable environment sanitation through Design for Social Innovation” - **(5-STAR STREET PROJECT)** submitted to the Kumasi Metropolitan Assembly, Kumasi is being implemented on a pilot basis at Moshie Zongo, together with the Environmental Health Division of KMA. The aim of this project is using design-thinking approach within the ambit of Design for Social Innovation, in having a sustainable clean environment by changing the mind set and behaviour of the citizens. Dr. Edward Appiah, who completed his doctoral studies in Design from the Cape Peninsula University of Technology, Cape Town, heads the study.

Dr. Edward Appiah, who is also a project member with the LeNSes programme as a liaison officer with KNUST (Ghana) and CPUT, South Africa, is currently negotiating with LeNSE Italy in establishing postgraduate programme in Sustainable Design for Social Innovation (LeNSes is a project for curricula development and teaching diffusion on Design for Sustainability focused on product-service system innovation within communities). The project, when it takes off, will attract students from other western African countries.

DEPARTMENT OF GENERAL ART STUDIES

INTRODUCTION

The Department of General Art Studies was established to run mainly postgraduate studies. This makes its structure unique. The core mandate is to offer degree programmes leading to the Master of Philosophy and Doctor of Philosophy in Art Education and African Art and Culture respectively. The Art Education section of the Department renders service courses

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in Research Methodology and Art therapy to undergraduate students of the Faculty of Art while the African Art and culture section provides service courses in Art history in the Faculty.

The department plays a key role in the development of Visual Arts education in Ghana. Graduates of this Department mostly find employment as teachers of Visual Arts in Junior and Senior High Schools, Colleges of Education, the Polytechnics and the Universities of Education at Winneba, and KNUST. Some of our graduates also function as Administrators Researchers, Art Historians, Museum Curators, and Art Critics.

STAFF STRENGTH

Our hard working and enthusiastic staff of the Department are made up of five senior lecturers, five lecturers, one Senior Administrative staff and two junior staff.

ADMISSION OF STUDENTS

The Department admitted thirty-one students during the 2015/2016 academic year. They were made up of thirty-four for Art Education and eleven for African Art and Culture. As part of the Department's mandate to support staff development of the Faculty of Art, two lecturers of the Faculty and one staff from the School of Medical Sciences were admitted to pursue PhD degrees in Art Education and African Art & Culture respectively.

RESEARCH AND PUBLICATIONS

Senior members of the Department are highly enthused in their research activities as they continue to conduct applied and action research in their respective fields. Their research findings have been widely published as articles in peer reviewed journals and conference proceedings. (Refer to Quality Assurance Bulletin).

ACTIVITIES OF STAFF

Dr. Steve Kquofi

Conferences Attended

1. Participated in the 5th International Conference on Business, Economics, Social Sciences and Humanities (BESSH), Singapore, January 25-26, 2016.
2. Participated in the 8th International Conference on Business, Economics, Social Sciences and Humanities (BESSH), Singapore, March 10-11, 2016.

Workshops Attended

1. Workshop on Ethnic Power Relations and Conflict in Fragile States at the Great Hall conference room, KNUST, 22nd April, 2016

COLLABORATIONS AND MoU

Following the international conferences Dr. Steve Kquofi, the current Head of Department, attended in Singapore in January and March respectively, an invitation has been extended to KNUST, specifically the Department of General Art Studies, by Global Illuminators, Malaysia, to collaborate for international conferences and to sign an MoU between the two institutions. Also, SMILE K12 Inc., an American Non-Governmental Organization in conjunction with Alliance for Shaping African Students to Global Competition through Effective STEM Education ("Alliance"), has written to the Department of General Art Studies for a

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collaboration opportunity that aims to develop a sustainable solution that provides the underserved secondary school students in Ghana and Africa.

SERVICE TO THE COMMUNITY

1. Reviewer, African Language Association of Southern Africa, 2016
2. External Assessor, Faculty of Informatics and Design, Cape Peninsula University of Technology, 2016
3. Editorial Board Member, International Journal of Research in Humanities and Social Studies, 2015
4. Chairman, International Conference on Cultural and Arts Education (ICCAE) Planning Committee, 2015
5. PhD Committee Member, College of Art and Social Sciences, KNUST, 2015
6. Member, Committee to consider proposed MA Creative Art Therapy, 2015
7. Examiner, West Africa Examinations Council, Ghana, 2015
8. Member, Tortsogbeza Planning Committee, 2015

DEPARTMENT OF INDUSTRIAL ART

INTRODUCTION

Although the academic year under review could be described as a very hectic one with its numerous challenges, the Department of Industrial Art can at least boast of some significant achievements with respect to academic work with specific reference to programme review and expansion, exhibitions and fashion shows, production activities, repairs, maintenance and acquisition of some equipment, seminars and workshops to promote teaching and research in the Department. Due to the unique nature of specialized programmes run by the Department, the report is presented to capture the three distinct Sections, namely: Textiles, Ceramics and Metal Product Design.

CERAMICS SECTION

The Ceramics Section has six lecturers including one associate professor and one senior lecturer who was promoted in the course of the year under review.

RESEARCH AND PUBLICATIONS

The staff members of the Section were involved in a number of research and publications. Notable academic research projects executed within the year of review were:

1. Design and Construction of a Stove for Gari Processing.
2. Production of a Zeolite Body for the Water Purification and Filtration.
3. Exploring Cuttle Fish Bone for Cupel Production.

These projects are completed and they are being refined into research publications and possible patent to enable the community benefit from their construction.

VISITING PROFESSORS

The Section is expecting Professors Jeannie Lynn Hulen and Adam Posnak from the Department of Ceramics, University of Arkansas, USA to visit in July 2016. The visit is expected to establish collaboration in teaching and research with Ceramics Department of the University of Arkansas, USA.

INDUSTRIAL AND MATERIAL EDUCATION

The Section organized a five day educational trip from March 13 to 18, 2016 for students and staff to consolidate what is taught in the lecture halls. Amongst the industries visited include VALCO, ALUWORKS, CERAMICA TAMAKLOE and EKEM CERAMICS. Also the Glass Blowing Unit under the Centre for Scientific and Industrial Research and Awasso Bauxite Company were visited. The Materials sites visited included Atoabo for Silica studies and Teleko 6 Bokasso for Kaolin Studies.

PROMOTIONS

The following staff were promoted during the 2015/2016 academic year:

- | | | |
|------------------------|---|--------------------------------|
| 1. Albert B. Essuman | - | Lecturer to Senior Lecturer |
| 2. Dr. Lemuel Gbologah | - | Assistant Lecturer to Lecturer |
| 3. Baaba Ayariga | - | Snr Labourer to Headman |

MAJOR PROCUREMENT/REFURBISHMENT

The following essential equipment were procured for effective studio and laboratory works at the Section:

1. Set of Kiln Elements
2. Analytical Balance
3. Thermocouple
4. Lawn Mower

The Lecturers' Office Block has been tiled including the entrance to the Classroom

CHALLENGES

Faced with technical and sanitation related challenges, the need for employment of at least one technician and two cleaners to assist in studio and laboratory works becomes a necessity. There is also the need to employ at least two lecturers to assist in research and teaching. Other equipment needed for effective studio and laboratory practices at the section are; XRD Machines and Potters' Wheel.

METAL PRODUCT DESIGN SECTION

Within the academic year, members of staff have worked tirelessly to upgrade both the undergraduate and post-graduate programmes. A second post-graduate programme, MPhil Jewellery/Metalsmithing is being considered. Work on this new programme is progressing steadily and hopefully, will be presented to the Faculty Board for consideration before the end of this academic year.

PROCUREMENT MAJOR ESSENTIAL EQUIPMENT/REFURBISHMENT

As a section, inadequate space, tools and equipment constitute our biggest challenge and therefore the acquisition and installation of a rolling mill and an electric arc welding machine in the first semester, has brought great relief to the section. This has resulted in tremendous improvement in students' studio output.

The following projects have been executed within the Section:

1. Construction of shed/studio as an extension of the final year workshop block. The first of the two phases is about 90% complete and is expected to be completed before the end of this academic year.

2. Creation of gallery space for exhibition of both staff and students works. This project is in the final phase and is already to operate.
3. Setting up of a Jewellery Production Unit. Space and a fairly good number of tools and equipment required, have already been acquired and installed. Production is expected to start before the end of the academic year.

COLLABORATIONS

The Section, within this same academic year, has also been in contact with some key stakeholders in the metal fabrication industry who are willing to enter into partnership with the university through the Metal Product Design Section. Even though these deliberations are still in the early stages, there are indications that the efforts will yield dividends.

STAFF DEVELOPMENT

In the area of staff development, members of staff have been encouraged to enroll on PhD programmes (part-time). While one member has successfully graduated, three others are at different levels of completion. One staff member who was granted study leave to pursue masters degree in Product Design has returned and resumed work, and he is about to process his application for appointment as an assistant lecturer to augment the staff strength at the Section.

Even though, the section is still grappling with the problems of inadequate space, tools and equipment, significant progress has been made within this academic year. However, one can confidently say that the numerous plans and programmes put in place within the academic year have put the section on track towards its bid to get upgraded to a full departmental status.

CONCLUSION

The introduction of the Fashion Design option to the Industrial Art programme increases undergraduate programmes of the department to four with three MFA programmes. That notwithstanding, the department as part of its continuous review and expansion programme to make its programmes relevant and attractive to industry and applicants, is in the process of developing other postgraduate programmes to include MPhil and PhD programmes. This is increasingly expanding the department in terms of teaching load and other academic engagements which is putting undue pressure on the office of the Head of Department. Owing to this, it has become difficult to manage all the programmes and activities of the three sections under one umbrella. The Departmental Board has however agreed to revisit the departmentalization agenda which was initiated about five years ago to upgrade the sections into departments. For this reason, all the sections are now working assiduously on their documents for upgrading into a departmental status and will be forwarded to Faculty Board for consideration in due course.

TEXTILES SECTION

In the year under review, the Section has witnessed a tremendous stride in a number of areas especially the planning and organizing a successful Textiles Exhibition and Fashion Week, and programme expansion to include Fashion Design as a major option of the Industrial Art Programme.

PROGRAMME REVIEW AND EXPANSION

The Section has reviewed its programme to run Fashion Design to take advantage of the ever-increasing needs of the country and the rapidly-changing developments in the fashion industry. The proposed Fashion Design programme seeks to adequately take care of the knowledge and skills required for graduates to function effectively in this unique area. With the proposed programme, students will be admitted into the Industrial Art programme in the first year and specialize in Fashion Design from second to final year. It also makes provision for compulsory industrial attachment to help student gain relevant industrial experience during the course of their studies to enable them fit into the industry after school. Though the programme is not yet in fruition, I am glad to inform you that it has successfully gone through the rigorous scrutiny of Departmental, Faculty and College Boards and is now at the Planning and Resource Unit to be considered for final approval by Academic Board. The reviewed programme has also gone through the Internal Accreditation Exercise pending approval by NAB. It is anticipated to take off next academic year.

PROMOTION/SATFF DEVELOPMENT

In the area of promotions, two members have been promoted to senior lecturer position whereas three have submitted their documents for promotion to the position of senior lecturer. The Section now has six substantive faculty members with contract lecturers making eight in number. Out of the eight, three hold PhD degrees, one is in his final year on PhD programme and the other two are processing their application to enroll on similar programme. A committee setup to spearhead international collaborations and projects has been able to secure scholarships for seven service personnel to pursue masters' programmes in textiles science and technology in China. Application forms of about 40 service personnel and past students have been processed for similar programmes for consideration this year.

PROCUREMENT OF ESSENTIAL EQUIPMENT

In a practical oriented programme like Textiles, well-equipped studios with efficient machinery are the best antidotes for effective training of students. In view of this, the Section prior to the beginning of the academic year embarked on some retrofitting, repairs and maintenance of weaving looms to facilitate the work of students to ensure timely completion of their project works. Again, the department acquired ten (10) additional industrial sewing machines to the previously acquired ones, making a total of twenty (20) machines aside the hand sewing, over-lock and embroidery machines. This is part of the drive to procure as many machines as we can ensure smooth take-off of the Fashion Design. In line with this, a machine room has been setup to accommodate the ten (10) sewing machines.

RESEARCH ACTIVITIES/PUBLICATION

With respect to research and publications, the Section can boast of quite a number of published research articles in local and international refereed journals. Members also took part in a number of conferences. The research team of the Section was invited by AGI, Textiles and Clothing sub-sector to present a paper on "The Challenges and Opportunities of the Textiles and Clothing Industry" during the AGI Annual General Meeting in March, 2016. The team has developed a project proposal for funding on "Intra Sub-regional Trade: A Sustainable Solution to the Clothing and Textile Industry" which has been submitted to some local and foreign donor agencies for possible funding.

SPECIAL EVENT

The Section had a successful maiden Textiles Exhibition and Fashion Show dubbed 'Awakening' from 4th to 8th April, 2016. The exhibition and the show showcased works of the graduating class. This was heavily patronized by textiles and fashion activists within and outside KNUST. This was towards the visibility of the department and the university at large. In view of this, the event was well publicized through print media, online, and audio-visual. Excerpts of the fashion show were broadcasted on TV3 station. The event has become part of our programme and will be held annually to showcase the innovative works of students and the Section.

CHALLENGES

The Section is currently facing staffing problem especially with lecturers and technicians. The Textiles Exhibition and Fashion Week event had a challenge with sponsorship, owing to that the Section has incurred a lot of debts. The committee has made some recommendations for consideration towards subsequent events.

DEPARTMENT OF INTEGRATED RURAL ART AND INDUSTRY

INTRODUCTION

The Department of Integrated Rural Art and Industry is one of the six Departments in the Faculty of Art, College of Art and Social Sciences. Integrated Rural Art and Industry department deals with an integrated approach to the Ghanaian crafts and also do research in the locally available raw materials to develop the indigenous crafts to the contemporary taste. It is the only unit in the whole of the nation which runs such a programme. As such the department is proud of this special role and ensures that courses are designed to meet pressing needs of the related industries, as well as helping its graduates to set up their own small to medium enterprises.

TEACHING

The Department of Integrated Rural Art offers various courses for the four-year undergraduate Bachelor of Art degree programme. The courses covers, Rattan and Bamboo Technology, Leather Technology, Fibre and Fabric Technology, Metal Fabrication and Jewelry, Wood Technology and Upholstery, Clay work and Clay Technology and Product Design together with allied and elective courses. The Department is now opening up to train local craftsmen and women during the long vacations.

PROVISION OF TEACHING AND LEARNING AIDS

1. The Department was able to purchase ten (10) laser printers for senior members.
2. Four projector were secure for the Department and one (1) for the Faculty

STAFF

The department has eleven (11) members of staff which include; three (3) Senior Lecturers and eight (8) Lecturers.

GRADUATE DEGREE PROGRAMME

The graduate programme started in (2012/2013) academic year. At the graduate level, the Department offer Master of Philosophy in Integrated Art. Currently there are eighteen (18)

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first year students and (22) final year students. There are 36 postgraduate students. On November, 2015, fourteen (14) graduate students graduated and now seven (7) graduate student are awaiting for their graduation on May, 2016. The department has eleven Senior Members: out of which (6) are PhD holders and Three (3) Senior Lecturers.

MAJOR RESEARCH BY STAFF

The Department continues research in the local raw materials and how to integrate them in the artworks produced by both students and lecturers. Findings from research work in the Department has introduced and adopted by industry through our collaboration network with industry. The use of leather for traditional crafts like stools, Bamboo and Cotton blend for window blinds, Re-use of metal caps for fashion accessories. All these are results of research in the Department.

PUBLICATIONS/CONFERENCE PROCEEDINGS

Details of these can be found in the Quality Assurance Bulletin for the year under review.

COLLABORATION WITH UNIVERSITIES

This year the Department has renewed its collaboration with, University of Pennsylvania State USA and The Akershus University in Oslo. Other MoUs signed are with JAK studios of Denmark and The National Institute of Design India. The Department still collaborates with Aid to Artisans Ghana in the area of industrial attachment placements for the student, and brings in experts from the industries to do presentations on topical issues in the Department.

CHALLENGES

The major challenges the department faces are to do with infrastructure- studio spaces for the high number of students, equipments, reading material as well as the low voltage supply from the national grid. These are hampering the smooth running of practical classes. Furthermore, there is the need to upgrade our studio equipment (which are mostly fabricated by students) to meet the growing needs of training undergraduates and post-graduate students.

CONCLUSION

The Department has and will continue to up-grade and review its courses to meet and fit into the changing trend in industry and international educational structure. In line with the Departments policy of improving staff output through regular training, members continue to benefit from training and development opportunities by our collaborators at national and international levels. The income generation activities of the department will be intensified to enable the Department stand on its feet and become a self finance centre for research for both academics and industries.

DEPARTMENT OF PAINTING AND SCULPTURE

INTRODUCTION

The Department ranks highly among the hubs of Contemporary Art in Africa. The present international reputation is partly due to a major curriculum transformation instituted at the end of the century. The strictly medium – specific curriculum inherited from the British 1960's art academics finally gave way to a more inclusive and exhibition – focused one. At the heart of this new interdisciplinary curriculum is the students' self – awareness and criticality.

GENERAL INFORMATION

The Department has sixteen senior members (academic) of staff, one Senior Administrative Assistant, two technicians, a clerk and nine supporting staff at the various sections and units.

The Department continues to run the following undergraduate programmes:

- i. BFA Painting
- ii BFA Sculpture

The Department also runs the following postgraduate programmes:

- i. a. MFA Painting
- b. MFA Sculpture
- c. MFA Painting/Sculpture
- d. PhD Painting
- e. PhD Sculpture
- f. PhD Painting/Sculpture
- g. MFA Curating (Going through the various stages of approval)

ADMISSIONS

The Department of Painting and Sculpture admitted the following number of first year students for undergraduate and postgraduate programmes respectively in the 2015/2016 academic year:

BFA Programmes

Number of Students	-	62
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MFA Programmes

Number of Students	-	18
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PhD Programmes

Number of Students	-	2
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Total	=	<u>82</u>
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DEPARTMENTAL COLLABORATIONS

The Department continues to collaborate with the following: organizations/Institutions:

- i. Foundation for Contemporary Art, Ghana
- ii. Nubuke Foundation, Ghana
- iii. Stedelijk Museum Bureau (SMBA), Amsterdam
- iv. Alliance Française
- v. Ghana Museum and Monuments Board
- vi. Kolding School of Design, Denmark.
- vii. Ghana Railway Company Ltd.
- viii. Staadschule, Frankfurt

GRADUATION

4 MFA Students graduated in November 2015.

1 PHD Candidate graduated in 2015.

VISITING ARTISTS AND CURATORS

The Department has a programme where renowned artists are invited to interact with both students and faculty. We were privileged to host the following artists in 2015/2016:

College of Art and Built Environment

- Torril Johanennen (Norway)
- Godfried Donkor (UK)
- Bernard Akoi-Jackson (Ghana)
- Ibrahim Mohammed (Ghana)
- Hans Ulrich Obrist (Switzerland/ UK)
- Simon Castets (Switzerland)
- Another Africa and 89-Plus Team

PUBLISHED RESEARCH ACTIVITIES

Details of research publications, book chapters, conferences, seminars and workshop proceedings can be found in the University's Quality Assurance Bulletin for the year under review.

DEPARTMENT OF PUBLISHING STUDIES

INTRODUCTION

The Department of Publishing Studies is one of the six departments in the Faculty of Art. The Department offers graduate and undergraduate programmes in Publishing Studies. The programme provides students with a broad-based academic qualification, combining the necessary theoretical framework with a vocational orientation to enable them begin to practice at a professional level. The programme enhances students' understanding of the publishing processes and enables them to appreciate the position of the publishing industry within the wider context of a national economy and education.

Furthermore, in fulfilment of UNESCO's desire of having the Book Industry programme to serve the training needs of other sub-Sahara African countries, the Department also runs short courses and offers consultancy services in Publishing, Printing Technology, Design and Illustration, educational and scholarly publishing and e-publishing and related areas for people in the industry.

STAFFING

The Department currently has one Associate Professor, a Senior Lecturer, nine full time Lecturers and two part-time lecturers. Three of its lecturers are on study leave. Lecturers from other Faculties in the University also support the teaching of elective courses including, French, Economics, Sociology and Statistics.

ACADEMIC PROGRAMMES

The Department of Publishing Studies runs a 4-year Bachelor of Arts degree in Publishing Studies – regular and parallel, and two years Master of Arts in Publishing Studies programme. The undergraduate programme enrolls about 500 students. Major areas of concentration include Publishing Management, Printing Technology and Book Design and Illustration.

MAJOR EVENTS/ACTIVITIES

During the year under review, members in the Department were engaged in the following programmes, events, activities, etc.

College of Art and Built Environment

Kwasi Opoku-Amankwa

1. Resource person at three days Retreat of Provident Fund Management Committee, Sunyani May5-8, 2016. Delivered on Communication in Leadership.
2. Resource person at workshop on “Research Communication” organized by the Career Development Centre of the College of Health Sciences. February, 2016.
3. Facilitated a workshop for Management and Staff of Business Management and Financial Institute – University College, Accra, on Academic Leadership. October, 2015.

Mrs. Aba Brew-Hammond

1. Continues to lead the Department to extend its expertise to neighbouring communities, supervising the six established reading clubs ground the University.
2. Joined Lady Julia on an Educational Trip to the Otumfuo Educational Foundation to benefitting schools in the Obuasi Municipality.
3. As the in-charge of the Department’s editorial team she has completed the editorial works on ten (10) Story Books for Primary /Junior High School ready for production. The stories are written by the third year undergraduate students as part of industrial attachment projects and are designed and illustrated by staff. After printing, it is hoped that next year students will take up the marketing aspects into schools.
4. Serves on the Photocopy Unit Management Board.

Dr. Samuel Smith Esseh

1. He was appointed the Principal Facilitator for a cooperative Publishing workshop sponsored by the Public Knowledge Project of Canada and Mac Arther Foundation in, USA, 3-4 May 2016 in Accra
2. Appointed as consultant to support Kumasi Polytechnic to start an International Open Access Scholarly Journal.
3. Appointed by USAID to facilitate series of workshops for 60 academic Journals in the Philippines. The goal is to help migrate these journals from print to online.

Reuben Agbelengor Glover

1. Resumed duty for the 2015-2016 academic year after his two years sabbatical leave.
2. He has been appointed as a member of the Council of Convocation of KNUST.

Adolph Hilary Agbo was sponsored by the Goethe Institute to attend the International Frankfurt Book fair 2015, in Frankfurt, Germany in October.

Isaac Kofi Appiah

1. Authored a book titled “My Pen, My Statement”, a publication for teachers and students of drawing and painting. Publisher – Adwisa (in press).
2. Provided Illustration and design services for five storybooks.
3. Served ad member of Independence Hall Council Member

O-A. de-Graft Johnson

1. Continues to provide advisory services to:
2. Sako Press, Accra
3. New Era Press, Kumasi
4. Adwinsa Publications, Accra

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Eric Anane-Antwi

1. Research into illustrator-authored children's supplementary readers

Francis Kofi Nimo Nunoo

1. Working with the Civil Engineering Department on Unicef Sanitation Project in three MMDAs
2. Served as layout consultant to the Grants Office's Research Report Publication
3. Served as layout consultant to the University Printing Press, Kumasi on 2 Law publications; Criminal Prosecution in Ghana and the Legal resource Book.
4. Typesetting, Design services to Winmat Publishers

PROJECTS/COLLABORATIONS

The Department is partnering St. Louis College of Education, Kumasi, to access a three years project facility to train in-service and pre-service teachers in Teaching and Learning Materials (TLMS) development, under the "Transforming Teacher Education and Learning" (T-Tel) programme.

Four third year students – Leticia Amankwah, Victoria Adobea Mensah, Florence Newman and Patience Obeng-Manu authored a story book: "Abrefi's Red Letter Day", which was published and officially launched by Adwinsa Publications, Accra, while on their mandatory one semester industrial attachment last year.

The Public Knowledge Project (PKP) with the support of McAuthor Foundation seek collaboration with the Department to introduce and implement the Open Access Publishing Cooperative model in Africa

FACULTY OF BUILT ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

INTRODUCTION

The Department of Architecture, KNUST, was about six to seven years ago the only department in the country which offered architectural education. Presently, another institution namely the Central University College, once affiliated to KNUST, has come into existence. It is however, refreshing to know that more than 95% of their teaching staff are products from our Department. The Department is one of the departments of the Faculty of Built Environment in the College of Art and Built Environment, formerly the College of Architecture and Planning.

The Department has over the years, faithfully responded to the needs of society academically, culturally and socially through its products and programmes. All academic programmes developed have been specifically geared towards making the department a centre of excellence in architectural education in the country and is internationally accredited by the Commonwealth Association of Architects (CAA) for over 40 years.

STUDENT POPULATION

The student population in the department has been under control since admissions of large numbers disrupts the staff-student ratio and does not foster well for international accreditation purposes of the CAA. At the undergraduate level, the student population presently stands at

about **332**. On gender basis there are **228** males while **104** are females. At the graduate level the student population is **110**.

ACADEMIC PROGRAMMES

The quality and versatility of our training for our students guarantees them becoming leaders of the built environment. This is pursued through internationally accredited degree programmes which produce competent professionals and a sound theoretical basis for higher academic pursuits. Its programmes include the following;

- (i) A four year Bachelor of Science in Architecture, (BSc Architecture)
- (ii) A two year Masters in Architecture (MSc Architecture)
- (iii) A one year Masters of Science in Architecture programme for graduates with Postgraduate Diploma in Architecture degree (MSc Architecture)
- (iv) A two year Masters programme in Architecture (M.Arch Architecture)
- (v) A two year Master of Philosophy (M.Phil Architectural Studies).

A doctoral programme (PhD) in Architecture which has just been introduced by the Department has already commenced. However, processes for its approval by the relevant authorities are still in progress.

The Department with the collaboration of the Institute of Distance Learning (IDL), also runs a Diploma programme in Architectural Technology for draughtmen and women as a response to the lack of effective middle level manpower for the construction industry. There are also discussions presently of introducing a masters programme in Landscape Architecture soon.

STAFF STRENGTH

The Department has a total of 19 member of staff; there are 3 Associate Professors, 4 Senior Lecturers, 9 lecturers, 1 Assistant lecturer and 2 Technical instructors. In addition to this there are 2 Service lecturers from other departments. One member of staff is presently on study leave pursuing a doctoral degree in Germany and would join the department in the next academic year.

There had been a drive to recruit more lecturers to help improve the student-staff. Last academic year 2 persons with a PhD and an M.Phil were interviewed and appointed as Lecturer and Assistant Lecturer respectively. However, the latter went on to pursue and complete a doctoral programme and has now been promoted to full lecturer status. Presently, attempts are being made to acquire a lecturer in the department to replace the Service lecturers since their extra schedule sometimes disrupt departmental work, especially in the area of prompt submission of examination questions and results. Fortunately, one candidate for lecturership has been interviewed at the UAPC and is awaiting appointment if successful.

The department has nineteen (19) members of staff which include three (3) Associate Professors, four (4) Senior Lecturers, nine (9) Lecturers, an Assistant Lecturer and two Technical Instructors

STAFF RESEARCH AND PUBLICATIONS

The teaching staff is also involved in research and publications. Some years ago the staff in

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the department published not more than five to seven papers a year. However, this has drastically changed with staff churning out more than 20 to 30 publications annually.

This positive change was made evident when the University's maiden award for Research and Scholarship was won by Dr. Christian Koranteng, a staff from our Department. This penultimate achievement has indeed catalyzed other members of staff to be involved in more research and publications.

PROFESSIONAL, LOCAL AND INTERNATIONAL LINKS

Executive Members of the Ghana Institute of Architects (GIA) and the Architects Registration Council (ARC) visit the Department to interact with staff and students. The next visit by the ARC has been tentatively scheduled for the next academic year in September 2017. This is part of the Institute's mandate of visiting institutions of architectural education in the country to make sure their programmes are in line with contemporary architectural practices. They also hold meetings with members of staff to discuss issues of architectural interest, as well as subjects with a global flavor which have direct bearing on architectural education and practice. Special seminars are usually held separately for the Graduate years, (M.Arch 1 & 2) during such visits to take them through some of the steps they have to take to help them in taking their professional examinations after graduation.

The Department's contact with other schools elsewhere continue to improve; in addition to the annual exchange of staff and students with the university of Michigan, Ann Arbor, USA, the Department in conjunction with the Institute of Environmental Planning, Leibnitz University, Hanover, were invited to Ethiopia with other two universities in Africa on two occasions. The invitation was to enable them meet to develop a Lecture Handbook on the topic, "Green Infrastructure towards the development of biodiversity in the urban regions of Sub-Saharan Africa". This was all as a result of the 200,000 Euros grant awarded for the programme and reported in our report last year.

A member of staff returned last month after a ten day workshop in Germany regarding this issue.

The Department is also mentoring the Department of Architecture of Central University College (CUC) Tema, invited 2 busloads of students to attend Design workshops, seminars and juries for both staff and students to help them to improve their ability and capacity to understand the design process rather than the ultimate product of design. The Head of Department is also part of the panel of External Examiners at each final Year's Examinations.

Presently, through the help of the the Italian Ambassador, a Memorandum of Understanding (MoU) has been signed between the University of Florence in Italy and KNUST for a staff-student exchange programmes.

Another honour the Department has chalked for itself is in the area of international accreditation; after its 2015 successful validation by the CAA, the Head of Department, Prof S.O. Afram, was appointed as a member of the Executive Committee (ExCom) for Validation of CAA programmes and Schools during a meeting at the Royal institute of British Architects (RIBA) in June last year. In March 2016 Prof Afram joined eight members of the ExCom to validate the Durban University of Technology (DUT) architectural School in Durban, South Africa. The next validation visit by ExCom would be in Nairobi, Kenya in September this year.

SERVICE TO THE COMMUNITY

The Head of Department invited students of CUC to come on a two trip to the department to observe some of the juries and works in the studios as well as interact with some of our staff and students through workshops and seminars.

The Department, as always, conducted a socio-cultural field studies in a rural area, namely Onwe, a village near Ejisu. Analysis and proposals of such studies, even though academic in nature, are usually presented to the inhabitants to help them in their developmental efforts. Another socio-cultural urban study was also carried on at Pataase, a suburb of Kumasi with the same objectives.

DEPARTMENT OF BUILDING TECHNOLOGY

INTRODUCTION

The Department of Building Technology is one of the four teaching Departments of the Faculty of Built Environment within the College of Art and Built Environment. The Department is the oldest tertiary institution that trains building technology University graduates in Ghana. The products of the Department are mainly employed in both public and private sectors of the construction industry as construction managers, site agents, construction cost estimators, and quantity surveyors. A sizeable number are also employed in Universities and Polytechnics as Lecturers and Research Scientists.

The B.Sc. degree in Building Technology was first awarded in 1966. It was phased out and replaced with two new programmes-BSc. Construction Technology and Management (CTM) and BSc. Quantity Surveying and Construction Economics (QSCE). In addition to the above programmes, the Department in collaboration with the Institute of Distance Learning (IDL) also runs a 5 semester Top-Up programmes leading to the award of BSc. Construction Technology and Management, and BSc. Quantity Surveying and Construction Economics, for Higher National Diploma holders. At the postgraduate level, the Department of Building Technology offers the under listed programmes:

1. MSc. Construction Management
2. MSc. Procurement Management
3. MPhil Procurement Management
4. MPhil/PhD. Construction Management
5. MPhil/PhD. Building Technology

STAFFING

The Department of Building Technology has total staff strength of fifteen (15) comprising Two (2) Professors, two (2) Associate Professors, seven (6) Senior Lecturers, four (4) Lecturers and one (1) Assistant Lecturer.

At the moment, staff/student ratio at the undergraduate level stands at 1:45 as against the approved 1:12 ratio. A number of Lecturers from other departments in the university, however, provide teaching service to the Department at undergraduate and postgraduate levels in areas such as Engineering Surveying, Mathematics and Statistics, English, Operational Research, Financial Management and Economics.

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The Department needs to beef up staff strength in the area of Structures and Construction Materials in order to be fully operational and better placed to achieve its mandate. To this end, PhD students are pursuing programmes that will prepare them to teach in the above areas.

STUDENTS

Population and Composition

There are 1,428 undergraduate students in the Department at both regular and distance learning including those in the Bridging programme. In the IDL programme, there are currently 615 in the third and final years, and about 138 bridging students. The regular student population is 675, including 345 in Construction Technology and Management and 330 in Quantity Surveying and Construction Economics programmes. At the postgraduate level, the population of students is 151, including 123 MSc, 17 MPhil and 11 PhD students.

Graduation

At the undergraduate level, a total of about 550 students comprising 196 regular and 354 Distance Learners in the final year are expected to graduate this July 2016. At the postgraduate level, 15 students are expected to graduate from the Department this July 2016. Below is the under listed programmes with the respective number of students graduating:

Programme	Number of Students
PhD Building Technology	1
MPhil Building Technology	1
MPhil Construction Management	3
MPhil Procurement Management	1
MSc Construction Management	5
MSc Procurement Management	4

RESEARCH

Lecturers in the Department of Building Technology undertake research in various disciplines in the construction industry. Publications from research findings are published both locally and in international journals, and they contribute to knowledge and address critical issues relating to the construction industry in Ghana. The Department's research output has seen tremendous increase over the last five years as shown in the University's Quality Assurance Bulletins, making it one of the leading research Departments in the KNUST Publications. In the year under review, the under listed research activities were undertaken.

CURRENT RESEARCH ACTIVITIES IN THE DEPARTMENT

The Research conducted in the Department in the 2015/2016 academic year are in the following areas:

1. Sustainable Construction
2. Public Procurement
3. Infrastructure Development and Management

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4. Supply Chain Relationship Management
5. Research on indigenous materials
6. Dampness in Residential Buildings
7. Innovative Financing of Infrastructure
8. Construction industry performance

CONFERENCES AND SEMINARS

Conferences attended by Lecturers and students include:

1. 9th CIDB Postgraduate Conference on Emerging Trends in Construction Organisational Practices and Project Management Knowledge Areas, Cape Town, South Africa,
2. 2nd International Conference on Applied Science and Technology, Kumasi Ghana
3. 1st International Conference on Engineering, Science, Technology and Entrepreneurship (ESTE 2015), Kumasi, Ghana
4. 6th West Africa Built Environment Research (WABER) Conference, Accra, Ghana
5. 12th International Postgraduate Research conference in the Built and Human Environment. Salford, Manchester.
6. DII Conference on Infrastructure Development and Investment Strategies for Africa, Livingstone, Zambia
7. 6th International Conference on Engineering, Project, and Production Management in Gold Coast, Australia, RICS COBRA AUBEA 2015 Sydney, Australia

SERVICE TO THE COMMUNITY

The Staff of the Department of Building Technology provide diverse services to the community, including the University and the construction industry in Ghana. Some of the services provided by staff include the following:

1. Consultancy Services: As cost consultants and quantity surveyors on projects in and outside the University.
2. Manufacturing of Classroom Furniture to all Departments and Offices in the University.
3. Chairpersons and Members of Statutory Committees and Boards
4. National Council Members of the Ghana Institution of Construction (GIOC).

National Council Members and Fellows of the Ghana Institution of Surveyors (GhIS)

DEPARTMENT OF LAND ECONOMY

INTRODUCTION

Over the past five decades, the Department of Land Economy has been at the forefront in training and equipping professionals with relevant skills in land resource utilization and management. Since its establishment in the 1966/67 academic year, the Department continues to turn out highly competitive and qualified graduates who are employed in both public and private sectors of the Economy. Currently the Department awards degrees in BSc Land Economy and BSc Real Estate. At the postgraduate level MPhil/PhD in Land Management and MSc Land Governance and Policy are offered. These are highly practical postgraduate programs that integrate Economics and Law in the study of the dynamics, governance and use of landed property.

Graduates from the Department are employed in all sectors of the economy. The Land Sector Agencies, real estate developing and managing companies, financial institutions, NGO's and property holding companies are the key employers of graduates from the Department. Ghana Institution of Surveyors, Chartered Institute of Surveyors, African Real Estate Society, FIG,

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CASLE and the American Real Estate Surveyors are few of the professional bodies that affiliate and work closely with the Department. The Department also continues to be in close relationship with the Industry. Broll Ghana, TDC, Ghana Home Loans, HFC Bank, Ghana Ports and Harbors, TOR, GNPC and Lands Commission remain supporting the Department by way of Industrial training for students and workshops.

The department has ten (10) Academic Staffs which include two (2) Associate Professors, two (2) Senior Lecturers, five (5) lecturers and a Technical Instructor.

STUDENT ENROLMENT

The current student population stands at 700 at the undergraduate level. Of these, 456 are on the BSc Land Economy programme and 244, on the BSc Real Estate programme. Of the 700 students, 298 are female constituting 42%. There are currently 7 postgraduate students in the Department. Table 1 below shows the students' population figure in the Department

Table 1 Student Population by programme and Year

Programme	Year 1	Year 2	Year 3	Year 4	Total
BSc Land Economy	111	99	122	124	456
BSc Real Estate	53	60	53	78	244
MPhil Land Management					3
PhD Land Management					4
TOTAL					707

The resulting Student Teacher Ratio (STR) is 71:1 which is highly above the recommended levels of 15:1 for programmes with practical applications. The teaching staff is very much stressed, however, they continue to do all they can to function effectively and engaged in the other two aspects of their role as academics.

SERVICE TO THE COMMUNITY

The Department's staff provided services to the community in diverse ways during the year under review. Staff continued to be of service to the local, national and international communities: Individually, our staff continue to be of service to local, national and the international communities in diverse ways. In the year under review, **Prof S.O. Asiamma** continued to serve as a member of the National Development Planning Commission (NDPC). He also continued to serve on the National Policy Steering Committee of the Land Administration Project (LAP) of the Ministry of Lands and Natural Resources. He also continued to serve as the Chairman of the Ashanti Regional Peace Council and also as a member of the Ashanti Regional Coordinating Council (R.C.C.). His study on Curricular Needs Assessment and Mapping of Existing Land Training Centres in Africa for the Land Policy Initiative (LPI) a Consortium comprising the African Union Commission (AUC), the United Nations Economic Commission for Africa (UNECA) and the African Development Bank (AfDB), is still in progress. In February of the year under review, he attended a meeting in Addis Ababa, Ethiopia organised by the GiZ, to discuss the implications of the study on African Universities. In February he also chaired a workshop on the Long Term National Development Plan at the True Vine Ambassador Hotel in Kumasi organised by the National

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Development Planning Commission. He also attended consultative meetings on the launch of the Long Term National Development Plan in Sunyani and Sekondi-Takoradi and held consultations with the National House of Chiefs on the Long Term National Development Plan. In June, he attended a workshop organised by the Ministry of Lands and Natural Resources on the proposed Land Bill for the country at Lamerta Hotel in Kumasi and chaired the discussion group on Land Registration. He also attended a workshop on the preparation of the National Infrastructure Plan held at the Ange Hotel in Accra. In the course of the year under review he also assessed postgraduate reports for the School of Graduate Studies.

Prof Asiama , J. Zinzi Ayitey and **E.P. Tudzi** were resource persons at a workshop organized by Good Governance Africa at the Golden Tulip Hotel, Kumasi on 15th October, 2015 on the theme, “Access to Land and Documentation in Kumasi, Challenges and the Role of Stakeholders – The Way Forward”. Again, on 23rd March, 2016 Professor Asiama and J. Z. Ayitey were invited as resource persons at a Symposium on the theme, “The Value of Commercial Properties and the Effect on Doing Business in Ghana”, and read a paper, *Towards Improved Revenue Generation in Ghana: The Role of the Development and Use of Commercial Properties*. This was organized by Good Governance Africa at the Golden Tulip Hotel.

Prof. John Bugri was elected the Dean of the Faculty of Build Environment and serves as the Chairman of the Valuation Technical Committee of the National Lands Commission. He is also a member of the Working Group overseeing the work of consultants on the Ghana Lands Bill under the Ghana Land Administration Project II. In addition, he is an External Examiner to the University of Development Studies and a member of the Academic Board/UAPC of the Presbyterian University College, Abetifi.

J. Zinzi Ayitey serves as the Head of Department and represents the College on the Senior Members Housing Committee. He is also a Council Member of the Ghana Institution of Surveyors. He is a member of the Board of Examiners of GhIS and serves on a number of Governing Council Committees. Zinzi continues to serve as a member of The Legal and Property Committee of the Watch Tower Bible and Tract Society, Ghana. In the year under review, he was a member of a team constituted by the National Accreditation Board to undertake accreditation of five programmes at the University of Development Studies, Wa. He was also a resource person on a number of seminars and workshops.

Dr Frank Gyamfi-Yeboah is a member of the College’s Library Board and also serves as the Students Projects Coordinator of the Department. During the year under review Frank attended a number of international seminars and workshops including, African Real Estate Society Annual Conference, September 2015, Kumasi, Ghana. Annual Seminar of the Valuation and Estate Surveying Division of the Ghana Institution of Surveyors, October 2015 and the 11th Surveyors’ Week and 47th Annual General Meeting of the Ghana Institution of Surveyors, February 2016

Dr. E. Yeboah is a member of the Quality Assurance Committee of the College and Coordinator of Postgraduate Studies of the Department. He is also working as a guest Editor for the Journal of African Review of Economics and Finance on the special Edition ‘Towards Resilient Rural Economies’. **Mr. Joseph K. Kidido** serves as the Departmental representative on the Valuation and Estate Surveying Committee of the Ghana Institution of Surveyors.

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During the year under review Mr. Kidido, attended a number of conferences and presented papers. Mr. Kidido also continued to be an active fellow of the Republic Hall. Joseph is currently investigating 'Youth Access to Agricultural Land under Customary Land Tenure Regime in Ghana' for his PhD studies at the Department of Land Economy.

Mr. James Frimpong-Asante has been confirmed as a Chartered Member of the Chartered Institute of Housing-UK. He continues to provide free consultancy services to the Kings Village Project, a complex for a malnutrition center, hospital and school for the deprived at Bontanga in the Tolon-Kumbungu district of the Northern Region. He is also the Examinations Officer of the Department. During the year under review, James attended a number of conferences including, the 15TH Annual conference, Kumasi-Ghana. 31st August – 5th September 2015, Golden Tulip Kumasi. Kumasi City Hotel, Ghana, the 5th Annual conference for Housing Excellence 23rd – 25th September 2015, organized by the Ministry of Water Resources, Works and Housing – Accra International Conference Centre. *Theme: Integrated housing Delivery as a Social Cohesive and Inclusive Strategy for National Development.*

Mr. E. P. Tudzi reviewed the programme content of the Bachelor of Property Studies programme, of the Department of Land and Property Sciences, Faculty of Natural Resources and Spatial Sciences, Namibia University of Science and Technology (KNUST), March 2016. He is also a member, global expert group; participated in the United Nations Human Settlement Programme (UN Habitat) Meeting on 'Municipal Finance in Developing Cities: Review of Land-Based Finance Training Package for Financing Sustainable Urban Development' in Barcelona in May 2015.

DEPARTMENT OF PLANNING

1. INTRODUCTION

The Department of Planning (hereinafter referred to as the Department) was established in 1958 with the assistance of the United Nations Development Programme (UNDP). It is one of the oldest Planning Schools in sub-Saharan Africa. Its philosophy is to promote an "integrated process of political, social, economic and spatial dimensions that affect the quality of life of all people". The Department has accreditation to train skilled personnel (from undergraduate to PhD levels) to promote, coordinate and manage development at all levels. This reflects its mission to train skilled personnel required to formulate and manage various development policies and programmes at all levels of development.

The Department played a pioneering role in the establishment of the Association of African Schools of Planning (AAPS) based at the University of Cape Town, South Africa. The Association now has 52 member schools across Africa. The Department is represented on the Steering Committee. In the last quarter of the year, the Head of Department, Prof. Daniel K. B. Inkoom will take over from Prof. Peter Ngau of the University of Nairobi, as the Steering Committee Chairman for a 2 year-term ending in 2018.

The Department adopts an interdisciplinary approach to resolving development problems. This is in recognition of the multi-dimensional nature of development problems. It looks forward to a more dynamic future in which its teaching, research and outreach programmes as well as community work become more directly relevant to the rapidly changing socio-

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economic and spatial development needs of Ghana, Africa and other developing and emerging economies.

2. ACADEMIC PROGRAMMES

The Department currently runs the following academic programmes:

1. B.Sc. in Development Planning
2. B.Sc. in Human Settlement Planning
3. M.Sc.in Development Planning and Management (SPRING) (Regular and Parallel)
4. M.Sc.in Development Policy and Planning (Regular and Parallel)
5. MPhil in Planning
6. MPhil in Development Studies
7. MPhil in Urban Management (in collaboration with the Centre for Settlement Studies)
8. Ph.D. in Planning; and
9. Ph.D. in Development Studies

3. STUDENT POPULATION

The number of students enrolled in the programmes listed in section 2 has been presented in Table 1.

Table 1. Student Population in the 2014/15 Academic Year

Programme	N^o. of Students
B.Sc. Development Planning	315
B.Sc. Human Settlement Planning	238
M.Sc. Development Planning and Management (Regular and Parallel)	39
M.Sc. Development Policy and Planning ((Regular and Parallel)	54
MPhil Planning	18
MPhil Development Studies	10
PhD Planning	5
PhD Development Studies	13
Total	692

Source: Department of Planning Examinations Office, 2015/16 Academic Year

The proportions of female students enrolled in the Department's undergraduate and postgraduate programmes are 30 percent and 20 percent respectively. At the beginning of the 2014/15 academic year, the Department introduced parallel programmes for the two MSc. Programmes. This was a response to the demand by professionals who were unable to secure study-leave for further studies. These parallel programmes are run on weekends. Their implementation has so far been satisfactory, with lessons being learnt for improvement. The Department, in collaboration with the Centre for Settlement Studies, introduced the Urban Management Programme to cater for the needs of professionals in the several sectors of human settlement development. This is also run on weekends.

4. STAFF STRENGTH

The Department had a total of 20 academic staff for the period under review. Their details are presented in Table 2. One Professor is due to end his Sabbatical leave. One each of a Professor, Associate Professor, Senior Lecturer and Lecturer are on contract.

Table 2. Staff Strength

Level	Nº
Full Professor	2
Associate Professor	4
Senior Lecturer	4
Lecturer	10
Total	20

In the Academic Year, one staff completed doctoral studies at the Department. He was co-supervised by staff of the Department, the National Food Institute at the Danish Technical University (DTU) and DHI, Denmark. This was part of the Safe Water for Food (SaWaFo) project, which was funded by the Danish Government.. Another staff completed her doctoral studies in the field of Transport Planning at KNUST, while the third completed his from the Monash University in Australia.

The student-teacher ratio (STR) of the Department stands at 1:36 as against the anticipated norm of 1:18. This implies that the teaching staff are overloaded and has the potential to compromise their health and quality of delivery. It is expected that the Department will be able to recruit more qualified staff in the coming years to improve the STR.

5. COLLABORATIONS

During the year under review, the Department's flagship collaboration programme with the Dortmund University of Technology moved into yet another gear with the graduation of its second jointly supervised PhD candidate in December 2014. It also hosted one "Semester Abroad" student from the same University. The Department continued its collaboration with The Energy Centre of the College of Engineering, KNUST, to train PhD Students in Energy Planning. Furthermore, the Department continued to collaborate with the College of Agriculture and Natural Resources (CANR) of KNUST to partner the Technical University of Denmark, University of Copenhagen in Denmark, DHI in Denmark and Sokoine Agricultural University in Tanzania to implement the SaWaFo Project. This involves involving the training of PhD and MPhil students.

The Department initiated the signing of a Memorandum of Understanding (MoU) between KNUST and the University of Cape Town in South Africa to pave way for the it (i.e. the Department) to participate in the preparation of the State of Ghanaian Cities report under the State of the Cities in Africa Project (SOCA). This project was funded by Cities Alliance. The Department has completed the initial part of the assignment with road shows in the ten regional capitals in Ghana. The Department hosted 28 M.Sc. students and three staff from the Bartlett School of Architecture, University College of London. This formed part of their overseas field work programme. The Department also hosted students and staff from the Minnesota State University, USA.

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The year under review saw the Department's collaboration with the Ghana Institute of Planners (GIP) at the highest gear. It hosted a Regional Seminar for GIP members in the Ashanti Region, and staff and students of the Department. The theme of the seminar was "Street Naming and Property Address System in Ghana". GIP also secured funding from the Business Sector Advocacy Challenge (BUSAC) Fund and applied part of it to organise a training programme for all GIP members on advocacy as a planning tool. The programme was held at the Engineering Guest House, KNUST. Part of the funding was used to undertake a research that was aimed at preparing background materials for a new Planning Law in Ghana. It was executed by the Department of Planning. The Head of Department, Professor Daniel Kweku Baah Inkoom, was made a Fellow of the Ghana Institute of Planners, while Dr. Michael Poku-Boansi became a Member of the Institute. Two of the Staff were also nominated to serve on the Editorial Board of "Planning and Development Review", the journal of the Ghana Institute of Planners. The Department, in collaboration with the Ghana Institute of Planners, participated actively in the discussion and debates on the formulation of a 40-Year Development Plan by the National Development Planning Commission.

6. RESEARCH AND SERVICE

The Department continues to participate actively in the operations of the Regional Centre of Excellence for Water and Environmental Sanitation at the College of Engineering, KNUST. The World Bank and the Government of Ghana are providing funds for the establishment of this Centre. The Department is contributing to the development of a curriculum for the training of professionals in the water sector across the West African Region. It is also teaming up with the Department of Civil Engineering and the Ecole Polytechnique Federale Lausanne, Switzerland, to develop a course on Urban Mobility and Transport. Plans are well underway to begin the publication of a book on "Planning in Ghana."

In the period under review, the Department completed a detailed land master plan and layout for the KNUST Campus. This master plan has been modelled to give graphical presentation of all physical developments on the KNUST campus. The Plan and Model were presented to the University Council at two different meetings in the course of the Academic Year. The model now sits at the Council Chambers of the University. The Department is preparing a master plan and layout to cover a 3,000-acre land acquired by the Kintampo College of Health and Well Being. It is also in discussion with the University of Energy and Natural Resources in Sunyani to prepare a detailed layout for its new campus in the Brong Ahafo Region.

The Department is proud to be of service to the University in specialised areas where it has the expertise. These include strategic planning, land use planning and policy formulation and analysis. Staff serve as moderators, reviewers and external examiners to several Universities in Ghana and abroad. These include the Dortmund University of Technology in Germany, University for Development Studies (UDS), University of Cape Coast (UCC), University of Ghana, Valley View University, Technical University of Tamale and the Institute of Local Government Studies in Accra. Staff were on Accreditation Panels to assess programmes at a number of tertiary institutions, including the University for Development Studies Wa Campus, Christian Service University College in Kumasi, Catholic University of Fiapre, Sunyani and Organisational Development Institute in Accra. The others are the University College of Agricultural and Environmental Sciences at Bunso and the Evangelical Presbyterian University College in Ho.

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Staff were involved in the assessment of papers for promotion of Staff from several institutions, including the Valley View University, the Council for Scientific and Industrial Research (CSIR), the Kumasi Polytechnic, and the University of Ghana, Legon. Staff have also been involved in the development of research-based teaching materials on energy use for the Polytechnic University of Cataluña in Barcelona, Spain. Professor Samuel Afrane became the Rector of the Christian Service University College in Kumasi. Dr. Michael Poku-Boansi was appointed Moderator of the Planning Programme at the Anglican University College of Technology.

CONCLUSION

We are happy to note that the Department of Planning, in spite of all the challenges, is making every effort to fulfil its mission to train the skilled personnel required to formulate and manage various development policies and programmes at all levels of national development. The Department is taking steps to improve the quality of teaching through research and publications. This will enhance the confidence of its academic staff to deliver their mandate of quality teaching, research and service for the sustainable national development.

CENTRE FOR SETTLEMENT STUDIES

HISTORICAL ACCOUNT

A United Nations technical assistance team, which in 1957 reported on housing to the Government of Ghana, recommended the establishment of an independent centre for research and development in housing, planning and building construction in the country. A subsequent team, invited by the Council of the Kumasi College of Technology (now Kwame Nkrumah University of Science and Technology, Kumasi) to advise on architectural education, supported the United Nations team's recommendation and further suggested the Centre's intimate functional association with the Department of Architecture of the University then. On the basis of these recommendations, the Centre was established in 1959 as the Building Research Group. In 1963, it was made a Department of the Faculty of Architecture and the name Department of Housing and Planning Research (DHPR) was adopted. During the restructuring of the Departments and Faculties of the University in 2005 to operate a collegiate system, the Department was renamed the Centre for Settlement Studies (CSS). The CSS together with the Centre of Lands Studies, the Institute of Human Settlements Research was formed and headed by a Dean. Currently, plans are advanced for the Institute to be renamed as the Institute of Land Management and Development (ILMAD).

MANDATE

The mission of Centre for Settlements Studies is to conduct research into the human settlements development and planning, housing and construction issues generally and to devise interventions targeted primarily towards addressing the socio-economic needs of the rural and urban poor. To achieve this goal, the Centre focused on development-oriented research leading to the formulation of policy guidelines, extension of technical development services to the communities through field demonstration units, and problem-solving consultancy mechanisms. With changing trends in the world and development exigencies in Ghana, the Centre has broadened its research base beyond the initial scope to include issues of other aspects of human settlements in tandem with the Ghana National Development

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Policy framework on poverty reduction, wealth creation and Shared Growth Agenda. The current concern of the Centre for research and development of the human habitat which include the various aspects of livelihood such as population and employment, urbanization, housing, vulnerability, livelihood analysis, gender, microfinance, poverty, infrastructure and social services, land use planning and physical development, governance and decentralization, and settlements management. The Centre's outreach programmes comprise the development and management of settlements and services for capacity building of relevant institutions, groups and individuals. The Centre is involved in both undergraduate and postgraduate teaching and research in the College of Architecture and Planning of KNUST, Kumasi.

RESEARCHSTAFF

The research staff of the Centre is as follows:

Romanus D. Dinye	- B.Sc., M.Sc., Ph.D	- Associate Professor/Head
Rudith S. King	- B.Sc., M.Sc., Ph.D	- Senior Research Fellow
Joseph Edusei	- B.Sc., M.Sc.	- Senior Research Fellow
Divine K. Ahadzie	- B.Sc., M.Sc., Ph.D.	- Senior Research Fellow
Paul K. B. Asamoah	- B.Sc., M.A.	- Senior Research Fellow
Henry Boafo	- B.Sc., Postgrad. Dip. (Arch)	- Research Fellow
Irene Nora Dinye	- BSc., MPhil.	- Assist. Research Fellow

The Centre has 13 supporting staff comprising, administrative personnel, technicians, artisans and labourers. The Carpentry and its allied workshops play a pivotal role in the University as a whole. Apart from assisting students to undertake their practical and project work, it supplies furniture and wood products on demand to the university and general public.

TEACHING ACTIVITIES

The Research Fellows of the Centre for Settlement Studies (CSS) participate in the teaching programmes (including students' project supervision) of the Departments at the College of Architecture and Planning, KNUST, Kumasi. These comprise the Departments of Architecture, Building Technology, Planning and Land Economy.

M.Phil Programme in Urban Management Studies

The Centre successfully kick started the running of Master of Philosophy in Urban Management Studies in the 2014/2015 academic year. Nine (9) postgraduate students are on board. The second batch (2015/16) has 12 students. In collaboration with the Land Resource Centre and the Department of Land Economy, the MPhil in Land Economy could well be run under the revamped ILMAD agenda.

Short Courses

The Centre has successfully developed and runs two (2) short courses for lecturers, researchers, postgraduate students, staff of other tertiary institutions as well as practitioners in the construction industry comprising the following:-

- i) Course on Contemporary Issues in Research Methodology and the Use of Factor Analysis in Social Science and Management Research; and
- ii) Building Construction Regulations and Environmental Management.

So far the Centre successfully organised a training workshop in Building Construction Regulations and Environmental Management for Building Inspectors and Construction

Technician Engineers of the various Metropolitan, Municipal and District Assemblies nationwide.

PROMOTION OF KNOWLEDGE

The Centre for Settlements Studies participated in Workshops on African Urban Research Initiative organised by the Africa Centre for Cities and Cities Alliance with support from Rockefeller Foundation. These were held in South Africa and Belgium. The Centre for Settlement Studies (CSS) is in collaboration with other research centres in Africa in the promotion of the African Urban Initiative. The objective is to develop an African research think tank on urban research in Africa and also create an advocacy for African governments to align with the urban agenda with using cities and urbanisation as an anchor for development on the Continent. The first conference was held in Ethiopia in March 2013 and second in Nairobi in February 2014.

The need for the formation of an African Urban Initiative emerged (AURI). Specific suggestions and inputs were made on the need for the:

- Promotion of research excellence in Africa;
- Identification and promotion of alternative sources of research knowledge;
- Promotion of emergence of the next generation of researchers and intermediaries to drive a sustainable urban transition in Africa; and
- The co-production of knowledge pertinent to Africa in the area urbanisation and urban development.

The Centre of African Urban Initiative seeks:

- i) To create a framework to empower research centres to access sustainable sources of information and financing for their works;
- ii) To develop protocols and methodologies of engagements;
- iii) To strategize about how to engage with organisation and regional networks and,
- iv) Promote the exchange of research outputs in addition to research practices and ideas. As steering committee was set up to represent all the linguistic regions to oversee the functions of the AURI. The Centre of Settlements Studies is represented, by Dr. Divine Ahadzie who attended the workshop, as a member of the said steering committee.

The Centre for Settlements Studies (CSS) is collaborating with Emerald Journals, publishers of leading academic journals in the United Kingdom as the guest editor for Structural Surveys Journal of Building Pathology and Refurbishments. The team for the Special edition is key challenges or building adaptation and retro-fitting. The submissions and review process are currently handled at the Centre. The CSS has just signed a letter of intent for collaboration with the World University Service of Canada (WUSC), towards the submission of a proposal on Creating Economic Opportunities for Youth in Africa project – MasterCard Foundation. A team of WUSA visited the Centre during this reporting period and were impressed about our intended partnership. A return visit to them by the Centre is anticipated in the subsequent year. If successful the initiative will lead to research collaboration seeking to further improve the capacity of disadvantaged young men and women to develop market relevant skills especially in the construction industry. The participation of CSS in these international collaborations positions the Centre and for that matter the University as an active research organisation in the sub-region and in the international research rankings, particularly in the urban planning and built environment domain.

INCOME GENERATING ACTIVITIES

The Production Units of the Centre (i.e. Carpentry, Welding and Masonry Workshop) produce door and window components and furniture for sale to the public and on order from the various units of the University. These activities do not only generate income but publicise the research output in building and construction technology and socio-economic development to both rural and urban communities in Ghana.

PUBLICATIONS

Out of the Centre research activities, the staff was able to eke out fourteen (14) journal papers and seven (7) conference papers during the review period.

LAND ADMINISTRATION RESEARCH CENTRE (LARC)

Land Administration Research Centre (LARC) is a research department within the College of Art and Built Environment of the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. It was established in 1971. The name was later changed to the Land Resources Centre within the Institute of Land Management and Development (ILMAD) in 1996 and was finally changed to the Centre for Lands Studies in 2005, with the advent of the collegiate system in the University. It has returned to the name of Land Administration Research Centre within the context revamping the ILMAD.

FUNCTIONS

The functions of the Centre are primarily in the realm of land administration, land management and development. The focus is on:

- a) Land Tenure and Policy Studies;
- b) Land Law and the Environment
- c) Land Use Planning and Management; and
- d) Urban Land Economics, Development Appraisal and Valuation.

The Centre also carries out the dissemination of its research output through seminars, workshops, conferences and the direct research reports mailing to appropriate organisations, institutions and the general public.

STAFF

The Centre has one full Professor, an Associate Professor who is the head of the Centre, two Research Fellows and one supporting staff who is a Research Assistant to the Centre.

RESEARCH SERVICES

Since establishment in 1971, the Centre has been providing direct research services to the Government of Ghana through the Ministry of Lands and Natural Resources in particular as well as other Ministries and Departments, Traditional Authorities and Non-Governmental Organisations. At the international level, the Centre has provided services for agencies such as United Nations Development Programme (UNDP), German Technical Cooperation (GTZ), Department for International Development (DFID), United States Agency For International Development (USAID), World Bank, International FOOD Policy Research Institute (IFPRI), etcl.

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The Centre has also carried out collaborative research with a number of international universities including the University of Wisconsin, USA; Greenwich, UK; University of Wallingford, UK; University of Birmingham, UK, and the University of Munich, Germany; etc.

SELECTED RESEARCH OUTPUT

Some of the major research works that have been accomplished so far include the following;

- Land Ownership and Acquisition in all the Ten Regional Capitals of Ghana – A Study funded by the then Ministry of Lands and Natural Resources under the mandate of the Centre to investigate ownership and tenorial arrangements in the capital cities of Ghana.
- A Review of Integrated Rural Development Projects in Ghana. This was commissioned by USAID for the evaluation of the impact of developmental assistance to selected communities
- Women's access to Land in Selected Communities in Ghana. This piece of research was sponsored by DFID with the objective of establishing the vulnerability of women in land for agricultural production.
- Valuing peri-urban natural resources is a study of relative costs and benefits to stakeholders in land conversion in peri-urban Kumasi. This study was undertaken in collaboration with a team of experts from the U.K. and sponsored by DFID.
- Legal institutions and Protection of Land Rights. This was a collaborative research with Dr. Richard Crook of IDS, University of Sussex, U.K. and funded by DFID. It was a study into land ownership, tenure and dispute resolution mechanisms.
- Kumasi Natural Resources Management Research Project, towards Sustainable Livelihoods of People in the Kumasi Peri-Urban Areas. This project was sponsored by DFID and coordinated by the Natural Resources Institute of Greenwich, U.K. It focus was on the effect of urbanisation on the control of and access to natural resources.
- Further knowledge of Livelihoods affected by Urban Transition in Kumasi. This was sponsored by DFID in collaboration with the University of Birmingham, UK. The principal objective of this study was to explore new knowledge base to fill any gaps in existing knowledge on livelihoods affected by urban transition.
- Documentation of literature on customary land law. This project involved the documentation of the available literature on the various customary land laws within in various ethnic groups in Ghana. This was done for the National House of Chiefs and the Law Reform Commission.
- Land Rights and Vulnerability Assessment. This project examined various rights/interests in land in the established Customary Land Secretariat offices in the country and the study areas.
- Education and Awareness Creation on the Implementation of the new Lands Commission Act 2008, Act 767. This project was undertaken under the Small Grants Program of the Land Administration Project (LAP). The aim was to support activities of Civil Society and Non-Governmental Organisations in institutional building, advocacy, governance and participatory efforts in national land issues. The project focused on the education

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and awareness creation in the registration/documentation procedures and implications of the new Lands Commission Act 2008, Act 767 for Traditional Leaders and Land Owning Communities.

- Equitable Forest Reserve Plantation Revenue Sharing in Ghana. The Centre in collaboration with the Forest Research Institute, Kumasi, successfully completed and published a research report on the Equitable Forest Research Plantation Revenue Sharing amongst all stakeholders in Ghana

SPECIAL PRACTICAL ACHIEVEMENTS

• LAND TITLE REGISTRATION IN GHANA

The Centre initiated and developed a concerted and systematic research effort towards the introduction of Deeds/Title registration in Ghana. It has successfully created the awareness of the essence of Title/Deeds registration as a means of securing valid title to land. The positive effects of this are being felt by the government, chiefs and the public as evidenced by an increasing volume of Title and Deeds Registration by the Lands Commission over the years.

• LAND TENURE REFORMS

Through its systematic research and dissemination of information, the Centre has been able to confirm the fact that the country's indigenous land tenure arrangements have certain positive ingredients worth preserving as they form part and parcel of the total socio-cultural heritage of Ghanaians. As a result, land nationalisation, which hitherto had been a thorny and rather politically sensitive issue, is no longer part of the debate in the land reform process in Ghana. The 1992 Constitution positively appreciates this fact since 80 percent of the ownership/Land holdings in Ghana are recognised and vested in the stools, clans, skins, families and individuals. The Government/public Land holdings/ownership amount to only 20 percent of the total land holdings in Ghana.

• HALTING LAND DESERTIFICATION

In collaboration with the Council for Scientific and Industrial Research (CSIR) and the United States Agency for International Development (USAID), the Centre conducted a research project in North-Eastern Ghana. With appropriate policy recommendations submitted to Government, a national awareness for the need to halt the invasion of the Sahara Desert into Northern Ghana has been created. Tacit efforts are being initiated by some United Nations and Government agencies towards protecting and conserving the Northern Savannah ecological zone and preventing the advancement of the desert southwards.

• LAND POLICY REFORMS

Research of immense policy value and practical applications carried out by the Centre are in the area of Housing and peri-urban research, Rural Development, Land Taxation, and Land Use Planning. The Centre is one of the focal points of the Land Administration Project (LAP) of the Ministry of Lands and Natural Resources which is currently implementing the land reform programme in the country

TEACHING SERVICES

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The Staff of the Centre participate in teaching programmes, including students' supervision at the Departments of Land Economy, Planning, Community Health, Biological Science and Civil Engineering.

CONCLUSION

The Centre has progressively achieved its mandate over the years. It is now uniquely positioned to do self-marketing in order to generate enough funds for future research. This is linked with University Central efforts to recruit and revamp the staffing situation in the Centre. The Centre will continue to impact positively on land related research matters in the country for the foreseeable future.

COLLEGE OF ENGINEERING

OFFICE OF THE PROVOST

INTRODUCTION

Within the overall vision of the University, the College seeks to become an internationally acknowledged centre of excellence in engineering education but focused on national industrial development. The College is organized under a three-tier system under the leadership of the Provost who provides among other things, leadership in the College to achieve this vision

FACULTIES, DEPARTMENTS AND PROGRAMMES

The College of Engineering comprises three Faculties with eleven (11) Teaching Departments and two (2) Research Centres as listed below. The Faculties are Civil and Geo-Engineering, Electrical and Computer Engineering; and Mechanical and Chemical Engineering. The list of the eleven teaching Departments in the College are shown below: the Departments of Chemical Engineering, Mechanical Engineering, Computer Engineering and Materials Engineering run two undergraduate programmes each, while the remaining seven departments (Electrical and Electronics Engineering, Agricultural Engineering, Petroleum Engineering, Civil Engineering, Geological Engineering, Telecommunications Engineering and Geomatic Engineering) run one (1) undergraduate programme each.

Faculty of Civil and Geo-Engineering

<i>Departments</i>	<i>Undergraduate Programmes</i>
1. Department of Civil Engineering	B.Sc. in Civil Engineering
2. Department of Geological Engineering	B.Sc. in Geological Engineering
3. Department of Geomatic Engineering	B.Sc. in Geomatic Engineering
4 Department of Petroleum Engineering	B.Sc. in Petroleum Engineering

Faculty of Electrical and Computer Engineering

<i>Departments</i>	<i>Undergraduate Programmes</i>
1 Department of Computer Engineering	B.Sc. in Computer Engineering B.Sc. in Biomedical Engineering
2 Department of Electrical/Electronic Engineering	B.Sc. in Electrical & Electronics Engineering
3 Department of Telecommunication Engineering	B.Sc. in Telecommunication Engineering

Faculty of Mechanical and Chemical Engineering

<i>Departments</i>	<i>Undergraduate Programmes</i>
1 Department of Agricultural Engineering	B.Sc. in Agricultural Engineering
2 Department of Chemical Engineering	B.Sc. in Chemical Engineering B.Sc. in Petrochemical Engineering
3 Department of Materials Engineering	B.Sc. in Materials Engineering B. Sc. in Metallurgical Engineering
4 Department of Mechanical Engineering	B.Sc. in Mechanical Engineering B.Sc. in Aerospace Engineering

College of Engineering

Research Centers

Technology Consultancy Centre (TCC)

The Energy Center (TEC)

All the Departments run Postgraduate programmes in the College. The College has a total enrolment of four thousand six hundred and twenty seven (4,627) undergraduate students and two hundred and forty one (241) postgraduate students during the 2015/2016 Academic Year.

ADMINISTRATION OF THE COLLEGE

The following are the key administrative personnel at the Provost's Office. The College is headed by Prof. Samuel I. K. Ampadu. The administrative support is under the overall supervision of Mr. Kwame Yeboah Jr., the College Registrar while Mr. Charles Nsiah heads the College Finance Office.

Provost: Professor Samuel Innocent Kofi Ampadu

College Registrar: Mr. Kwame Yeboah Jr.

College Finance Officer: Mr. Charles Nsiah

College Librarian: Mrs. Akua A. Badu Sampene

Assistant College Registrar: Mr. Dominic Nti-Buabeng

College Research Manager: Ms. Barbara Gyapong-Korsah

The work in the College is also supported by other competent support staff in various areas.

KEY COLLEGE LEVEL ACTIVITIES

During 2015/2016 Academic Year, the College undertook a number of activities, some of which are detailed below:

1ST INTERNATIONAL CONFERENCE ON ENGINEERING, SCIENCE, TECHNOLOGY AND ENTREPRENEURSHIP

The College organized its first International Conference on Engineering, Science, Technology and Entrepreneurship (ESTE) at the Kwame Nkrumah University of Science and Technology, Kumasi from 6th – 7th July 2015. The event sought to provide the platform for researchers to meet and share ideas on how to bring their innovative ideas and technologies to bear on the development of Africa, and for entrepreneurs and the general public to examine ways to promote the development of these innovative scientific ideas and technologies into commercial products. The theme for the Conference was “*Promoting Creativity and Innovation through Engineering, Science, Technology and Entrepreneurship for Development*”. The Conference featured mainly Scientific Sessions. The keynote Speaker was Prof. Dr. Kamal Kant Dwivedi, President, Global Academy of Doctorates from India. The Special Guest of Honour at the opening ceremony was the Minister of Environment, Science, Technology and Innovation, Hon. Mahama Ayariga. Sponsors of the Conference were Tropical Cable and Conductor Limited (TCCL), Ghana Institution of Engineers (GhIE,) GN Electronics, Cargill, Volta River Authority (VRA) and Cal Bank. The College is grateful to these companies for the sponsorship they provided for the Conference. The 1st ESTE was a great success and one of the decisions taken was to institutionalize the conference as a biennial conference.

COLLEGE AWARDS DAY

As part of activities for the 2015/16 academic year, the College of Engineering organized the 2nd Students and Industrial Partners Awards ceremony on 15th October, 2015. The maiden event was organized last year with the aim of recognizing remarkable academic achievements of students and also acknowledge the contribution and support of the College's industrial partners by way of collaborating with the College in improving the quality of the students. As the case was last year, the following categories of Award were conferred on deserving students: *Excellent Student Award*, *Best Student Award* and *Most Improved Student Award*. There were also Special Students Awards instituted by individuals and corporate bodies for students who satisfied certain criteria. Among the College's numerous industrial partners acknowledged, the following were given Awards: CONSTRUCTA NORBERTO ODEBRECHT, WOOD GROUP, TROPICAL CABLE AND CONDUCTOR LIMITED and SCHLUMBERGER. A special Industrial Partner award was presented to Ing. Samuel Eshun of Schlumberger for his enormous contribution in fostering good industrial relationship between the College and Schlumberger.

STAFF AWARDS

On 19th December, 2015, the College held an end of year Lunch and a Staff Awards ceremony with the objective of rewarding retired staff members who have made special contribution to the growth of the College. The event recognized the contribution of members of staff who retired at the end of the academic year 2014/2015 and a backlog of other retired staff who have made special contribution to the College.

COMMISSIONING OF THE CHEMICAL AND PETROCHEMICAL ENGINEERING LABORATORIES

The Chemical and Petrochemical Engineering Laboratories formed part of the World Bank sponsored Oil and Gas Capacity Building Project (OGCBP) which ran from 2010 to 2015 and were commissioned on 22nd April 2016. The commissioning ceremony was chaired by the Vice Chancellor and the laboratories commissioned by a representative of the Minister of Petroleum, assisted by the Vice Chancellor, Provost, and Officials of the World Bank. Present at the award was a former minister of Energy Dr. Joe Oteng-Agyei who played a key role in the initiation of the project.

CAREER FAIR-2016

The College organized a three-day Career Fair from 25th – 27th February, 2016 for students of the College. The Fair provides a platform for firms to introduce themselves to students and for students to discover opportunities available to them. The companies that participated in this year's event included: CONSTRUCTA NORBERTO ODEBRECHT, TROPICAL CABLES AND CONDUCTORS LIMITED, GE OIL AND GAS, HUAWEI TECHNOLOGIES GHANA LIMITED, NATIONAL COMMUNICATIONS AUTHORITY, VOLTA RIVER AUTHORITY, GRIDCo, GN ELECTRONICS, GNPC-TECHNIP, SCHLUMBERGER, VODAPHONE GHANA, GNPC, MTN AND GHANA HOME LOANS. These firms took turns to address students on their operations, career opportunities and what is expected of employees. Students were interviewed by some of the participating firms and some were selected to first serve their national service with them before formally employing them.

CARNEGIE AFRICAN DIASPORA FELLOWSHIP

The College received two fellows under the Carnegie African Diaspora Fellowship Program (ADF). Prof. Fred Boadu of Duke University visited from June –August 2015 and worked on a number of research issues including collaborative multi-disciplinary research for tackling various societal issues and also in our graduate programmes. Prof. Frank Yeboah of North Carolina Agricultural and Technical State University worked on a collaborative research in energy economics and also in graduate programme.

VISITORS TO THE COLLEGE

During the academic year under review, the College hosted the German Minister for Federal Affairs, Europe Media, Franz-Josef Lersa-Mense and officials of the German Embassy on 19th May 2016. The visit followed an earlier one made in January 2016 by the German Ambassador to Ghana and officials of the German Embassy. Both visits were to inspect projects supported by the German Federal State of North Rhine-Westphalia (NRW) at the College.

SPECIAL COLLEGE INITIATIVES

The College continues its efforts at mainstreaming occupational health and safety issues into engineering education. It enforced the use of protective clothing by all students for field work and for laboratory work. Also the college continued its programme of ensuring that all students participate in at least one field trip during the year and all third year students are sent on vacation training. As a requirement to implementing these activities the College continued to insure its students against accidents.

THE COLLEGE RESEARCH OFFICE

The College Research Office (CRO) which was established under the Office of the Provost continued to promote and support funded research in the College and serve as a link between the College of Engineering and the Office of Grants and Research (OGR) of KNUST:

GRANT PROPOSAL

The Research Office supported five grant proposals development: These include the Norwegian Programme for Capacity Development in Higher Education and Research Development within the Fields of Energy and Petroleum (**EnPe2013-2019**), Establishing a Climate Innovation Center in Ghana (*infodev*- World Bank Project), Non-State Actors and Local Authorities in Development. Raising public awareness of development issues and promoting development education in the European Union (EuropeAid), A fundamental study on the characterisation and optimisation of biomass for energy production in Ghana. (DANIDA call for phase 1 application, 2015) and Carnegie African Diaspora fellowship program (ADF) applications

REPORTS

The CRO has published its maiden research report *The College of Engineering Research-2013/2014* which catalogues all research activities in the College. In addition, the College Research Office also assisted the College produce brochures for the student and industrial partners' Award ceremonies and the commissioning of the Petroleum Building. The Office is actively assisting in the harmonisation of research activities in the College and has taken steps in facilitating rationalisation of appointments of project support staffs.

PRE-AWARD PHASE OF PROJECT PREPARATION

The activities undertaken with respect to the pre-award stage of project proposal include; identification and dissemination of Funding Opportunity Announcements (FOAs) to staff based on their areas of expertise. These include FOAs in the area of Water and Sanitation, Energy and PhD Scholarship opportunities. The Office has also supported the preparation and review of proposals with the necessary logistics and has ensured timely submission of these proposals. The Office continues to provide administrative support to projects and project staff. In all, six (7) project proposals has been supported from CRO and three (3) have been successful and one (1) is still under consideration. This indicates a 50% success rate of grant proposals

POST AWARD PHASE OF PROJECT PREPARATION

The activities carried out in the Post Award phase of Project preparation includes the registration of all projects in the College in a Project database with information on the project title, start and end dates, funder, the Principal Investigator (PI), thematic areas and the project amount.

As of Sept. 2015, there were a total of 21 projects on-going in the College of Engineering with a total value of USD 35 Million.

WORKSHOPS AND CONFERENCES

The office has been involved in the planning and organization of workshops and conferences in the College. Details of workshops and conference proceedings can be found the Quality Assurance Bulletin in the year under review.

MARKETING OF RESEARCH IN THE COLLEGE

The Office has been successful in coming out with some publications which are geared towards marketing the research and other activities in the College. The publications are;

- 1st International Conference on Engineering, Science, Technology and Entrepreneurship (ESTE 2015) book of abstracts - 6th to 7th August, 2015
- College of Engineering Students and Industrial Partners Awards – 15th October, 2015, Brochure for 2015 College Awards
- College of Engineering Staff Awards brochure – 18th December, 2015
- Overview of German supported Projects at KNUST) brochure – January, 2016 to support the visit of the German Ambassador to Ghana.
- Commissioning of Chemical and petrochemical engineering laboratories brochure – 22nd April, 2016
- Overview of German Federal State of North Rhine-Westphalia (NRW) supported Projects at College of Engineering, KNUST. brochure- May, 2016

ON-GOING ACTIVITIES

- Creating a database of CoE staff research areas
- Collection of information for input into Research Management information System (ReMIS)
- Identification and dissemination of FOAs to staff

FUTURE KEY ACTIVITIES

The CRO will continue with the following activities:

- Continue with the on-going registration of all projects in the database

College of Engineering

- Continue to prepare and maintain a database of profiles of faculty research interests
- CRO will look for sponsored training opportunities for staff

INDUSTRY LINKAGE

Being a College with a focus on industrial development, the College takes its industry collaboration seriously. It therefore has an industrial liaison office which is made up of coordinating post graduate professional programmes, the vacation training of the students and industry input into student training through the industrial presentations.

FACULTY OF CIVIL AND GEO-ENGINEERING DEPARTMENT OF CIVIL ENGINEERING

INTRODUCTION

The undergraduate programme in Civil Engineering was one of the first programmes that KNUST ran jointly with the University of London until the former attained an independent university status in 1961. The Civil Engineering Department focuses on undergraduate and postgraduate training and it is the main source of Civil Engineers in Ghana. This report presents an overview of the developments that have occurred in the Department during the 2015/2016 academic year in relation to teaching and research.

AIMS AND OBJECTIVES

The Civil Engineering programme aims at providing a challenging and stimulating educational programme that will create a lasting learning experience for the student. It also prepares the student to offer competent professional services in the field of civil engineering and other related professional disciplines in the society. At the end of the programme the student shall be expected to:

- i. Develop the understanding of the physics and mechanics of the physical world to appreciate the approximating and simplifying nature of the idealizations that are used in the formulation and solution of engineering problems.
- ii. Develop the ability to make rational civil engineering decisions on the basis of available relevant evidence.
- iii. Appreciate the conceptual and creative aspects of civil engineering design.
- iv. Appreciate professional obligations, responsibilities and ethics in relation to the needs of society and how the quality of life can be sustained and improved through advances in technology.
- v. Develop clarity and style in professional communication and to develop simple skills of management, planning, organization and teamwork.
- vi. Appreciate the impact of various civil engineering activities on the quality of the environment.

Programmes Offered in the Department

UNDERGRADUATE PROGRAMME

The Department runs a four-year undergraduate B.Sc degree programme in Civil Engineering. The total undergraduate enrollment in the year under review is 596 with the details shown in Table 1.

Table 3. Undergraduate Enrolment in Civil Engineering for 2015/16

Table 3. Undergraduate Enrolment in Civil Engineering for 2015/16

<i>Year</i>	<i>Number</i>	<i>Year</i>	<i>Number</i>
Year 1	174	Year 4	167
Year 2	94	Year 5	3
Year 3	153	Year 6	5
TOTAL			596

Most students enter from the SHS stream but a small percentage enters as mature students who satisfy the minimum conditions for that category of applicants.

POST GRADUATE PROGRAMMES

The Department runs taught MSc/MPhil and PhD courses in the various areas of specialization in Civil Engineering. In addition, a joint MSc Programme in Water Supply and Environmental Sanitation is run in collaboration with UNESCO-IHE (in The Netherlands), which allows participating students to spend six months of the course programme in The Netherlands. At the end of the joint programme, the participating students earn two degrees; a KNUST degree and an IHE degree. The total student enrolment in post graduate programmes as of the 2015/16 academic year stood at 148 with the breakdown detailed in Table 2.

Table 4. Postgraduate Programmes and Enrolment

Postgraduate Programmes	Enrollment
MSc Water Supply and Environmental Sanitation	33
MSc Water Resources Engineering and Management	28
MSc Road and Transportation Engineering	13
MSc Structural Engineering	11
MSc Geotechnical Engineering	8
MPhil (Civil Engineering)	8
PhD (Civil Engineering)	35
PhD (WASCAL Climate Change and Land Use Programme)	12
TOTAL	148

In addition to the regular programmes above, the Department benefitted from major internationally-sponsored programmes of research and training, bringing in vital resources for postgraduate level training of professionals for the Sanitation Sector and Climate Change Research and Management.

The Climate Change programme hosted by the Department is dubbed the **WASCAL Climate Change and Land Use Programme**. The programme officially started in October 2011 with funding of almost *Two Million Euros (i.e. •1.9M)* by the German Federal Ministry of Education

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and Research (BMBF) for the first five-year term. KNUST and WASCAL have jointly sponsored the construction and establishment of the WASCAL Climate Change and Land Use Centre which is now fully functional. The establishment of the Centre is expected to facilitate research and mobility of seasoned international academic staff and students.

The WASCAL programme admits students from the West Africa sub-region for doctorate studies with the ultimate objective of developing adequate human resource capacity in the sub-region for crafting appropriate adaptation strategies and sustainable management of the impact of Climate Change on land and land use systems. Ten West African countries and two German institutions are responsible for the delivery of courses and supervision of students, making the WASCAL programme easily one of the most complex collaborative systems of postgraduate education in KNUST. In July 2015, the first batch of WASCAL PhD students, consisting of nine students from across the West Africa sub-region, graduated at the University. The second batch of 10 students will be part of the graduating students in July 2016.

The Department is also hosting the African Centre of Excellence (ACE) in Regional Water and Environmental Sanitation, Kumasi (RWESCK). This is a World Bank-sponsored programme with US\$8 million funding support that is aimed at training several PhD and MSc students from across the West Africa sub-region. The Centre will also run short courses and build capacity in the Water and Sanitation Sector for practicing professionals and personnel from the Metropolitan, Municipal and District Assemblies (MMDAs).

ACADEMIC AND SENIOR SUPPORT STAFF

The academic staff strength in the Department during the reporting year is 23. One staff member is on study leave pursuing a doctorate degree programme while two others are on Sabbatical Leave.

Table 5. Status of Academic Staff

<i>Regular Continuing</i>	<i>Staff on Full Time Study Leave</i>	<i>Sabbatical</i>	<i>Total</i>
19	2	2	23

The distribution of staff in various academic ranks in the Department is as detailed below.

<i>Academic Rank</i>	<i>Number</i>
Professor	2
Associate Professor	4
Senior Lecturer	10
Lecturer	7
TOTAL	23

The academic work in the Department is supported by technical staff consisting of six technicians led by a Principal Technician with a BSc degree in Civil Engineering. The administrative work is organized by the departmental administrative officer of Senior Administrative Assistant grade.

RESEARCH

For the purposes of organizing teaching and research, the Civil Engineering Department is organized into five main sections with specialization in the following areas of civil engineering practice:

1. Structural Engineering
2. Geotechnical Engineering
3. Highway and Transport Engineering
4. Water Resources Engineering
5. Environmental Quality Engineering

STRUCTURAL ENGINEERING SECTION

Dr. Gnida Sossou is the Head of the Section during the year under review.

STAFF

C.K. Kankam	BSc (Civil Eng) <i>KNUST</i> , MSc DIC <i>London</i> , PhD <i>Leeds</i> , FGhIE MASCE.	Professor	Structural Analysis, Structural Design, Concrete Structures
M. Adom-Asamoah	BSc (Civil Eng) <i>KNUST</i> MSc DIC <i>London</i> , PhD <i>Bristol</i> , MGhIE	Assoc. Professor	Earthquake Engineering, Structural Design
G. Sossou	BSc, (Mech Const) MSc (Civil PhD (Struct))	Snr. Lecturer	Structural Design
J. Wiafe Ampofo	BSc(Eng) MSc(Eng) Dr. Ing.	Lecturer	Structural Design
Russel O. Afrifa	BSc (Civil Eng) <i>KNUST</i> , <i>London</i> , PhD (<i>KNUST</i>), MGhIE	Lecturer	Structural Design

RESEARCH

For the past few years, the research focus has been on structural and material engineering. The research area includes the theoretical and experimental analysis of strength characteristics of reinforcing steel rods milled from scrap metals; the use of these construction steels for the improvement of structural durability and reliability characteristics of reinforced pre-stressed concrete beams, columns and slabs, especially slabs reinforced in both directions and subjected to long-term service loads. Some of the current structural engineering research involves the use of low density polyethylene sheets to strengthen reinforced concrete beams and slabs. Other important research activities include the use of local materials (bamboo, palm kernel additives, etc) as reinforcement material for deep concrete beams, investigating the engineering properties of sandcrete blocks and the performance of pavement blocks. There is also research work on the suitability of weathered granite, recycled concrete and phyllite aggregates for structural concrete design and analysis. Furthermore, the section is conducting

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research into the numerical simulation of the seismic behaviour of existing reinforced concrete frame buildings subjected to earthquake loads in Ghana.

GEOTECHNICAL ENGINEERING DIVISION

The Section is headed by Mr. V.A.K. Acquah

STAFF

S.I.K. Ampadu	BSc (Civil Eng) <i>KNUST</i> , MSc, PhD, (Tokyo Univ.),FGhIE	Assoc. Prof	Geotechnical Engineering, Development Engineering
V.K.A. Acquah	B.Sc. (Geol), MPhil (KNUST)	Lecturer	Rock Mechanics and Engineering Geology
F. Owusu Nimo	BSc (Civil Eng), KNUST, MS	Lecturer	Geophysics,
	(Civil & Env. Eng), Durham, USA, PhD (Civil & Env. Eng), Durham, USA		Environmental Geotechnics, Geotechnical Engineering
S. K. Ahiamadi*	BSc (Civil Eng) <i>KNUST</i> , MPhil (KNUST)	Lecturer	Geotechnical Engineering

*On Studies Leave

RESEARCH ACTIVITIES

During the period under review, research on the use of the Dynamic Cone Penetrometer as a simple and economical in-situ testing equipment for foundation design of simple structures continued.

The Division also combines with the Highway and Transportation Engineering Division to constitute the Geotechnical and Transportation Research Group which is conducting various studies into the use of local resources for the construction of rural roads. One such study which is on-going seeks to support employment creation in construction through the promotion of the use of labour-based methods.

The Section is collaborating with the ILO and the Department of Feeder Roads to conduct research into Otta seal as a substitute for chip seals in the construction of feeder roads.

The Section continued its research collaboration with the Ghana Highway Authority into the use of the DCP to determine the resilient moduli of subgrade through a correlation with the Falling Weight Deflectometer.

Currently doctorate level research is also underway to study and model ground contamination in the Owabi River catchment area by the activities at the Suame Magazine in the Kumasi Metropolis.

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HIGHWAY AND TRANSPORTATION ENGINEERING

This section is currently headed by Dr. Charles A. Adams

STAFF

M. Salifu ⁺	PhD. Newcastle, MSc. Moscow, (MIHT, FGhIE)	Assoc. Prof	Traffic and Highway Engineering Road Safety
Y.A. Tuffour	BSc(Geol Eng), KNUST, MSc, DSc (Technion- Israel), MGhIE, MGS	Assoc. Prof	Asphalt Technology, Highway Materials and Engineering. Development Engineering,
C.A. Adams	MSc DIC <i>London</i> BSc (Civil Eng) <i>KNUST</i> , MGhIE	Snr. Lecturer	Traffic, Pavement Management, Maintenance, Transport Economics
D. A. Obeng	BSc (Civil Eng), KNUST, MSc.,(Transportation Eng), Newcastle upon Tyne, PhD (Civil Engineering), KNUST	Lecturer	Transportation Planning, Investment Appraisal, Road safety

⁺On Sabbatical Leave

RESEARCH

The Section continued its research into traffic operations, road safety engineering and management and the emergence of non-conventional public transport in Ghana. The emerging phenomenon of motorcycle taxis to supplement public transport in urban and rural areas was studied. In the area of traffic engineering and operations, recent research focus has been on saturation flow studies at signalized intersections and the influence of roadside activities on the performance of such intersections. This effort has culminated in the development of area-type adjustment factors to deal with the impact of roadside friction on signalised intersection flows within the Kumasi Metropolis. Similar studies are being carried out in other metropolitan areas in the country. Studies were also carried out to develop passenger car equivalent factors to reflect local traffic characteristics and on the safety implications of driver distraction associated with in-vehicle mobile phone usage.

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WATER RESOURCES ENGINEERING

This Section is headed by Dr. G. K. Anornu.

STAFF

S. N. Odai	MSc, BEng (Hehai) <i>China</i> , PhD (TUAT) <i>Tokyo</i> , MGhIE	Professor	Irrigation & Hydraulics, Hydro- informatics
F. O. K. Anyemedu	MSc, PhD <i>Moscow</i> , MGhIE	Snr Lecturer	Hydraulics & River Engineering
G. K. Anornu	PhD, MSc (Civil Eng)	Snr. Lecturer	Irrigation & Hydraulics
F. O. Annor*	MSc (IHE, Delft) BSc (Civil Eng) <i>KNUST</i> ,	Lecturer	Water Resources
K. Amaning Adjei	MSc (IHE, Delft), BSc (Civil Eng) <i>KNUST</i> , PhD (<i>Hohai, China</i>)	Snr. Lecturer	Water Resources
*On study leave			

RESEARCH

The Section continued its research in the following areas:

1. Assessment of water resources in river basins in Ghana.
2. Urban flood modeling
3. Update of the water audit of the Volta Basin.
4. Climate change and integrated water resources management.
5. GIS and Remote Sensing for water management in the Volta Basin.
6. Ground water modeling
7. Development of rainfall intensity curves

ENVIRONMENTAL QUALITY ENGINEERING

The Section is headed by Dr. Kwabena Britwum-Nyarko

STAFF

K. Biritwum Nyarko	PhD, MSc <i>Delft</i> , BSc(Civil Eng) <i>KNUST</i> , MGhIE	Snr.Lecturer	Water Supply Management & Utilities
S. Oduro Kwarteng	B.Sc. (Civil Eng) <i>KNUST</i> M.Sc. (<i>KNUST</i>), PhD, IHE, <i>Delft</i>		Water & Sanitation
Mrs. Helen Essandoh	B.Sc. (Civil Eng) <i>KNUST</i> , M.Sc. (<i>KNUST</i>), PhD IHE, <i>Delft</i>	Snr.Lecturer	Water & Sanitation

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Richard A. Buamah	PhD (IHE), MPhil (Biochem) <i>Kumasi</i> , BSc,	Snr. Lecturer	Biochemistry, Water Treatment
Emmanuel A. Donkor	BSc (Civil Eng) KNUST, MSc <i>Delft</i> , PhD (USA)	Snr. Lecturer	Risk and Decision Analysis

RESEARCH

1. Fecal sludge management
2. Water quality assessment of selected surface water bodies in the Kumasi Metropolis
3. Water quality monitoring and assessment of wastewater treatment plants of mining industries.
4. Adsorptive removal of contaminants (fluoride, arsenic, manganese and iron) in groundwater used for drinking water supply.
5. Municipal solid waste management
6. Energy generation from combustion of plastic waste bags and sachets
7. Life cycle costing of water, sanitation and hygiene services
8. Water pricing, subsidies and cost recovery for sustainable water service delivery.
9. Public private partnerships for solid waste management
10. Latrine technology assessment

SUPPORT TO THE DEPARTMENT

Support

The Department continues to benefit from the benevolence of certain institutions and organizations. Key amongst these institutions are as detailed below:

No.	Description	Nature of Assistance
1.	The Ministry of Roads and Highways	Support for the M.Sc in Road and Transportation Engineering. Under the Government's Urban Transport Project (UTP) and Transport Sector Project (TSP).
2.	NUFFIC, Netherlands	Establishment of a joint MSc programmes in Water and Sanitation
3.	UNESCO-IHE Global Partnership Fund (UPaRF),	Support for postgraduate research into various areas in water supply and sanitation.
4	EU- support for SWITCH	Support for training, research and best practice demonstration to water sector practitioners.
5	CAPWA	Grant to capture water and energy auditing
6	SNOWS	Support for capacity building in environmental health and water supply.
7	CPWF	Support for MSc and PhD research work in the area of water resources management.

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8	WASCAL	Support for PhD research work on land use and climate change
10	ESA-TIGER	Research support of a Data Dissemination System
11.	ABP Consult	Support for Civil Engineering Design Course in the BSc programme
12.	Comptran Engineering and Associates	Support for Transportation Design Project course in the MSc. Road and Transportation Engineering Programme

The Ghana Highway Authority, Department of Urban Roads and the Department of Feeder Roads of the Ministry of Roads and Highways as well as WBHO continued to support our student vacation training programme.

COLLABORATIONS

The Department, during the year under review, signed the following memorandum of understandings detailed below:

1. Stockholm Environmental Institute (SEI)
Challenge Programme for Water and Food (CPWF) Volta V1: “Targeting and scaling out” with other partners including Institut National de l’Environnement et de Recherche Agricole (INERA), The Savanna Agricultural Research Institute (SARI), and the Department of Geography of the University of Ouagadougou
2. European Space Agency (ESA)-TIGER
Provision of Data Dissemination System for transfer of satellite imagery for research in the field of remote sensing for water management. This is in partnership with the Volta Basin Authority based in Ouagadougou
3. Welcome Trust Funded Project
This is in collaboration with eight (8) other institutions in Africa and Europe that seeks to build research capacity in environmental health and water supply in some selected Universities and Research institutions in Africa.
4. The Bill and Melinda Gates Foundation project on “SMART Sanitation”

PUBLICATIONS

Publications and conference proceedings by academic members of staff can be found in the University’s Quality Assurance Bulletin.

DEPARTMENT OF GEOLOGICAL ENGINEERING

INTRODUCTION

The Geological Engineering programme aims at providing expertise in the exploration and exploitation of natural resources and finding effective solutions to geo-environmental problems associated with the exploitation and utilization of these natural resources as in mining, construction, water, petroleum and related industries.

PROGRAMMES OFFERED BY THE DEPARTMENT

The Department offers a four-year programme leading to an award of BSc Degree in Geological Engineering. Postgraduate research programmes with emphasis in Groundwater

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studies, Engineering and Environmental Geology, Mineral Exploration and Mining Environmental Management leading to an award of MPhil and PhD degrees are also offered. The Department had also mounted MSc Geophysical Engineering programme that began 2014/2015 academic year. It is a flexible programme cutting across engineering and geoscience disciplines such that students from varying backgrounds can be accommodated.

3ENROLMENT

Student membership, including postgraduates for the academic year stands at four hundred and twenty-three (423), the details of which are indicated below:

BSc

Year	Male	Female	Total Number of Students
One	77	9	86
Two	100	8	108
Three	99	15	114
Four	67	13	80
Total	343	45	388

Post Graduate

SN.	Graduate Programme	YR 1	YR 2	TOTAL
1.	Ph.D. Geological Engineering			5
2.	M.Phil. Geological Engineering	3	3	6
3.	M.Sc. Geophysical Engineering	12	12	24
TOTAL				35

ACADEMIC AND SUPPORTING STAFF

The Academic Staff strength of the Department is twelve (12), out of which four (4) are part-time lecturers mainly engaged in teaching of course modules in the MSc Geophysical Engineering programme and one (1) is on study leave. Also the department two (2) supporting members of staff; a Senior Technician and a Principal Administrative Assistant. The current average staff-student-ratio is 1:47. Efforts are being made to recruit more academic staff.

RESEARCH ACTIVITIES

The geological Engineering Department is organized into three (3) main research grouping for the purpose of organizing teaching and research as follows:

- Environmental Geology and Earth Resources
- Engineering Geology and Geotechnics
- Hydrogeology

Environmental Geology and Earth Resources

Environmental geology and earth resources specialty is the application of geological data and information of Earth and Earth systems for people's needs and the improvement or remediation of the environment. This section provides the geological knowledge required

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by the other research groups using traditional disciplines or domains such as mineralogy, petrology, hydrogeology, structural geology and tectonics, sedimentology, and stratigraphy, geochemistry and geophysics, economic geology, mineral exploration techniques, field geological mapping and remote sensing, etc. It therefore encompasses basic geologic principles that affect conditions of life on the earth, summarizes economic mineralogy, strategic minerals and environmental effects of mining and mineral processes including the geological characterization and development of natural resources (fossil fuel and mineral deposits).

Engineering Geology and Geotechnics

The engineering geology and geotechnics specialty in the Geological Engineering Department encompasses the application of geological principles to solving engineering problems for the purpose of assuring that the geologic factors affecting the location, design, construction, operation and maintenance of engineering works are recognized and adequately provided for. Academic training in engineering geology and geotechnics encompasses geology, natural hazards, construction and site investigation, GIS, remote sensing methods, numerical techniques and engineering calculations. The group is involved in laboratory studies of the engineering properties of rocks and soils, soil improvement, geo-material characterization, engineering geological mapping.

Hydrogeology

Hydrogeology is a branch in geology that studies the occurrence and movement of water through porous and permeable geologic media and their applications for management of groundwater resources. The Hydrogeology Section is a very important component of the Geological Engineering Department that emphasizes the teaching/research of hydrogeological principles in the exploration, abstraction and management of groundwater resources to meet the increasing dependence on the resource. The section, also, emphasizes the use of hydrogeological applications in mining, construction of landfills and disposal sites for mine and industrial wastes, and environmental impact assessments.

PUBLICATIONS

Publications and conference proceedings by academic members of staff can be found in the University's Quality Assurance Bulletin.

COLLABORATIONS

Local Collaboration

The Department continues its collaboration with Minerals Commission, Construction and Water companies as well as the Mining industry. These collaborations enable students undertake industrial training programmes and field trips that are very relevant to the programme. Other benefits accrued to the Department in the immediate past included a donation of field and laboratory equipment worth Three Hundred and Sixty Thousand Ghana Cedis (GH¢360,000.00) from the Minerals Commission of Ghana.

International Collaboration

The Department has been collaborating with DUKE and STANFORD Universities in the United States of America to run modules of the MSc Geophysical Engineering programme mounted by the Department in the 2014/2015 academic year. This programme has led to the signing of Memorandum of Understanding (MoU) between KNUST and STANFORD

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University, a top university in the United States of America in 2016. The MoU signifies commitment to work together to enrich engineering education and practice. Other areas of collaboration included development of research projects, organization of joint short courses, seminars, workshops and conferences, staff and student exchange programme, among others.

DEPARTMENT OF GEOMATIC ENGINEERING

INTRODUCTION

The Department of Geomatic Engineering is one of the eleven departments in the College of Engineering with a Mission of being a Centre of excellence for Teaching, Research and Community Service in all aspects of Geo-information acquisition, archiving and dissemination.

Geomatic Engineering is a field of activity that integrates the acquisition, processing, analysis, display and management of spatial information. It includes the disciplines of Photogrammetry and Remote Sensing, Land and Engineering Surveying, Geographic Information Systems (GIS), Cartography, Geodesy, Hydrography, Cadastral Surveying and Land Information Management. It is an exciting grouping of subjects in the spatial and environmental information sciences with a broad range of employment opportunities in as much as it is the labyrinth that integrates many disciplines, as well as one with challenging pure and applied research problems in a vast range of (largely interdisciplinary) fields.

Geomatic Engineers use sophisticated measurement and data collection techniques (e.g. satellite positioning and digital imaging) and modern computer-based data management and visualization tools to play a key role in a wide range of important practical projects in fields such as:

- Design, construction and management of complex civil engineering projects.
- Acquisition of data for the production of digital and paper maps, and charts.
- Management of assets, such as land, property, and transportation infrastructure (especially through the use of GIS)
- Monitoring of our changing environment using satellite, non-topographic photogrammetry and airborne remote sensing; management of natural resources both on land and offshore
- Planning urban environments (e.g. location of schools, hospitals and supermarkets)
- Understanding and predicting earthquakes by measuring very small land movements.
- Ensuring the safety of man-made structures (such as bridges, dams and large buildings) by monitoring their deformation.
- Exploration and engineering for the production of oil and gas, especially offshore.
- Dimensional control of industrial components
- Measurement in hazardous environments such as in the nuclear power industry and on oil platforms.
- Provision of measurement information in medicine, spatial distribution and patterning of diseases, archaeology and architecture.

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The practical nature of Geomatic Engineering as recognized by the Department necessitates the teaching of a number of multidisciplinary subjects with lengthy field practical hours. This is to ensure the production of professionally skilled graduates.

The Department currently has four Sections namely;

1. Land Surveying and land management
2. Geodesy
3. Photogrammetry and Remote Sensing
4. GIS, Cartography and IT section

STAFFING

The department currently has a total of 28 academic and administrative staff which includes; three (3) Associate Professors, four (4) Senior Lecturers, seven (7) Lecturers, a Chief Technician, seven (7) Senior Technicians and a Technician. The efforts of the teaching staff are complemented by an Administrative Assistant, a Secretary, a Clerk and Survey Assistants.

The Department is currently offering postgraduate degrees, undergraduate degrees and special programmes categorized as follows:

1. Doctor of Philosophy (PhD) – 3 to 4 years
2. Master of Science (MSc) - 2 years
3. Bachelor of Science (BSc) Honours - 4 years
4. Short Courses in various aspects of Geomatic Engineering - 3 to 6 months

The PhD programme is research-based. The MSc comprises of taught course components and a project. The undergraduate programmes are all taught courses. Practical components are essential components of all courses. Field trips and vacation training programmes are integral parts of our training and this enriches the practical orientation of our students. Short courses are organised for various Departments/Organisations with special needs.

SERVICE COURSES

Due to the inter-Disciplinary nature of Geomatic Engineering, the Department provides service courses in both undergraduate and postgraduate programs to other Departments. Some of these include:

a. Postgraduate MSc degree programmes

For the postgraduate MSc degree programmes the following Departments continue to benefit from one or more of our service courses:

1. Department of Civil Engineering
2. Department of Land Economy
3. Department of Environmental Science
4. Department of Planning
5. Department of Geography.
6. Faculty of Agriculture.
7. Institute of Renewable Natural Resources.

b. Undergraduate BSc degree programmes

For the undergraduate BSc degree programmes the following Departments benefit from one or more of our service courses:

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1. Department of Architecture
2. Department of Geography
3. Department of Planning
4. Department of Land Economy and Real Estates.
5. Department of Agriculture Science
6. Department of Environmental Science
7. Department of Renewable Natural Resources
8. Department of Physics
9. Department of Civil Engineering
10. Department of Building Technology
11. Department of Petroleum Engineering
12. Department of Agricultural Engineering

In all, over one hundred (100) postgraduate students are involved in the postgraduate service courses and over one thousand (1,000) undergraduate students are involved in the undergraduate service courses per semester, which requires practical field surveying with the use of GPS, Theodolites and Total Station instruments; as well as the use of the laboratories for GIS and Remote Sensing practicals.

Despite the increased number of students, the Department has to cope with the crippling problem of inadequate and dwindling Surveying equipment. This is a major setback for effective teaching and learning. The equipment situation requires urgent upgrading to enable the Department continue to offer the required practical training for both University and Industry in the coming years.

RESEARCH

Various members of the Department have been carrying out research in the following areas:

- Global Positioning Systems (GPS) and its related application;
- Geographic Information Systems (GIS) as a management tool for efficient: Land Registration and Management, Natural Resource Management, Utility Services Development and Management, and Health.
- Land tenure and Cadastral Systems.
- Cartographic Visualization and Computer Programming
- Photogrammetry and Remote Sensing applications.

Last year the Department graduated four MSc. Students in Geomatic Engineering. The Land Administration Project (LAP) has fully sponsored two MSc. students in Geomatic Engineering. The new MSc programme in GIS will take off 2016/17 academic year.

COLLABORATION

The Department of Geomatic Engineering, the Institute of Renewable and Natural Resources (IRNR) and the International Institute for Geo-Information Science and Earth Observation (ITC), The Netherlands continue to jointly run a MSc. programme in applications of GIS and remote Sensing to Natural Resource Management dubbed GISNaturem.

SERVICE TO THE COMMUNITY AND INCOME GENERATION

Members of staff continue to provide services through their membership of Academic societies and professional bodies. Members of staff of Department of Geomatic Engineering are affiliated to the Ghana Institution of Surveyors (GhIS) and Ghana Institution of Engineers (GhIS). Two members of the Department are on the Governing Council of the Ghana Institution of Surveyors.

SERVICE TO THE NATION

1. Two members of the Department staff are members of the National Continental shelf Committee.
2. One member of the Department is currently on the Ghana Government's Advisory Committee on Land and Forestry.
3. A member of the Department serves on the Board of the School of Mapping and Surveying.
4. Several other Members of the Department serve as Examiners for various tertiary institutions and for the Board for Professional and Technician examinations.

BENEFACTORS

We are also thankful to all firms and establishments, who welcomed our students on their field trips and technical attachments. Special thank you goes to Newmont Ghana Gold, Survey Department, Rudan Engineering Limited, Sambus Limited, etc. for your benevolent support our training would not be complete.

We are also grateful to the numerous individuals and cooperate bodies who in one way or the other have contributed to the success of the Department. We look forward to continual fruitful cooperation in the years to come.

PUBLICATIONS

Publications and conference proceedings by academic members of staff can be found in the University's Quality Assurance Bulletin.

DEPARTMENT OF PETROLEUM ENGINEERING

INTRODUCTION

The Petroleum Engineering Department was established on 1st October 2014. The BSc Petroleum Engineering degree programme was started in 2004 under the Department of Chemical Engineering until it became a fully-fledged Department in 2014.

The programme currently offered by the Department is a four-year undergraduate programme leading to the degree of Bachelor of Science (BSc) in Petroleum Engineering and a two year and a half top-up Bachelor of Science in Petroleum Engineering on the Institute of Distance Learning (IDL) platform

The aim of the programme is to train high level Petroleum Engineering manpower with requisite knowledge and technical skills in petroleum exploration and production for the exploration oil and gas deposits. To achieve this, the Department, in consultation with

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Industry endeavors to run a curriculum that: assure all and sundry that the facilities would be taken very good care of and made available to all who may need to use it for the good of the University and Ghana. To meet this target we hope to

- Prepares students for immediate and successful entry into the petroleum industry or for advanced study,
- Provides a proper balance between practical and theoretical education.
- Responds to both long and short term technological needs of industry and
- Teaches social and professional responsibilities.

The Department under the period of review was involved in a number of Inter-University quizzes organized by the Society of Petroleum Engineers (SPE Ghana Chapter). Two field trips were also organized for undergraduate students to the premises of EXPRO Ghana Ltd and the Zoil Oil Ghana Ltd both in Takoradi.

The Department participated in a number of National Stakeholder meetings on Draft Laws on Environment, Health and Safety for both onshore and offshore activities in the country at the premises of the National Petroleum Commission and the National Petroleum Authority respectively.

CURRENT STUDENT POPULATION

The current student population in the Department is 229 with the breakdown per class indicated below;

Undergraduate

SN	YEAR	TOTAL REGISTERED STUDENTS
1	First	67
2	Second	40
3	Third	56
4	Fourth	66
	TOTAL	229

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ACADEMIC STAFFING

There are currently nine (9) academic members of staff made up of one (I) Assoc. Prof, one (I) Senior Lecturer, one (I) Adjunct Senior Lecturer, two (2) Lecturer's and four (4) Assistant Lecturers.

SN	Name	STATUS
1	Prof M. Adom-Asamoah	Assoc. Prof
2	Dr S.Donyinah	Senior Lecturer
3	Ing. Seth Asare-Peprah	Adjunct Senior Lecturer
4	*Mr E.C.Bentum	Lecturer
5	Mr W.N.Aggrey	Lecturer
6	Mr S.A.Afari	Assistant Lecturer
7	*Mr K.Sarkodie	Assistant Lecturer
8	Mr A.M.Ahmeed	Assistant Lecturer
9	Mr J.Adzope	Assistant Lecturer

*On Study Leave

As part of the World Bank Sponsorship programme four more students are expected to join the department. Below is the full complement of the sponsored students and the Universities they are studying at:

SN	Name	University	Expected Date of Return
1.	Sherifa Cudjoe	New Mexico Tech,USA	August 2016/17 Academic Year
2	Issah Abdallah	New Mexico Tech,USA	January, 2016/17 Academic Year
3	Ampomah William	New Mexico Tech,USA	August 2016/17 Academic Year
4	Adams Sokamah Nueyam	StavangerUniversity, Norway	August 2016/17 Academic Year

RESEARCH

For the purposes of organizing teaching and research, the Petroleum Engineering Department is organized into two main sections with specialization in the following areas of Petroleum Engineering practices:

RESERVOIR ENGINEERING & GEOMECHANICS SECTION

Mr. Wilberforce Aggrey is the Head of the Section during the year under review.

Staff

Mr. Wilberforce Aggrey	Reservoir Engineering, Reservoir Management, Geoscience
Mr. Mustapha Hameed Abdul	Reservoir Engineering, Reservoir Management
Mr. Samuel A. Afari	Petro-physics, Production Engineering Geoscience, Reservoir Engineering
Dr Stephen Kudom Doyina	Geoscience, Geology, Environmental Engineering
Mr Emmanuel Bentum	Natural Gas Engineering, Well Engineering

During the period research was conducted in the areas of flow assurance which included Experimental Study of the Effects of Grain Size Distribution on Porosity and Permeability using Synthetic Core Plugs, Reservoir characterization, uncertainty modeling and Geostatistics, Computational modeling of subsurface flow (reservoir simulation), Enhanced oil recovery (thermal, chemical, gas injection), Carbon dioxide sequestration, wettability alteration in naturally fractured reservoir, improved SAGD processes, and mobility control, Methodology of locating large volumes of by-passed oil using reservoir simulation studies followed by reservoir field studies and the Effects of Sampling on Kriging and Conditional Simulation were carried out.

DRILLING & COMPLETION ENGINEERING SECTION

Mr. Samuel Afari is the Head of the Section during the year under review.

Staff

Mr. Jonathan Adzokpe	Drilling Engineering, Well Engineering
Mr Emmanuel Bentum	Natural Gas Engineering, Well Engineering
Mr Kwame Sarkodie	Drilling Engineering, Natural Gas Engineering, Well Engineering
Mr. Samuel A. Afari	Petrophysics, Production Engineering Geoscience, Reservoir Engineering
Mr. Wilberforce Aggrey	Reservoir Engineering, Reservoir Management, Geoscience

Elements of the Drilling, well completions, and rock mechanics research programme continued under the period in review which included; the study of loss circulation materials using corn comp, formulation of shale compatible mud factors affecting ROP and drilling efficiency. Other aspects of research include the study of control parameters that affect the lubricity of oil-based mud, the use of air as a drilling fluid, techniques and advances, optimizing the transport of drill cuttings in non-vertical wells, well bore stability in highly deviated wells, and development of technology for safe handling of high subsurface pressures of gas

formations during drilling operations. Production Engineering Research covers a wide range of interests while presenting front-end technologies and meeting current industrial demands. The Department continued research in the areas of mitigating the Impacts of Fracking and Other Alternatives, Numerical Study of Nitrogen Alternating Carbon Dioxide for Enhanced Oil Recovery, and the development and Application of a Compositional Wellbore Simulator for Modeling Flow Assurance Issues and Optimization of Field Production.

PUBLICATIONS OF STAFF MEMBERS

Details of these can be found in the Quality Assurance Bulletin for the year under review.

DEPARTMENTAL ACTIVITIES

The Head of Department applied to Schlumberger for sponsorship in the form of donation of Petrel Software licence in order to support the College's vision of enriching the student's academic experience. Schlumberger has gladly agreed to donate the software license valued at \$2.5 Million for teaching, learning and research purposes. The Department is responding to the pre-requisite to the collaborative effort between the University and Schlumberger. The Department organized the first of three stage interviews for the position of Laboratory Manager and Technicians.

CHALLENGES

Shortage of Academic Staff

As part of efforts to reduce the student-lecturer ratio, the Department appointed Ing Seth Asare-Peptra as an Adjunct Lecturer who taught three courses to both the Petroleum Engineering and Chemical Engineering students. Mr. Kwame Sarkodie an Assistant Lecturer was granted study leave with pay to study in the United Kingdom for a PhD. We envision that the former students who were sponsored under the World Bank Programme would be in by the next Academic year to ease the load on current staff in the Department.

Laboratory Managers/Technicians

The practical aspects of the academic curriculum, which must be undertaken in the Petroleum Laboratories to help students understand better the Petroleum Engineering Programme, is on hold even though the Laboratories are set and ready to be used. In this direction, the Department has interviewed 20 candidates for the position of Laboratory Manager and Technicians.

It is anticipated that action would be expedited by the University Administration on the appointment of a Laboratory Manager and five (5) Technicians to enable us use the laboratories effectively in time for the start of the 2015/16 academic year.

It is hoped that once the process of the recruitment of the Technicians is completed, the training by the World Bank which is will form part of the last stage of the staff capacity building can begin.

FACULTY OF ELECTRICAL AND COMPUTER ENGINEERING

DEPARTMENT OF COMPUTER ENGINEERING

INTRODUCTION

The Department of Computer Engineering offers four-year B.Sc. Degree programmes in the following areas:

- Computer Engineering
- Biomedical Engineering

The B.Sc. Degree programme in Biomedical Engineering is relatively new. The first batch of students to the programme was admitted during the first semester of the 2008/2009 academic year.

The Department also offers the following postgraduate programmes:

- MPhil and PhD Programmes in Computer Engineering

Student Work Load:

Table 1: Undergraduate Student Work Load

Undergraduate	Full-time Students Work Load
First Degree	17 – 21 credit hours

Graduate output in the past three years of the programme

Table 2: Total Number of Graduates Produced per Year in the past three years

	Past Year (2015)	Past two years (2014)	Past three years (2013)
Total	67	67	88

Table 3: Performance Range of Graduates from the two undergraduate programmes

CLASSIFICATION	Past Year (2015)	Past 2 Years (2014)	Past 3 Years (2013)
1st Class/ Distinction	7	12	14
2nd Class Upper	43	41	53
2nd Class Lower	17	14	21
3rd Class	0	0	0
Pass	0	0	0
Total	67	67	88

Student Enrolment and Staff/Student Ratio for undergraduate programmes:

Table 4: Total Enrolment for the Computer Engineering Programme

Level	Year		
	2015/16	2014/15	2013/14
100	74	76	78
200	77	85	99
300	70	76	68
400	74	63	68
Total	295	300	313

Table 5: Total Enrolment for the Biomedical Engineering Programme

Level	Year		
	2015/16	2014/15	2013/14
100	23	19	24
200	18	21	18
300	19	16	17
400	15	17	20
Total	75	73	79

The programmes continue to enjoy high patronage from both Ghanaian and foreign students. Current undergraduate student population is 370. The postgraduate student population is 25.

STAFFING

As a result of arrangements to improve quality of teaching staff, three members of the academic staff of the Department are still on study leave. Last year two senior members went on retirement. Out of this number one member stayed in service on a post-retirement contract. In the year in review, the Department has recommended two applicants, who took advantage of Vice-Chancellor's Special Initiative on Staff Development, for the University to hire. Recently, another applicant was also recommended and has been accepted by the University Appointments and Promotions Committee awaiting appointment after the completion of due process. Three applicants, one of which is a product of Vice-Chancellor's Special Initiative on Staff Development, have submitted applications that are at various stages of processing. A member of staff is working on his PhD under the Vice-Chancellor's Special Initiative on Staff Development. The population of academic staff at in active service at the Department now stands at 8 plus one senior member on post-retirement contract and one part-time professor. In addition one prospective senior member is awaiting appointment and three still have their applications under consideration. The Department intends to submit an application to retain one professor on part-time basis. The drive to further increase the Department's staff strength to the required levels still continues.

Table 6: Staff/Student Ratio for the combined undergraduate programmes

UNIT	Total No. of Teaching Staff		Total No. of Students		Staff/Student Ratio (SSR)= $\frac{\text{Total \# of Students}}{\text{FT Staff} + * \text{FTE Staff}}$
	Full-Time (FT)	Part-Time (PT)	Full-Time (FT)	Part-Time (PT)	
Department Computer Engineering	9	1	295 + 75 = 370	0	370/9.33=40

NB: 1. Part-time Student: Any student doing less than 15 hours per workload per week
 2. *Full-Time Equivalent (FTE): 3 Part-Time (PT) teaching staff (lecturers) = 1 Full-Time (FT) teaching staff (lecturer)

PROFESSIONAL TRAINING

The Department continues to host a Cisco Training Facility that provides opportunity for students to enhance their employable skills in the field of Computer Networking.

RESEARCH

Active Research areas during the year under review include smart metering of electricity, computer networking, sensor networks, network security, image processing, photonics and its applications, improved process for glaucoma diagnosis, and product design and development for local applications. In the area of product development, prepayment meter, designed and developed by staff and students of the Department for local application, was improved upon. Also, financial assistance has been received from MTN to support two research projects—one in Computer Engineering and the other in Biomedical Engineering. In the year under review our students chalked some significant successes in product prototyping in final-year projects.

PUBLICATIONS

Members of the Department continue to make findings of their research available through several peer reviewed journals, conference and seminar proceedings and technical publications as outlined below. They also participated in numerous local and international conferences and workshops. Details of these can be found in the University's Quality Assurance Bulletin for the year under review.

DETAILS OF LINKS WITH OTHER UNIVERSITIES AND INDUSTRY

The Department continued its collaboration with the VRA, ECG and GRIDCO and its links with Texas Instruments Inc. (TI). Under the linkage programme with TI is in the early days of the second phase (preparation to mount a postgraduate programme).

The Department, among a group of three KNUST departments, stands to benefit from a successful collaboration with Hanbat National University of the republic of Korea in a project aimed at improving educational infrastructure to enhance the training of highly skilled information technology experts at KNUST.

SERVICE TO THE COMMUNITY

Staff of the Department continued to render services to the nation through consultancy services to the University and outsiders in areas of electronic, computer, communication and biomedical engineering. Three members of the academic staff are currently serving as moderators and/or external examiners for a number of private and public universities. Some members of our academic staff have served on various accreditation panels for the National Accreditation Board. A senior member of the Department is the current ICT consultant to the University.

INCOME GENERATION AND DONATIONS

Texas Instruments Inc. continues to support the Department with funds and this year twenty-five Thousand US Dollars (US\$25,000) is expected to be received from TI to support various activities of the Department and the Faculty of Electrical and Computer Engineering.

Texas Instruments Inc. has supported the Faculty of Electrical and Computer Engineering in facilitation a semester stay at Texas A & M University for twenty-two final-year students and also sponsoring twenty-four of our graduates for their Master Degree programme of study at the same University. These activities, together with the establishment of the TI-Cadence Microelectronics Laboratory and annual monetary gifts, constitute a support to the tune of about Two Million US Dollars (US\$2,000,000)

DEPARTMENT OF ELECTRICAL/ELECTRONIC ENGINEERING

INTRODUCTION

The Department of Electrical & Electronic Engineering was established in 1952. Till quite recently, it was the only institution which was training professional electrical and electronic engineers for the Ghanaian economy. Over the years, the Department has graduated a large number of engineers who occupy important positions in the Telecommunication, Power, Manufacturing, Mining and Computer sectors of industry as well as other sectors of the Ghanaian economy. Very sensitive organizations in the country like the VRA, the ECG and GRIDCO have most of their electrical engineering workforce consisting of graduates from this Department. Today, the Department is at the forefront of providing the nation's manpower needs in electrical, electronic and telecommunication engineering and continues to be the main source of electrical, electronic and telecommunication graduate engineers for the nation. The Department runs a four-year BSc Degree programme in Electrical & Electronic Engineering, a four-year BSc degree programme in Telecommunication Engineering as well as a two-year MPhil programme in Telecommunication Engineering. An MPhil programme in Electrical Power Systems Engineering has been developed and will hopefully start in the 2016/2017 academic year. The Department also offers doctoral degree programmes based purely on research in Electrical and Telecommunication Engineering.

The undergraduate programmes continue to enjoy high patronage from both Ghanaian and foreign students, the foreign students being mainly from Nigeria and other neighbouring countries. The total undergraduate student enrolment for the two programmes in the year under review stood at 645, about eleven per cent (11%) of them being females. The foreign students constituted about ten per cent (12%) of the student population.

STAFFING

Dr. Kwasi Adu-Boahen Opare resumed duty in the year under review after completing his studies for a Doctorate Degree in Electronic Engineering at the University of Electronic Science and Technology (UESTC) in China.

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Dr. Jerry John Kponyo delivered lectures on Introduction to Business Intelligence and Business Intelligence Tools in January 2016 to Postgraduate Students at Ecole Supérieure d'Ingenieurs (ESIGELEC), a University in France.

ACADEMIC STAFF DEVELOPMENT

Under the University Staff Development Scheme, the Department has a number of academic staff pursuing various postgraduate programmes to improve its staffing situation:

- (1) One academic staff graduate with a PhD in Electrical Engineering under a special VC's Staff Development Initiative.
- (2) One academic staff is pursuing a PhD programme in Information and Communication Engineering at the University of Electronic Science and Technology (UESTC), China under KNUST/UESTC sponsorship.
- (3) Two academic staff members are pursuing PhD programme in Electrical Engineering at KNUST under a special VC's Staff Development Initiative.
- (4) Two academic staff were part of a programme to train trainers for the GRIDCo training school to be put up on campus.

RESEARCH

The year under review witnessed a remarkable improvement in research activities evidenced by fourteen (14) journal and conference papers produced by staff and postgraduate students during the period. The active research areas included:

- (1) Optimal design of isolated power systems
- (2) Electrical impact assessment of solar photovoltaic distributed generation in grid-connected networks
- (3) Transient stability status prediction in power systems
- (4) Tracking of maximum power point of solar panels
- (5) Wireless network optimization
- (6) Data communication and
- (7) 4th generation network deployment

PUBLICATIONS

Details of these can be found in the Quality Assurance Bulletin for the year under review.

SERVICE TO COMMUNITY

The Department continues to render laboratory services to other tertiary institutions. They include Takoradi Polytechnic and University of Energy and Natural Resources. Mr. E. K. Anto, a member of academic staff continued to serve as Electrical Services Consultant to the University. Staff continue to serve the nation through membership on Boards such as NABPTEX and Committees such as National Technical Committee on Energy Meters.

INCOME GENERATION

Production units and consultancy services constitute the main income generating activities. The active production units are motor rewinding unit which rewinds electric motors, generators, transformers and similar electrical devices which depend on energising coils for their operation, and public address unit which provides public address and sound system for public functions mainly on campus.

FACULTY OF MECHANICAL AND CHEMICAL ENGINEERING

DEPARTMENT OF AGRICULTURAL ENGINEERING

INTRODUCTION

Agricultural Engineering is the application of engineering and biological principles to develop technologies and solutions to problems in agriculture to remove drudgery and to increase productivity and efficiency of farmers. The Department of Agricultural Engineering is currently organized into **four sections** namely Agricultural Machinery Engineering, Soil and Water Engineering, Food and Postharvest Engineering and Agro-Environmental Engineering. The Department is under the College of Engineering.

STAFF

The academic staff strength in the department during the 2015/2016 academic year is 14. One person is on sabbatical leave. Staff members are actively engaged in the three areas of research, teaching and service to the community in various capacities. The distribution of staff academic rank in the Department is as detailed below:

Academic Rank	Number
Professor	4
Associate Professor	3
Senior Lecturer	6
Lecturer	1

TEACHING, STUDENT ENROLMENT AND GRADUATION

During the period under review, the Department continued to run the BSc Agricultural Engineering Degree Programme and the Mechanisation Option of the BSc. Agriculture Programme. The Department offers service courses to students offering BSc. Agribusiness Management, Dairy and Meat Science Technology and Landscape Design and Management at the Faculty of Agriculture. The Department also offers service courses to MSc/MPhil programmes in Seed Science and Technology, Postharvest Physiology and Landscape Studies all at the Department of Horticulture; Water Resources Engineering at the Department of Civil Engineering; Biotechnology at the Department of Food Science and Technology and Environmental Science at the Department of Theoretical and Applied Biology. Sixty-six (66) students were admitted for the regular BSc. Agricultural Engineering programme in the year under review. Seventy-eight (78) regular students and fifteen (15) IDL top-up students are expected to graduate in the current academic year.

GRADUATE DEGREE PROGRAMMES

The eleventh batch of graduate students was admitted this academic year since the graduate programme started in 2004/2005 academic year. Eighteen (18) postgraduate students were admitted in the year under review. Currently, there are seventeen (17) PhD students and twenty-eight (28) MSc / MPhil students in the following areas of specialization:

- Agricultural Machinery Engineering;
- Agro- Environmental Engineering;
- Bioengineering;

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- Food and Postharvest Engineering; and
- Soil and Water Engineering.

During the November 2015 graduation, five (5) MSc/ MPhil students from the various specializations graduated. Currently, four (4) MPhil students have gone through a successful viva and will graduate in July 2016.

STAFF DEVELOPMENT

One (1) Associate Professor, namely Prof. E. Y. H. Bobobee retires at the end of the academic year under review. Prof. Ato Bart-Plange, Prof. Ebenezer Mensah and Prof. Sampson Kwaku Agodzo were promoted to full Professors in the year under review. The promotion of Prof. Bart-Plange took effect from 1st August 2013 while the promotions of Prof. Mensah and Prof. Agodzo both took effect from 1st August 2014. A process to recruit three (3) additional teaching staff is ongoing. The Department is critically understaffed regarding its support staff such as administrative assistants, laboratory and workshop technicians and has had to depend on Part-Time lecturers.

STAFF RESEARCH

Staff of the Department continues to engage in research activities leading to the development of innovative technologies to help reduce drudgery and ensure effective resource utilisation in agriculture. Notable among them are the multipurpose solar biomass hybrid dryer for drying agricultural produce, improved yam storage systems for food security and income in Ghana and the TEK Mechanical Cassava Harvester which was shortlisted among 12 finalists in Africa by the Royal Academy of Engineering (RAEng) of UK for the Africa Prize in Engineering Innovation (APEI), 2015-2016. Staff of the Department have been supervisors/ co-supervisors of five (5) WASCAL PhD students who have successfully gone through viva and will graduate in July 2016.

Publications arising out of research by staff have been submitted for publication in the 2016 Quality Assurance Bulletin. Staff in the various sections/ research groups and their research activities are listed as follows:

Agricultural Machinery Engineering

This section is headed by Prof. E. Y. H. Bobobee.

Name of staff	Specialisation
Prof. E. Y. H. Bobobee	Farm Power and Machinery
J. Aveyire	Agricultural Machinery Design
S. H. M. Aikins	Agricultural Machinery Engineering; Economics and Industrial Management
K. A. Aikins	Agricultural Machinery Engineering

1. Assessing the perception of tractor operators and owners about tractors breakdown
2. Assessing tractor operators' perception about tractor safety
3. Studies on appropriate tillage practices for Ghana

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4. Design of simple tools and machines for fruit harvesting and cocoa pod breaking
5. Assessment of tractor maintenance practices of tractor operator
6. Assessment of the impact of motorised tricycle of the transportation of agricultural produce
7. Modification of motorized tricycles for agricultural operations

Agro-environmental Engineering (includes Bioengineering)

This section is headed by Dr. Francis Kemausuor

Name of staff	Specialisation
Prof. A. Bart-Plange	Agricultural Structures and Environment
Dr. F. Kemausuor	Renewable Energy Technologies

1. Renewable Energy Support for Agriculture in Northern Ghana
2. Biogas potential of agro-waste resources
3. Geographical Information Systems (GIS) – based support for promoting energy access in West Africa
4. Characterization and utilization of Jatropha Curcas and its by-product for energy application
5. Development of renewable energy systems for food processing
6. Biochar Application for Cost Effective Rice Production
7. Modelling of operating conditions of corn stalks gasifier for the production of biochar.
8. Utilization of hermetic storage technology for improved shelf life of maize and cowpea
9. Effect of Climatic variables on crop production in selected district
10. Documentation of thermal and physical properties of Ghanaian food crops

Food and Postharvest Engineering

This section is headed by Prof. K. A. Dzisi

Name of staff	Specialisation
Prof. K. A Dzisi	Post-Harvest Processing, Storage
Prof. A. Addo	Bioengineering, Postharvest Engineering
Dr. J. O. Darko	Post-Harvest Processing, Storage
J. O. Akowuah	Food and Post-harvest Eng. And Bio-Energy

1. Weight loss determination methods for maize and cowpea stored in different environments
2. Post-harvest handling methods for cocoa and their influence on bean quality
3. Mass and dimensional properties of different vegetables grown in Ghana
4. Effect of pretreatment on cassava flour quality for composite bread
5. Comparative study on force and natural convection solar dryers for drying agricultural produce
6. Pesticide residues in fruits and vegetables in northern Ghana

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7. Comparative evaluation of three maize shelling methods for small-scale farmers
8. Evaluation of a modified yam barn for the storage of different varieties of yam
9. Characterization of building materials for the construction of yam barns
10. Development of improved yam barns using locally available materials for yam storage in Ghana
11. Study on the utilization and characterization of Borassus Flabellifer as an engineering material for construction of improved yam barns in Ghana
12. Functional and visco-elastic properties of cassava flour.
13. Infra-red drying of mango-sweet potato leathers
14. Influence of boiling, temperature and thickness on drying time of aerial yam (*Dioscorea bulbifera* bulbis). Air drying characteristics of aerial yam (*Dioscorea bulbifera*).
15. Design, construction and testing of a sample divider for laboratory analysis.
16. Design, construction and testing of a small-scale solar dryer for drying high quality vegetables.
17. Determination of usable proportion of cereals and legumes in the retail trade.
18. Efficacy of vegetable extracts as protectants for cereals and legumes.
19. Performance of stored yams in two novel storage barns.

Soil and Water Engineering

This section is headed by Prof N. Kyei-Baffour

Name of staff	Specialisation
Prof. N. Kyei-Baffour	Soil and Water Engineering
Prof. S. K. Agodzo	Soil and Water Engineering
Prof. E. Mensah	Rural Engineering
Dr. W. A. Agyare	Soil and Water Engineering

1. Water saving technologies for irrigated agriculture
2. Modelling of groundwater recharge
3. Use of hydromorphic soils for year round crop cultivation
4. Impacts of mining on ground and surface water quality as well as on agriculture
5. Land use / land cover changes and their impact on agriculture
6. Modelling of agricultural water systems
7. Climate change impact on hydrological ecosystem services
8. Design of a solar pump

PRODUCTION AND EXTENSION ACTIVITIES

During the year under review, the Department provided the following services to the University and other organisations:

- Dr. W. A. Agyare currently serves as Hall Master of Unity Hall and Deputy Director of WASCAL.
- Prof. A. Bart-Plange and Prof. A. Addo are Hall Council members for University and Unity Halls respectively.
- Prof. S. K. Agodzo and Dr. W. A. Agyare are part of a JIRCAS research collaboration on soil and water engineering in the Northern and Ashanti Regions. They are also Steering

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Committee member and Deputy Coordinator, respectively, for the Ghana Soil Information Service (GhaSIS) that is developing digital soil maps for Ghana.

- Mr. J. Aveyire has been appointed by the VC to represent the university on the Board of Desert Lion International Co. Ltd.

The Department has also been involved in the:

- Construction of solar traffic/ street lights for the university in collaboration with the Department of Physics and Department of Mechanical Engineering.
- Design and development of solar maize dryers for farmers in Ejura.
- Development of improved yam barns for food security and income generation in Ghana.
- Construction of equipment to mill and mix feed form poultry farmers.

INDUSTRY LINKAGE

During the year under review, the Department, under the auspices of the College of Engineering/ University has continued to engage the following companies following MoUs signed in the previous year:

- Desert Lion International Co. Ltd
- Santinos Fine Meat and Sausages Limited, Kumasi
- Asamoah and Yamoah Farms Limited, Kumasi
- Premium Foods Limited, Kumasi

Within the framework of these MoUs, the department provides engineering support services and training to the companies concerned while the companies in turn facilitate student placements for vacation training and staff research.

DEPARTMENT OF CHEMICAL ENGINEERING

INTRODUCTION

The Department of Chemical Engineering offers two four-year degree programmes leading to the award of BSc. Chemical Engineering and BSc. Petrochemical Engineering. Graduate programmes leading to the award of MSc, MPhil and PhD in Chemical Engineering are also offered in the Department. The Department runs top-up for HND holders to BSc Chemical Engineering at the Institute of Distance Learning as well.

We also have the Professional Masters of Engineering programme with Management in Oil and Gas. The programme was designed for practicing engineers who want to further their carrier in management positions and increase their knowledge in their profession as well. The programme offers professional and management courses to achieve this goal.

STUDENT POPULATION

The undergraduate student population in 2015/16 academic year stood at 668.

BSc Chemical Engineering Programme

	Ghanaian Regular	Ghanaian Fee-Paying	Foreign	Total
Year 1	87	4	6	97
Year 2	93	2	5	100
Year 3	74	42	10	126
Year 4	50	14	10	74
TOTAL	304	62	31	397

BSc Petrochemical Engineering Programme

	Ghanaian Regular	Ghanaian Fee-Paying	Foreign	Total
Year 1	38	6	7	51
Year 2	64	5	5	74
Year 3	47	31	4	82
Year 4	47	12	5	64
TOTAL	196	54	21	271

We have 8 postgraduate students in the MSc, MPhil and PhD in Chemical Engineering programmes. 9 students are on the Professional Masters of Engineering programme with Oil and Gas option.

STAFF STRENGTH

Currently, there are 8 full time, 1 part time, and 1 visiting lecturer at the Department and 2 lecturers are on contract. 1 lecturer is on study leave and one is on leave of absence. The Department also has 6 non-teaching staff to support the activities.

LABORATORIES

The Department had set up a small Biogas Laboratory through The Energy Center with the assistance of the North Rhine-Westphalia State Government.

The Department was a beneficiary of the World Bank Capacity Building Project in the Oil and Gas Sector. Through the project our laboratories were refurbished and 72 pieces of new, state of the art equipment were installed to elevate the undergraduate training we can provide for our students and to help research work at the Department. The labs were commissioned on 22nd April 2016.

PROJECTS

The Department is involved in a large number of funded projects. They bring recognition not only to the Department but to KNUST as a whole. These projects are as follows:

- DANIDA research project on production of second generation biofuels from lignocellulosic materials (2GBIOGNRG).
- DANIDA research project on development of seaweed biorefinery in Ghana (SEABIOGHA).
- A joint research with SNV Netherland, CSIR Soil Research Institute and KNUST on biochar.
- Global methods initiative (GMI) project: Feasibility studies to support landfill gas recovery in Ghana.

PUBLICATIONS

Publications and conference proceedings by academic members of staff can be found in the University's Quality Assurance Bulletin.

B.Sc. MATERIALS ENGINEERING

YEAR	NO.
First year	51
Second year	50
Third year	64
Fourth year	76
Fifth year	4
Sixth year	2

B.Sc. METALLURGICAL ENGINEERING

YEAR	NO.
First year	31
Second year	56
Third year	55
Fourth year	61
Fifth year	3
Sixth year	

M.Sc. ENVIRONMENTAL RESOURCES MANAGEMENT

YEAR	NO.
First year	6
Second year	11

PHD MATERIALS ENGINEERING

DEPARTMENT OF MECHANICAL ENGINEERING

INTRODUCTION

The Department of Mechanical Engineering has a primary responsibility to produce engineers capable of designing, manufacturing, servicing and maintaining machinery and equipment. This is a challenging task due to the vast scope of machinery being developed and used by humankind (from design, manufacturing, and maintenance of complex machines such as interplanetary rockets to simple household kitchen appliances such as can opener). The training needs to be thorough and focused. Our immediate national needs are not to build rockets and missile launchers but to create fundamental machine tools and other equipment that can increase productivity of our people in various fields of endeavour.

Our challenge is compounded today by inadequacy of resources that would ensure that our department can train young engineers who can face the challenges. The Mechanical Workshop, Heat Engines Laboratory, Mechanics of Machines Laboratory and the Strength of Materials Laboratory which have, over the years, been the bedrocks of our practical training

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facilities have all run down and need to be completely revamped with new machines to reflect emerging trends in industry. New workshops to provide training and enhance intensive research in foundry, welding, sheet metal fabrication, plastic injection moulding, integrated circuit boards manufacturing, computer numerically controlled (CNC) machining practices are necessary additions that require urgent funding to set them up.

To meet emerging trends in industry, we have set ourselves new goals to delineate our training into five programmes that can best be handled in four distinct departments. The emphasis is on focused, in-depth, high quality training that will arm our graduates with knowledge, expertise and confidence to address problems in various specific industries in a national development agenda.

TEACHING

The teaching activities at the Department of Mechanical Engineering are pivotal for national development. Currently, the Department offers two four-year undergraduate programmes leading to the award of B.Sc. Mechanical Engineering and B.Sc. Aerospace Engineering degrees. The Department also runs a two-year top-up programme for HND holders in collaboration with the Institute of Distance Learning of KNUST.

The Department of Mechanical Engineering has been running the MSc. and PhD Programme in Mechanical Engineering with specialisation in *Thermo-fluids and Energy Systems Engineering* option since 1990. Since August 2003, the programme has been expanded to cover the other areas of specialization that currently exist in the department, namely Applied Mechanics, and Design and Manufacturing, and Renewable Energy Technologies.

STAFFING

The Academic staff strength stands at twenty-one (21). Currently, three (3) members are not at post. They are on sabbatical and study leave, respectively.

STAFFING SITUATION

SN.	Status	Number
1	Associate Professors	1
2	Senior Lecturers with PhD	9
3	Lecturers with PhD	2
4	Lecturers without PhD	7
5	Assistant Lecturer	1
6	Technical Instructor	1
	Total	21

CURRENT STUDENT POPULATION

Mechanical Engineering Undergraduate

SN.	Year	Total Registered Students
1	First	155
2	Second	159
3	Third	160
4	Fourth	95
	Total	569

College of Engineering

Aerospace Engineering Undergraduate

SN.	Year	Total Registered Students
1	First	21
2	Second	25
3	Third	47
4	Fourth	25
	Total	118

MSc and PhD Mechanical Engineering

SN.	Year	Total Registered Students
1	First	12
2	Second	13
	Total	25

MSc Renewable Energy Technologies

SN.	Year	Total Registered Students
1	First	19
2	Second	25
	Total	44

PhD Mechanical Engineering

SN.	Year	Total Registered Students
1	First	3
2	Second	3
	Total	6

The student population is 626. With this student population, a staff strength of 35 is required to keep the staff to student ratio of 1:18 as required by the National Accreditation Board norms.

PUBLICATIONS

Publications and conference proceedings by academic members of staff can be found in the University's Quality Assurance Bulletin.

COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY

- Prof. F. K. Forson is serving as External Examiner for University of Education, Winneba
- Dr. Sunnu is the Chairman of the Programmes Advisory Committee (PAC) of the (HND Automotive Engineering) Koforidua Polytechnic, a member of Ghana Standard Board Technical Committee for standardization and also involved in the establishment of a National Energy Data Processing and Information Center (NEDPIC) for the Energy Commission.

College of Engineering

- c) Dr. Gabriel Takyi has been appointed as Academic Board Representative on Faculty of Automobile Engineering Board of Ho Polytechnic, an affiliate of KNUST.
- d) Dr. S. M. Sackey serves as the KNUST Representative on the TUNING Project

INTERNATIONAL LINKAGES

Links have been maintained between Department of Mechanical Engineering and the following institutions:

- North Carolina Agricultural and Technical University NCA&T,
- Southern University, USA
- University of Michigan, USA
- 2IE International Institute for Water and Environment, Ouagadougou University.

BENEFACTORS

A number of organizations and individuals have continued to give extremely valuable support to the Department to enhance teaching and research activities. We wish to express our profound gratitude to the following organizations:

- The Crocodile Matchets Ghana Limited, Tema; Volta River Authority; Aluworks Limited, Tema; Takoradi Naval Base; Tema Lube Oil; Tema Oil Refinery; and Ghacem, Tema; for their continuous support for our students' industrial visit.
- Toyota Ghana fulfilled its pledge of supporting brilliant but needy Mechanical Engineering students with an amount of GH¢ 5,000.00 which has since been paid to the University Central Administration.

RESEARCH CENTERS

TECHNOLOGY CONSULTANCY CENTRE

INTRODUCTION

The Technology Consultancy Centre (TCC) of College of Engineering was established in 1972. The TCC focuses on applied and field based research, development and transfer aimed at small and mid-scale enterprise development and poverty reduction. To realize this objective, the TCC operates the following programme Units.

1	Suame Intermediate Technology and Transfer Unit (ITTU)
2	Food, Agriculture and Natural Resource Development (FAND) Unit
3.	Applied INDUSTRIAL Ceramics and Rural Enterprise Development (AIC-RED) Unit
4.	Entrepreneurship Development Unit
5.	Cookstove Testing and expertise Laboratory (C-Lab)
6.	Consultancy

RESEARCH AND DEVELOPMENT

Suame Intermediate Technology Transfer Unit (ITTU)

During the period under review, the Suame ITTU continued to provide technological expertise, prototyping and machine development to support the private sector, community members and KNUST final year project students. During the period 2015-2016, the ITTU carried out the following activities:

- Developed and fabricated 4 pug mills, 4 kilns, and 7 potter's wheels for the National Commission on Culture.
- Produced 18 cassava presses under the TCC-IDIN Project.
- Organized a Creative capacity Building (CCB) workshop for 35 artisans at Suame Magazine.
- Studies of the blending Jatropha oil with diesel fuel continued.
- Developed and studied bio-charring equipment for carbonizing Jatropha husk.
- Upgraded the existing seminar room by renovating it into a modern training room.

Food Agriculture and Natural Resource development (FAND) Unit

This year the FAND Unit was well patronized by both postgraduate and undergraduate students who carried out some oil extraction and food processing. Work with beekeepers that had been trained under the COTVET/SDF Skills Training Programme continued as a follow up. Other scientific research in respect of bee management was undertaken.

Applied Industrial Ceramics and Rural Enterprise Development (AIC-RED) Unit

Researchers at the AIC-RED Unit carried out research and development activities on household ceramic water filters, facing and insulating bricks production, plastic to fuel (PTF) research and clean energy development technologies for high efficiency cook stoves. Other activities were the transfer of improved institutional cookstoves. The AIC-RED unit continues to study and analyse the 10kw biomass gasification power plant and had several students working on it.

Entrepreneurship Development Unit

This Unit focuses on collaborative work in international development and graduate entrepreneurship training. During the year,

- The unit assisted in the placement of students of College of Engineering who did their vacation training with small to medium scale enterprises in Kumasi Suame Magazine and other locations in Kumasi.
- The Unit assisted in the organization of the CCB training at the Suame ITTU for 35 artisans; and 20 welding and fabrication artisans at Konongo; and over 25 local artisans and groundnut growers.

Cookstove Testing and Expertise Laboratory (C-Lab)

Since its establishment The Cook stove Testing and Expertise Laboratory (also known as the C-Lab) has striven to fulfill its mandate. Stoves were tested for private stove manufacturers, and student projects also received attention.

MAJOR RESEARCH BY STAFF

The following research activities are being undertaken by academic staff of the Centre.

Dr. Peggy Oti-Boateng (Post Sabbatical Leave of Absence)

- Science, Technology and Innovation Systems and Policy
- Food Processing and gender-related issues

Dr. George Y. Obeng

- Waste vegetable oil (WVO) as a potential feedstock for biodiesel production
- Study of extraction, blending, quality improvement and price analysis of *Jatropha* oil
- Soar PV Electrification and Impacts on Development
- Design, development and testing of briquette machine for *Jatropha* husks
- Design, development and testing of bio-charring unit for *Jatropha* husks
- Design, development and testing of mango juice extracting machine
- Design, construction and evaluation of hybrid solar dryer for drying of fruits
- Study of innovations among small engineering enterprises in Kumasi
- Standardization of cassava grating surface teeth.

Dr. Michael K. Adjaloo

- Nectar Production Dynamics in Two Melliferous Plant Species.
- Some morphometric analyses of the West African Honeybee *Apis mellifera adansonii*
- Toxicity in *Jatropha curcus* derived honey
- Pesticides in honeys in vegetable growing areas
- Development of beeswax-based products
- Honey harvesting, processing and quality
- Study of *Jatropha*-based products methods of extraction, quality improvement and price analysis.
- Policy Fellow under the DRUSSA Project attached to the Ministry of Environment, Science, Technology and Innovation (MESTI).

Mr. Donald Amrago

- Elimination of in-door air pollutants generated by biomass usage
- Institutional stoves for agro-processing , kilns and furnaces
- Students entrepreneurship development
- Teaching as an adjunct instructor

Mr. Michael K. Commeh

- Study of household ceramic water filter candles
- Defluoridation of ground water in Northern Region of Ghana
- Development of bio briquettes for clean smokeless cookstoves
- Investigation into the conversion of waste plastic into fuel
- Development and construction of institutional cookstoves

Mr. Kenneth Donkoh

- Production of facing tiles using manganese to increase strength
- Effect of different designs and materials of the hives on internal hive temperature

Mr. Johnson Asante

- Design, development and testing of briquette machine for Jatropha husks
- Design, development and testing of bio-charring unit for Jatropha husks
- Design, development and testing of mango juice extracting machine
- Study of innovations among small engineering enterprises in Kumasi

NATIONAL COLLABORATIONS

- TCC-UNDP/Energy Commission Cookstove testing and expertise lab at KNUST
- TCC-SNV Biomass Gasification Development
- TCC-COTVET/SDF Skills training programme for beekeepers associations
- TCC-National Commission on Culture (NCC) contract award of GH¢109,000 for the supply of machinery and equipment (pug mill, potter's wheel and gas kiln)

INTERNATIONAL COLLABORATIONS

Jatropha Energy Facility (JEF) Project

During the year under review the TCC in collaboration with the Spallanzani Technologies of (Italy), the New Energy (Tamale) and Municipality of Dori in the Burkina Faso is implementing a Jatropha Energy Project in 4 farming communities in Kparigu, Nasia, Wungu and Yaama all in the West Mamprusie District. The TCC's contribution to the project is machinery installation and training in:

- Functioning of decorticator, including seeds treatments before pressing
- Functioning of expeller
- Maintenance of Machines (expeller, decorticator, engine), including ordinary and extra-ordinary maintenance.
- Safety measures for machines utilization
- Productive performance of the machines (decorticator, expeller, engine): input requirements (kg of J. seeds), outputs obtained (kg oil produced + extraction panels), diesel/J. oil consumptions, hours of work required for producing 1 liter of Jatropha oil, production cost of 1 liter of J. oil.
- Use of Jatropha oil in diesel engines (blending and other alternatives) of Rural Multifunctional Platforms (RMFP) and of Stand Alone Power Systems (SAPS) for lighting.
- Potential utilisation of Jatropha secondary products

TCC-MIT International Development Innovation Network IDIN Project

The International Development Innovation Network (IDIN) programme is a 3 year USAID funded cooperative agreement with the following goal "To create and build a global network of change makers that enables the design, development and dissemination of innovations that address key development challenges associated with poverty, while building capacity in communities for local innovation and creative problem-solving" IDIN is structured as a consortium of universities including MIT, USA, Olin College of Engineering, USA, Colorado State University, USA, University of California Davis, USA, University of São Paulo, Brazil, and TCC, KNUST, Ghana. The total project grant is about **US\$15 million** with varying USAID support and institutional cost sharing. In implementing the programme TCC will set up Innovation Centers at the ITTU and a rural community in Ghana. Furthermore, undergraduate and graduate students of cognate departments of KNUST will be engaged and financially supported in innovative technology development and entrepreneurship, IDIN achieved the following during the period 2014-15:

College of Engineering

- TCC/IDIN-MIT provided **US\$8,100** to support Ghana Engineering Students Association (GESA) and Creativity Group all of the College of Engineering to organize Design Competition in September 2014.
- Since February 2015, TCC has awarded a total of 10 materials grants amounting to **US\$6,500** to support final year projects of 20 engineering students from the Department of Agricultural Engineering, computer Engineering, Materials engineering and Mechanical Engineering.
- Supported TCC staff to develop new MSc/MPhil curriculum with institute of Distance Learning (IDL) of KNUST known as MSC/MPhil Technology Management and Entrepreneurship.
- Supported TCC staff with funds to renovate the building that was used for housing the cookstove testing and expertise laboratory (C-Lab)
- Procured 16 sets of tools for organizing hands on CCB training in Kumasi, Ghana.
- Supported the TCC to develop questionnaires for data collection on innovations and building of database of over 500 local innovators.

TCC-MIT Practical Impact Alliance (PIA) Co-design Summit 2015

The TCC and D-Lab of Massachusetts Institute of Technology (MIT), USA organized a Practical Impact Alliance (PIA) co-design summit 2015 at KNUST, Kumasi. The event was held at the IDL International Conference Centre This programme provided access to researchers, experts and partner institutions that are actively advancing in fields such as appropriate design, market and user research technology evaluation, and business models for the developing world. The current members of the PIA include representatives from Ajinomoto, Community Enterprise Solutions, Danone, Grameen Foundation, Green-light Planet, Greif, Johnson & Johnson, Melton Foundation, Unilever, and World vision International.

TCC-Spallanzani Technologies Jatropha Energy Facility (JEF) Project

The TCC is working in collaboration with Spallanzani Technologies-Italy, Municipality of Dori in Burkina Faso, Nucleo Ricerca desertification (NRD), University of Sassari, Italy, and New Energy –Tamale, on European Commission ACP-EU Jatropha Energy Facility (JEF). The current eligible funding for TCC action is **•15,000** which is earmarked for capacity building of local stakeholders through technological transfer and training on self-management of energy facilities self-production, processing and use of Jatropha curcas. Specific training activities with training manuals and panels to be delivered by TCC include:

- Functioning of expeller and decorticator, including seeds treatments before pressing
- Jatropha oil treatment and stock operations
- Maintenance of Machines (expeller, decorticator, engine), including ordinary and extra-ordinary maintenance.
- Safety measures for machines utilization
- Productive performance of the machines (decorticator, engine), input and output requirements etc.
- Use of Jatropha oil in diesel engines (blending and other alternatives) of Rural Multifunctional Platforms (RMFP) and of Stand Alone Power Systems (SAPS) for lighting.
- Potential utilization of Jatropha secondary product.

TEACHING SUPERVISION OF STUDENTS AND TRAINING

Teaching and Supervision of Students

- **Dr. George Yaw Obeng** taught the following MSc/Mphil/PhD courses: PL553 Quantitative Methods for Planning and PL 611 Spatial Statistics at the department of Planning; and AE 568 Production Planning of Renewable Energy Systems, AE 543 Renewal Energy Applications for Rural Development at the department of agricultural engineering, KNUST.
- **Mr. Donald Amrago** Adjunct lecturer and co-supervised 3 final year students of Department of Integrated Rural Art and Industry and 3 final year student of Department of Industrial art (Ceramic Section).
- **Dr. Michael K. Adjaloo** is currently teaching Apiculture at the department of Agricultural Economics, Agribusiness and Extension, Faculty of Agriculture, KNUST. He is co-supervising 1 MPhil student in the Department of Materials Engineering on the topic: The Effect of different designs of Beehive on Hive temperatures; and two Department of Geography on value chain analysis of beekeeping in Ghana. Additionally, he is co-supervising 2 D. Pharm students who are investigation into toxicity in honey derived from *Jatropha curcas*.
- **Mr. Michael Commeh** co-supervises 2 MSc and 2 final year students who are working on bio-briquetting and clean cookstoves at the department of Agricultural engineering and one student at the department of Industrial Art (Textiles).
- **Mr. Kenneth Donkoh** co-supervises final year students who are working on the ceramic activities at the Kumasi Cultural Centre and its impact on the economy and culture of Ghana at the Department of Industrial art, KNUST.
- **Mr. Johnson Asante** is the contact person for final year students' projects that were financed by the TCC-IDIN grant.
- **Creative Capacity Building (CCB) Training Workshop**

During the period under review, the TCC organized 2 Creative Capacity Building (CCB) training for a total of 59 participants at Suame Magazine on technologies on maize shelling, and New Longoro on groundnut planters.

It is expected that TCC staff who took part in the CCB will in the future help extend the CCB concept. There were four projects worked on by the groups during the CCB. These were maize planter, water chlorinator, plantain dryer, and palm kernel shell crusher.

SERVICE TO COMMUNITY

Dr. George Yaw Obeng served as a Member of Committee to finalise College of Engineering Input Three Tier Administrative System College; Member College of Engineering Research Innovation and Conference Committee (RICC). Panel Member for Renewable Energy Programmes, National Accreditation Board, Ghana Consortium Member, International Development Innovation Network (IDIN), of USAID Higher Education Solution Network (HESN).

Dr. Michael K. Adjaloo served as a Chairman of the KNUST Tourism Project, College Representative on the Development Research Uptake in Sub-Saharan Africa (DRUSSA) Technical Advisor, to Beekeeping project of Rural Development and Youth Association (RDEYA), a Ghanaian NGO, Team partner, Brobri Step Site for the Conservation and Management of Pollinators for Sustainable Agriculture through Ecosystem Approach etc.

College of Engineering

Mr. Donald Amrago served on the College of Engineering Guest house Management Board, and a member of the College of Engineering maintenance committee. He also served on the KNUST United protestant committee. He also served on the Career Fair Exhibition Committee, college of Engineering.

Mr. Michael K. Commeh is a member of the Mirror Committee (MC) of the ISO/TC 285 Cookstoves and Clean Cooking Solutions.

Mr. Kenneth Donkor served as a member of the Engineering Guest House Management Board.

THEENERGYCENTER

SUMMARY OF ACTIVITIES

INTRODUCTION

The Energy Center (TEC), formally approved by the Academic Board of Kwame Nkrumah University of Science and Technology (KNUST) in 2009 to provide a platform for the pursuit of multidisciplinary research and development activities at KNUST, successfully completed six (6) major research projects and six (6) major projects currently under implementation. TEC continues to mobilise expertise not only from the College of Engineering (CoE) but also from other Colleges of the university. Thanks to these activities, TEC's vision to become "a globally-recognized centre of excellence for energy in Africa" is fast becoming a reality and this report covers activities of TEC over the period, from April 2015 to March 2016.

RESEARCH AND CONSULTANCY

The Centre is currently implementing a flagship project titled, "Photovoltaic Reliability Evaluation for Sub-Sahara Africa" (PRESSA) in collaboration with Arizona State University in the United States, funded by USAID National Science Foundation. The goal of the project is to build capacity in PV Module Degradation and Reliability Tests. Refurbishment of the existing solar laboratory which is being upgraded to the state-of-the-art PV laboratory at the College of Engineering is complete. This facility when fully operational will make KNUST the Centre of excellence in PV Performance Tests and Certification in Africa. The Centre has also started implementing a \$1.2 million joint project developed by TEC and two Norwegian Universities - Norwegian University of Life Sciences (NUMB) and the Alesund University to support the provision of laboratory equipment, staff capacity development (postdoctoral positions) and research in renewable energy technologies under the MSc Programme in Renewable Energy Technologies.

Under consultancy, TEC recently constructed four solar street lights (two at the College of Science, one at the University Administration Block and another at the Mango Road). Twenty-two (22) additional street lights have been earmarked for construction at the following locations:

- GUSSS Hostel- Administration Road
- Tennis Court Road
- Animal Science – Horticultural Road

CURRENT PROJECTS

The Centre is currently implementing several projects, notable among them are:

Potential of Distributed Grid-Connected Solar – PV Systems in Rural Electrification in Africa (AU Grid Solar)

The Africa Union project on “Potential of distributed grid-connected solar Photovoltaic (PV) systems in rural electrification in Africa” is on-going. Although the project was to end in March 2015, the AU has given an extension to March 2016. This project seeks to demonstrate the potential of distributed grid-connected solar PV systems in rural electrification schemes for improved affordability and sustainable energy access. As part of its activities, the project has installed an Automatic Weather Station at Walewale (Northern Ghana) for monitoring solar radiation and other parameters. The installation of 30 kWp grid-connected system in the same area is complete. The project partners are the University of Botswana and the University of Flensburg, Germany.

Development of a Cost-effective, Modular and Dry Concentrating Solar Power for Africa (CSP4Africa)

The International Institute for Water and Environmental Engineering (2iE) in Burkina Faso is leading a team involving TEC and Sirea Energie, France to carry out a research project with activities as follows:

- Potential assessment and sites ranking of CSP in West Africa
- Multi-scale design optimization of multi-faceted heliostats
- Implementation and testing of an optimal multi-faceted heliostat in Burkina Faso and in Ghana
- Design and optimization of a turbine for a waterless CSP

Supporting Green Industrial Development in Ghana: Biogas Technology and Business for Sustainable Growth

The United Nations International Development Organization (UNIDO) and the Korean Government are supporting the Ghana Government through TEC to embark on a project on Supporting green industrial development in Ghana: Biogas technology and business for sustainable growth. The project will construct a pilot biogas plant at the Kumasi Abattoir whiles The Energy Center undertakes biogas feedstock mapping, research on biogas related issues and curriculum development and training on biogas. The project has received an extension of six months and will end in December, 2016.

Africa Low Emission Development Strategies (LEDS) Partnership

The Africa LEDS Partnership (AfLP) is a partnership of individuals, organizations and African Governments working to promote low-carbon, climate-resilient development to support poverty alleviation, job creation and environmental management in Africa. The Energy Center, KNUST hosts the Secretariat of the AfLP and is responsible for the overall coordination of activities of the Partnership. The activities and Secretariat services are currently funded by US State Department, Department for International Development (DfID), UK and European Commission.

Consolidation of the ECOWREX GIS over ECOWAS Member States/Development of Energy Access maps

The Consolidation of ECOWREX GIS project began in April 2014 and will be completed at the end of 2016. The project is spearheaded by ECREEE and has the following partners: TEC-KNUST, NOLVETIS S.A.S, University of Geneva, and Ministry of Energy, Cape Verde. The project focuses on promoting sustainable energy access through the use of geospatial technologies in West Africa.

Climate and Resource Protection for Sustainable Development in Ghana.

This project is within the framework of the cooperation between the German State of North Rhine Westphalia (NRW) and Ghana, and is aimed at supporting KNUST to become a Centre of competence for climate and resource protection, provide state-of-the-art studies, advisory services to public and private bodies and demonstrates environmental technologies. Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is contracted by the State Chancellery of NRW to provide technical assistance to this project. The cooperation involves two partner institutions in Germany- Westfälische Hochschule Gelsenkirchen and Technische Universität Dortmund. The focus areas of the partnership are Renewable energy, Energy efficiency, Waste management and Resource recovery.

This project has provided funds for state-of-the-art biogas testing equipment, sensors and other equipment for monitoring building energy consumption, biofuels generator, etc. Under this cooperation, TEC has established a biogas laboratory in the Chemical Engineering Department.

TEC is currently hosting Mr. Andreas Ahrenbog from GIZ, a bioenergy expert, as a Research Fellow under this cooperation.

The Centre also hosted two high profile visits by the German Ambassador to Ghana and the German Minister for Federal Affairs, Europe Media (Franz-Josef Lersah-Mense), to inspect all North Rhine Westphalia sponsored projects.

Key projects that were inspected include:

1. Energy Efficiency
2. Solar PV Design and Installation
3. Solar Thermal Training Center
4. Jatropha as Biofuel
5. Biogas Laboratory

From the global perspective, these are all green energy (Renewable Energy) projects that are designed to help create awareness about the importance of renewable energy in mitigating the effects of global warming and climate change.

Through the Solar Thermal Training Centre, constant water is supplied to the entire Petroleum Building within the College of Engineering using Solar PV Pumping System.

Biofuel Production from Lignocellulosic Material (2GBIONRG) Project

The DANIDA-2GBIONRG Project is an academic project for the training of postgraduate students. This project is to develop sustainable technologies for the production of 2nd generation biofuels (biogas, bioethanol and biodiesel) from Lignocellulosic waste materials in Africa. The project has supported Mr. Francis Kemausour to complete his PhD.

International RE Training Expert and RE Curriculum Developer

United Nations Industrial Development Organization (UNIDO), Vienna, Austria has sponsored a project on building and strengthening technical capacity of relevant institutions within Gambia with respect to renewable energy through both a “train-the-trainers” approach and through direct training. In addition the project developed renewable energy curricula for integration into the existing curricula at Gambia Technical Training Institute (GTI), University of The Gambia (UTG) and Ministry of Basic and Secondary Education.

Capacity Development for Higher Education and Research within the Field of Energy and Petroleum

The Energy Center in collaboration with the Norwegian University of Life Sciences and the Alesund University received seed funding from Norwegian Aid Agency for the development of a joint proposal to upgrade education and research capacity in renewable energy technologies with particular focus on TEC’s MSc Renewable Energy Technologies. Under this funding, there was exchange of visits between researchers from Norway and Ghana. The full application was also accepted, bringing in additional \$1.2 million for improving the MSc Renewable Energy Technologies Programme which is being run at the Department of Mechanical Engineering and also expanded to include MPhil and PhD Programmes. Seven PhD positions in total have been offered for KNUST staff in renewable energy related areas such as: solar thermal, bioenergy, wind energy technology and solar PV.

Photovoltaic Reliability Evaluation in Sub-Saharan Africa (PRESSA)

The United States Agency for International Development (USAID) is funding a project on Photovoltaic Reliability Evaluation in Sub-Saharan Africa. This project is a collaboration between KNUST and Arizona State University. It is designed to establish Solar PV Performance and Reliability Research in KNUST. Two PhD and one MSc students are currently working on topics focusing on the degradation of modules installed in the sub-Saharan Africa region as well as the optimization of reliability influencing factors (RIF) for reliability improvement using computer modelling and experimental techniques. The goal is to help KNUST build capacity in PV reliability and certification tests in order to become the leader in PV performance and certification tests in Africa.

Promoting Renewable Energies in West Africa by Knowledge Exchange with Interactive Online Map

The objective of the project is to promote the use of renewable energies in West Africa by improving knowledge exchange and raising awareness. The project is being undertaken by TEC in partnership with Verein, Bern, Switzerland and International Institute for Water and Environmental Engineering, Burkina Faso. The project is funded by ECOWAS Center for Renewable Energy and Energy Efficiency.

COMPLETED PROJECTS

Building a Reliable Energy Access Database to Promote Sustainable Energy Expansion in Ghana

The Renewable Energy and Energy Efficiency Partnership (REEEP) in conjunction with Energy Commission, Ghana, funded this project which focused on energy access in Ghana ended in May 2014.

Feasibility Study and Detailed Engineering of Small Scale Biomass Gasification Mini Grids for Electricity Services in Rural Communities in Ghana.

The ECOWAS Renewable Energy Facility (EREF) Project with support from the ECOWAS Regional Centre for Renewable Energy and Energy Efficiency (**ECREEE**) was led by Kumasi Institute of Technology, Energy and Environment (**KITE**) with support from TEC and Universitat Politècnica de Catalunya in Spain.

Agro-Processing and Sawmill Wastes, a Biomass- Based Assessment for Grid Connected Electricity Generation

At the request of the Ministry of Power, under its Ghana Energy Development and Access Project (GEDAP), TEC and its partners (Trama TecnoAmbiental (**TTF**) of Spain, with *Centre Tecnològic Forestal de Catalunya*(**CTFC**), Solsona, Spain) carried out a feasibility study on “Agro-Processing and sawmill wastes, a Biomass-Based Assessment for Grid Connected Electricity Generation”.

Action-Oriented Monitoring and Evaluation of Energy Access in Ghana

The United Nations Development Programme (**UNDP**) project on Sustainable Energy for All (SE4All) was completed in December 2014. This project focused on sustainable energy access for all in Ghana.

Preparation of a “Technical Guide for the Design, Installation, Operation and Maintenance of Grid Connected Small Wind Farm and Solar PV-Based Mini Grid for Rural Electrification in Africa

Under this project TEC prepared two technical manuals for The African Energy Commission on “The Design, Installation and Operation of Solar PV-Based Mini Grid for Rural Electrification in Africa” and “The Design, Installation, Operation and Maintenance of Grid –Connected Small Wind Farm in Africa”. Three Researchers of The Energy Center participated in a stake holder’s workshop in Kenya to discuss the content of both manuals.

TEACHING AND RELATED ACTIVITIES

The MSc. Renewable Energy Technologies (RETs) programme was developed under the EDULink Renewable Energy Education Project (REEP) with support from the European Union’s Africa, Caribbean and Pacific (ACP) Secretariat. The programme which took off with a first batch of forty-seven (47) students now has a fourth batch of students. Some students from the first batch of this programme graduated in June 2014 and December 2015. This programme is being expanded to include MPhil and PhD Programmes with \$1.2 million financial support from the Norwegian Government.

RUNNING OF SHORT COURSES

The Energy Center organized training courses to equip participants with hands-on practical knowledge in selected fields of renewable energy. The courses included Solar Photovoltaic, Wind Energy, Biogas Technology, Biofuel Economics and Technology. Each course was for five days duration. Two short courses were organized during the 2015/2016 Academic Year.

STAFF TRAINING

Two Junior Fellows of The Energy Center participated in the 3rd Grid Connected Solar System training course at the Deny Solar Training center (DSTC) in Accra. The Fellows were

sponsored by GIZ for the two-weeks training course on – Design and installation of small and large grid-connected PV systems and Business training on grid-connected systems.

ESTABLISHMENT OF LABORATORIES

BIOGAS LABORATORY

The Energy Center with the assistance of the North Rhine- Westphalia State Government, has established a Biogas Laboratory for TEC at the Chemical Engineering Department. To enhance the skills of our researchers, two members of staff, a lecturer and a technician, undertook a two-week training program on the operation of the biogas equipment at the University of Applied Sciences, Gelsenkerchen, Germany. A researcher from Germany visited KNUST, to assist in the setting up and test running of the equipment.

SMART GRID ENERGY MANAGEMENT SYSTEM

The Energy Center is integrating the Lecture Theatre and the Professorial block of the College of Engineering, into a Smart Grid Management system. This set up will help identify the potential for an improved management of the energy demand, for saving energy and for an increased use of renewable energy resources. On this basis, concrete measures to increase energy efficiency can be developed and implemented.

ESTABLISHMENT OF JATROPHA PLANTATION

The Energy Center with the assistance of the North Rhine- Westphalia State Government through GIZ, has established a Jatropha nursery. A Jatropha plantation has also been established to provide feedstock (Jatropha Seeds) to be pressed for straight Jatropha oil to feed the multi-fuel Gentset provided under the “Climate and Resource Protection” project. The coordinator of the Jatropha project, made a trip to Cameroon to visit a well-established Jatropha plantation, Jatro Select in line with activities of the project.

GHANA PHOTOVOLTAIC RELIABILITY LABORATORY (GHANA PRL)

The Solar Laboratory at the College of Engineering has been refurbished to the tune of around \$20,000.00 and is currently being equipped with over \$120,000.00 worth of equipment under the KNUST-USAID Partnerships for Enhanced Engagement in Research Cooperation (PRESSA Project) into a state-of-the-art Centre of excellence in PV Tests and Certification in Africa.

ORGANISATIONAL RESOURCES

The Energy Center-KNUST has operated to date as a virtual center with a lean office staffing structure consisting of the Director and a Principal Administrative Assistant supported by a Communications and Publications Officer and three (3) National Service Personnel. Two interns from the University of Energy and Natural Resources are also currently under training at the Center. TEC currently has about sixty (60) Fellows drawn from practically every College of KNUST and about fifty (50) Associates of which a good number are graduate students in various disciplines across the university.

COLLEGE LIBRARY

Introduction

The period under review saw a number of changes in the College of Engineering Library. Interior branding, directional and notification signs for our clients/users were installed in the Library. In addition, the wireless local area network (WLAN) in and around the library was put into use.

Additions and Acquisitions:

- a. *READING AND REFERENCE SECTIONS*: The College contracted the Department of Building Technology to construct carrels (17), books cases/shelves (30) and journal racks (2) for these sections. Acquired Air Conditioners (5 floor Standing) to be installed.
- b. *ELECTRONIC LIBRARY*: Acquired computers (11) and installed an Air Conditioner (2.0 Hp) for this purpose.
- c. *LIBRARIAN'S OFFICE*: Installed an Air Conditioner (1.5 Hp)

- Books: Gifts/Donation : 63 titles
- Acquisitions: 25 titles
- Journals: Gifts/Donation : 6 volumes
- Project report – Soft copies (252)
- Projector: – 1
- Staff Office furniture - 1 table, 3 chairs

STAFFING

The Library has four members of staff made up of 1 senior member, 2 senior staff and 1 junior staff, who work hand-in-hand to ensure the smooth running of the Library. With the expansion of the library, however, three additional staff will be required.

FUTURE SERVICES

Plans are underway to include the following services

- i. **Printing and Scanning Service**: Two printers and a scanner are available, for those who would want such services. A token amount would be charged for that.
- ii. **Document Delivery Service**: If a document one is looking for is not readily available in the Library collections, the Document Delivery Service may be able to obtain it for the user. This service would be available to only our patrons. That would also go with service charge.

CONCLUSION

It is the desire of the staff to make service the number one priority to patrons, to give the very best available service by providing materials, services and facilities to support their needs. That is why there is the need to improve upon our collections and enhance our electronic access to resources.

COLLEGE OF HEALTH SCIENCES

INTRODUCTION

The College of Health Sciences comprises Faculty of Pharmacy and Pharmaceutical Sciences, School of Medical Sciences, Faculty of Allied Health Sciences, Dental School, School of Veterinary Medicine, School of Public Health and Kumasi Centre for Collaborative Research in Tropical Medicine. During the year under review, the College vigorously pursued its mandate of training the specialized and graduate manpower for the health sector in Ghana and Africa, through teaching, research and service to the community.

COLLEGE ADMINISTRATION

Provost	-	Prof. E. T. Agbenyega
College Registrar	-	Mr. H. H. Akosah
Ag. College Accountant	-	Mr. Owusu Acheampong
Ag. College Librarian	-	Mr. Victor K. Teye

ACTIVITIES

Introduction of New Programmes

Proposals to mount the following programmes are at various stages of processing:

- MSc Nursing
- MPhil Nursing
- PhD Nursing
- MPhil Haematology

INFRASTRUCTURE/PROJECTS

- A five-storey building being constructed, comprising Classrooms and the College Offices, is nearing completion.
- Work on the School of Veterinary Medicine Complex is in progress.
- There has been commencement of work on a five-storey building to serve as classrooms, laboratories and offices for the Faculty of Allied Health Sciences.

CONFERENCE

The College organised its 6th Annual Scientific Conference from 27th to 28th August, 2015. Details of these can be found in the Quality Assurance Bulletin in the year under review.

HUMAN RESOURCE DEVELOPMENT

- Two (2) persons are being sponsored to pursue the following programmes abroad:
 - i. PhD in Sound and Vibration
 - ii. MChD (Oral Pathology)
- Workshops/seminars were organised by the Career Development Centre on various topics.

These included the following topics:

 - University Support Systems
 - Research in Higher Education
 - Research Communication
 - Research Support Systems

FACULTY OF PHARMACY AND PHARMACEUTICAL SCIENCES

INTRODUCTION

The Faculty of Pharmacy & Pharmaceutical Sciences has six departments namely, Pharmaceutical Chemistry, Pharmacognosy, Pharmaceutics, Pharmacology, Clinical and Social Pharmacy and Herbal Medicine. The Faculty offers degree programmes in Pharmacy and Herbal Medicine. Last year, the Faculty graduated the last batch of B.Pharm students in view of the introduction of the six-year Doctor of Pharmacy (PharmD) programme in 2012 to replace the traditional B.Pharm degree. This year, the Faculty is graduating only fifteen (15) B.Pharm students who had to repeat a class along the line for one reason or the other. The Faculty has now phased out the 4-year B.Pharm programme completely. The introduction of the 6-year PharmD programme was necessary to equip pharmacy graduates with the requisite knowledge and skills to enable them provide contemporary pharmaceutical care and also play their role as effective members in the health care team in tandem with international standards of pharmacy practice.

In addition, the Faculty offers graduate programmes leading to the award of MSc, MPhil and PhD degrees in the pharmaceutical sciences and pharmacy practice. The MSc Pharmaceutical Technology programme, which started last year to build capacity for the pharmaceutical industry is progressing.

The Faculty carried out its core business of training healthcare providers in the area of Pharmacy and Herbal Medicine with all diligence and distinction during the period under review.

TEACHING AND LEARNING IN THE FACULTY

Last year, we reported of our determination to improve the academic performance of students. We introduced more tutorial periods and gave students the opportunity to have more interaction with lecturers especially their academic tutors. We also introduced measures to check class attendance and increased the number of assignments to students to stimulate learning. We are happy to report a splendid improvement in the academic performance of students in the faculty especially our first year students. We are committed to encourage students to sustain and even improve on the current performance.

PRECEPTOR TRAINING/VACATION TRAINING FOR STUDENTS

The newly introduced Doctor of Pharmacy programme is practice-based. To this end, all students are required to undertake at least six (6) weeks of practical training during the long vacation from May to July. To ensure that the preceptors in the hospitals and community pharmacies are familiar and knowledgeable in the competencies required, the faculty trained over 200 preceptors over the year. Refresher courses would be planned from time to time to update the preceptors on emerging areas in contemporary pharmacy practice.

PROMOTIONS

During the period under review, four (4) of our Senior lecturers, Drs David Obiri, Rita Dickson, Kofi Annan and Marcel Bayor were promoted to the Associate Professor Grade. The Faculty is very proud of this achievement. We look forward to more promotions in the coming year.

NEW APPOINTMENT/RETURN FROM STUDY AND SABBATICAL LEAVE

Dr (Mrs) Yaa Asantewa Osei was appointed lecturer in the Department of Pharmaceutics. Two (2) of our colleagues, Drs Samuel Nkansah and Raphael Johnson returned to the service of the faculty after successfully completing their doctoral studies in Germany. We look forward to Mrs Cynthia Amaning Danquah and Mr. George Ainooson successfully completing their doctoral studies and joining us in the next academic year to augment the staff strength in the Department of Pharmacology. The faculty was also privileged to welcome Professors Mahama Duwiejua and Mrs Frances Owusu-Daaku former Executive Secretary of the NCTE and President of Christian Services University College respectively after their sabbatical leave.

RESEARCH/GRADUATE TRAINING/CAPACITY BUILDING

The Faculty continues to recognize research as a core business and therefore places a high premium on research. Experienced academic staff are encouraged to mentor younger faculty in this regard. Establishment of research teams within and across departments is also encouraged.

The Faculty Board has established a Higher Degrees Committee to facilitate graduate research and to see to the continuing improvement in the quality of research and theses in the Faculty. The former Executive Secretary of the National Council for Tertiary Education, Prof. Mahama Duwiejua, has been appointed as the Chairperson of the new committee.

Presently, the faculty has 154 graduate students studying for MSc, M.Phil and PhD across the departments. Over the past year, 30 students graduated from the various disciplines in the faculty. The publication record of academic staff of the faculty as listed under the various departments is commendable. We are also motivating the few academic staff without terminal degrees to earn one as soon as practicable. We are beginning to see encouraging results in this area.

PROCUREMENT OF LABORATORY EQUIPMENT

During the period under review, the faculty procured laboratory equipment to revamp the facilities across all departments for undergraduate training. A system has been put in place to continually improve our laboratories for the next five (5) years.

PILOT PRODUCTION UNIT

The faculty has established a pilot production unit to commence production of basic pharmaceuticals and herbal products. Funding for refurbishment of the space, which was to the tune of GHC 50,000.00 was provided by the 1987 Pharmacy Graduating Class in honour of the current Dean, Rev. Professor Charles Ansah, their classmate. The production unit will also serve as a training centre for the students to learn the skills of production and Good Manufacturing Practices (GMP).

INFRASTRUCTURE

The new classroom block started in August 2014 to provide extra classroom facilities in view of the extension of the pharmacy programme from four to six years is almost completed. We are looking forward to the handing-over and commissioning in time for use at the beginning of the next academic year in August 2016

INTRODUCTION OF PHARM D TOP-UP FOR B.PHARM HOLDERS

The preparation for the Top-up programme to Doctor of Pharmacy for B.Pharm holders is almost complete. We look forward to roll it out this year to give opportunity to hospital and community pharmacy practitioners to upgrade to enhance their performance and pharmaceutical service delivery to the public.

DEAN'S EMERGENCY SUPPORT FOR STUDENTS

Last year, the Dean established the above fund to provide emergency funding to students who may find themselves in financial distress as a result of unexpected delays in receiving monies from their sponsors or parents. Such students are normally given up to One hundred Ghana cedis (GHC100.00) only for food and other emergencies pending the receipt of their regular stipends.

Such funding is also extended to needy students who are on the Dean's list. The faculty also supports students who may need to purchase emergency medicines following hospitalization if such drugs are not immediately available at the Hospital Dispensary. The fund is available to both foreign and local students. So far, individual Pharmacists from the Pharmaceutical Society of Ghana have been contributing to support the fund and we are very grateful to them.

SERVICE TO COMMUNITY

The Faculty continued to provide service to the community at both local and national levels. Staff of the Faculty served on many statutory and non-statutory committees of the University. Senior members continued to play mentorship roles at the Central University College (CUC) and leadership roles at the Ghana College of Pharmacists. Other senior members of staff continued to serve as members of the Planned Parenthood Association of Ghana, Pharmacy Council, Traditional Medicine Practice Council, Food and Drugs Authority and the governing Board of the Centre for Scientific Research into Plant Medicine and their technical committees. Female lecturers in the faculty have also been actively involved in the activities of the Lady Pharmacists Association of Ghana (LAPAG), the female wing of the Pharmaceutical Society of Ghana, which has been at the forefront of public health in Ghana.

INTERNATIONAL COLLABORATION

During the year under review, the Faculty maintained its link with Universities and international organizations abroad. The Faculty continued to serve in various capacities on the West African Postgraduate College of Pharmacists (WAPCP), the West African Health Organization (WAHO) and its expert committees, the International Federation of Pharmacists (FIP) and Commonwealth Pharmaceutical Association (CPA) to define the training needs of Institutions of pharmacy and traditional medicine and improve the quality of pharmacy education and practice globally

APPRECIATION

The faculty expresses sincere thanks and appreciation to the University for the support in the construction of the new classroom facility. We are also thankful to all our stakeholders including the Ghana Health Service, the Pharmacy Council, the Pharmaceutical Society of Ghana and our preceptors for their role and commitment in the establishment of the Doctor of Pharmacy programme. We are grateful to the 1987 Pharmacy Graduating Class for

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providing funds for the establishment of the Pilot production unit and the 1990 Pharmacy graduating Class for donating assorted basic clinical equipment in support of the Doctor of Pharmacy programme.

The individual departmental reports are as follows:

DEPARTMENT OF CLINICAL AND SOCIAL PHARMACY

INTRODUCTION

The Department's aim is to achieve excellence in teaching and research in pharmacy practice. Patient-oriented practices and pharmaceutical care, the primary mission of pharmacy worldwide, is our focus. Teaching in the department therefore seeks to provide students with core skills and knowledge required for the practice of pharmacy at all levels of health care delivery. The department is also responsible for co-ordinating experiential training programmes of the students, in pharmaceutical establishments in communities, hospitals, industry, regulatory institutions and in policy and administration.

PROGRAMMES OFFERED

PhD in Clinical or Social Pharmacy: currently six of the enrolled students, including two, Faculty members, are almost at the end of their studies and shall soon graduate. One student has submitted her thesis for external assessment.

MPhil/MSc in Clinical Pharmacy: eleven of our Msc students have had their thesis assessed by examiners and are awaiting the final oral exams. Twenty-students are at various stages of their programmes

Undergraduate: At the undergraduate level, the department offer courses in therapeutics, public health, Pharmaceconomics, pharmacoepidemiology, social and administration pharmacy as part of a composite degree in Pharmacy. The department is incharge experiential training in various fields of pharmacy practice to strengthen the skills and knowledge gained during class room studies.

STAFF

The department has a total of six (6) Senior academic staff which includes;

Professor	–	1
Associate professor	–	1
Senior lecturer	–	2
Lecturer	–	2

RESEARCH

Senior Members in the Department are actively researching or guiding post graduate research in the underlisted areas:

- Medication safety and practices of Pharmacists in hospitals in Ghana
- Resistance to insecticides used for treating bed nets in Ghana
- Medicines Utilization in hospitals and community settings
- Novel means of taking medication history, documentation of clinical interventions and managing patients own medications in hospitals
- Prevention, management and control of antimicrobial resistance, including antimicrobial stewardship in health care settings

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- Drug therapy for malaria in pregnancy
- The use of Rapid Diagnostic Test to guide Malaria therapeutics in medicine outlets in Ghana
- Factors influencing adherence to antihypertensive therapy of patients at the two Teaching Hospitals in Ghana
- Economic Impact of antibiotic resistance in Ghana
- Pharmacists led Interventions for the management of hypertension in community pharmacies in Ghana

PUBLICATIONS IN 2015/2016 ACADEMIC YEAR

Members of the Department continue to make findings of their research available through several peer reviewed journals, conference and seminar proceedings. They also participated in numerous local and international conferences. Details of these can be found in the University's Quality Assurance Bulletin for the year under review.

SERVICE TO UNIVERSITY, NATION AND INTERNATIONAL COMMUNITY

Senior Members in the Department have in the period under review provided useful service to the nation and their communities by undertaking consultancies, serving on governing Boards of various national Institutions.

Professor Mahama Duwiejua is currently a Vice President of the Academic Section of International Pharmaceutical Federation (FIP). He continues to offer expert service to the National Council of Tertiary Education

Dr Kwame Ohene Buabeng is the Deputy Chair of the National Antimicrobial Resistance Working Group of the Ministry of Health, which is facilitating the Development of a national policy to contain Antimicrobial resistance in Ghana. Dr Buabeng is also a member of the Technical task Team constituted by the Minister for Health for the drafting of the National Policy against Antimicrobial Resistance, and a study advisor on the ADMER project for the containment of antimicrobial resistance; a Ghana-Dannish Collaboration. Dr Buabeng is an executive member of the Pharmaceutical Society of Ghana

Dr Berko Panyin Anto is a visiting lecturer in Clinical Pharmacy to Madonna University in Nigeria. He is currently an external examiner of the postgraduate programme in Pharmacovigilance and undergraduate clinical pharmacy course of the University of Nairobi, Kenya

Mrs Mercy Opare-Addo is a member of the ethics review committee of the College of Health Sciences.

DEPARTMENT OF HERBAL MEDICINE

INTRODUCTION

The Department is to produce healthcare professionals who will provide healthcare using locally available plant medicine resources. The ultimate goal is to bring science and technology to bear on the practice of Traditional Medicine in the country, and thereby modernize and improve the quality of the practice, and thus make it more acceptable and accessible.

PROGRAMME OFFERED

The Department coordinates the 4-year multidisciplinary BSc Herbal Medicine Programme. It offers various courses related to phytotherapy, disease prevention and health promotion. We have completed the revision of the curriculum of the programme. The new syllabus will strategically position the graduates to excellently promote herbal medicine practice in the country and beyond.

STAFF

The department has a four (4) full time Senior Members .They include three (3) Professors, one on sabbatical and the other on contract and a Senior Lecturer

MAJOR RESEARCH BY STAFF

The Department was engaged in various aspects of the Herbal Medicine Industry in Ghana, with emphasis on the quality of the practice of herbal medicine, use, misuse and abuse of herbal medicines. These were carried out in collaboration with other Departments in the Faculty and institutions outside the University. The external collaborators include Ghana Atomic Energy Commission. Global Institute for BioExploration (GIBEX-Africa) and Agribusiness in Sustainable Natural African Plant Products (ASNAPP) and Department of Botany, University of Ghana, Legon, Ghana Federation of Traditional Medicine (GHAFTRAM).

CONFERENCES AND MEETINGS

Senior Members of the Department actively participated in and presented papers and abstracts at the following Conferences and Workshops: The College of Health Sciences' 8th Scientific Conference 2015, held at KNUST, Kumasi. The Head of Department was invited to attend a meeting of Regional Strategy on Medicinal plants conservation from 14th – 15th December, 2015 in Ouagadougou –Burkina Faso.

PUBLICATIONS

In the year under review members of the Department published ten (10) research articles in peer review journals. Detailed can be found in the University's Quality Assurance Bulletin for the year under review.

SERVICE TO THE COMMUNITY

During the year under review, Senior Members of the Department offered services in various capacities to the University and the Nation. At the Faculty level they all served on the Faculty Board. Some members serve on the College Board, the Academic Board and some of their sub-committee.

Members continue to serve as resource persons or experts on various technical/Expert Committees of the Traditional and Alternative Medicine Directorate (TAMD), Traditional Medicine Practice Council (TMPC) and the Centre for Scientific Research into Plant Medicine (CSRPM), all under the Ministry of Health, and Ghana Standards Boards (GSB) and West African Health Organization (WAHO).

The Department in collaboration with Ghana Federation of Traditional Medicine (GHAFTRAM) organized training workshops for Herbalist and Traditional Medicine Practitioners in Ghana.

RESEARCH ACTIVITIES IN THE DEPARTMENT OF HERBAL MEDICINE

Three major research activities are currently on-going in the Department. These include:

1. Clinical Evaluation of some Herbal Medicines used in treatment of alcohol addiction.
2. Development of Herbal insecticides using local raw materials.
3. Development of Herbal remedy for the management of diabetic foot ulcers.

The above mentioned activities are at various stages of completion and are multidisciplinary.

DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

INTRODUCTION

The Department of Pharmaceutical Chemistry has the mandate to offer students the ability to apply their knowledge of the fundamental concepts and principles in organic, physical, medicinal and analytical chemistry to pharmaceuticals and then relate these concepts to drug synthesis, manufacturing and quality assurance in the practice of pharmacy. Students are therefore equipped to apply such knowledge in diverse areas of the Pharmacy profession.

ACADEMIC MEMBERS OF STAFF IN THE DEPARTMENT

The Department has three (3) Associate Professors, two (2) Senior Lecturers and six (6) Lecturers.

TEACHING

The Department teaches Basic Pharmaceutical Chemistry Organic, Inorganic and Physical Chemistry, Medicinal Chemistry and Spectroscopy such as are relevant to the understanding of molecular interactions at receptor sites in the body which result in effects and side-effects of drugs. Stability of drug molecules, formulation of drug products i.e. dosage forms, analysis of drugs and their products and synthesis of drug molecules and inter-drug interactions are among the major topics handled by the Department. The Department teaches these courses, among others, in the Pharm D, B. Pharm, BHM Programmes and at the School of Medical Sciences. In addition, the Department teaches its postgraduate students on the MPhil and PhD Pharmaceutical Chemistry Programmes. Currently there are twenty one (21) MPhil and four (4) PhD students working on various research topics. The Department will be graduating for the first time, eleven (11) MPhil candidates who registered in August 2014 during the normal June/July Congregation of 2016. The Department also offers teaching and training in the applications of specialized techniques such as MS, NMR, IR, HPLC and Electrophoresis in Separation techniques to other departments of the University and other tertiary institutions including the Pharmacy School of the University of Ghana

RESEARCH

The Department of Pharmaceutical Chemistry researches in the chemistry of drug molecules as they apply to interactions in body receptor sites, development and validation of novel analytical methods for pharmaceuticals, stability of drug molecules, drug identification and quantification, pharmacokinetic studies (bioavailability), isolation and characterization of active principles of medicinal plants. During the 2015/16 academic year, the department's research focus has been on the synthesis and determination of bioactivities of novel moieties of *xylopia aethiopica*, azo dyes and phytochemicals of medicinal plants of interest, including

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Allanblackia parviflora, *Zea mays* and *Voacanga africana*. Quality assessment of veterinary pharmaceuticals and HPLC analytical method development and validation for the quantitative analysis of Antiretroviral Drugs are new research areas that the Department has embarked on. The Department has the following resources, which facilitate research and teaching: two (2) Liquid Chromatographs, UV and IR spectrophotometers, a Conductimeter among others. These have been in use for over ten (10) years and are showing signs of weakening.

ON-GOING RESEARCH

The Department has continued in the search for new drug candidates as surrogate reference standards capable of replacing expensive chemical reference standards (CRS) used in the routine analysis of pharmaceuticals. An audit on research activities of the Department from 1971 to 2015 has been carried out to evaluate the strengths, weaknesses, opportunities and threats with respect to research in order to map out strategies in research design for the future. In addition, the department is developing novel applications of hydrotropic solubilisation in the formulation and analysis of poorly soluble drugs. Research on synthesis, structural modification and activities of natural products and azo dyes continues at the Department.

SERVICE TO COMMUNITY

Dr. Joseph Adu has been appointed the Manager of the newly established Pilot Production Unit of the Faculty in addition to serving as the industrial Coordinator. Dr. William Kofie continues his work as the local coordinator for the Lab_13 Ghana initiative, offering scientific open-days for pupils in the Bosomtwi District of the Ashanti Region to visit the Department to acquaint themselves with what happens at the University. Prof. R.K. Adosraku has been confirmed Chairman of the National Bioequivalence Centre in Ghana. Dr. I. Ayensu, has been appointed member of the International Standards Organisation's Technical Committee on Cosmetics by the Ghana Standards Authority. Senior members continue to serve on several University, National and International organisations in various capacities such as reviewers and editorial members of local and international peer-reviewed journals, External Examiners and Assessors. The Department continues to provide analytical, product research and development services to a number of pharmaceutical industries in Ghana while offering drug analysis and quality assurance services to key hospitals with drug production units.

CONFERENCES/WORKSHOPS

Members of the department attended and participated in four various conferences and workshops both internationally and locally. Details of attendance and papers presented can be found in the Quality Assurance Bulletin for the year under review.

INDUSTRIAL COLLABORATION

The Department of Pharmaceutical Chemistry with support from Dean Faculty of Pharmacy and Pharmaceutical Sciences has established strong collaborations with all Major Pharmaceutical Industries in Ghana. In addition, MOU's have been drafted and awaiting signatories for partnership in research and development between the industries and the university while offering an enhanced postgraduate training through exposure to industrial practices, customer relationship and chain of command, application of academic knowledge in the industry, acquisition of analytical, supervisory and managerial skills and Medicines regulation and registration procedures.

PhD Awards

- i. Dr. Samuel Oppong Bekoe has successfully completed his Doctoral studies and has been awarded a PhD Degree from The Faculty of Health and Medical Sciences, University of Copenhagen, Denmark.
- ii. Dr. Samuel Asare-Nkansah has successfully completed his Doctoral studies and has been awarded a PhD Degree from The Institute of Pharmaceutical and Medicinal Chemistry, University of Muenster, Germany. He has since resumed duty.

AWARDS

- i. Anna Quartey (Miss) a PhD candidate of the Department has been awarded a travel grant from GA to attend The Joint Natural Product conference in Denmark.
- ii. Cedric Amengor a PhD candidate has been awarded a commonwealth split-site scholarship tenable at the University of Greenwich for the 2016/17 academic. He was also awarded “Next Generation Scientist (NGS)” internship programme for 2016 by Novartis in Switzerland.

PUBLICATIONS

In the academic year under consideration, staff published thirteen (13) in several peer reviewed journals details of which can be found in Quality Assurance Bulletin for the year under review.

DEPARTMENT OF PHARMACEUTICS

INTRODUCTION

Pharmaceutics is the academic discipline that deals with the formulation and development of pharmaceutical dosage forms (sterile and non-sterile). It involves all the processes that a therapeutically-active agent goes through after discovery to become converted to a pharmaceutical dosage form suitable for administration to patients. Such dosage forms include tablets, capsules, solutions, mixtures, creams, ointments, aerosols and injections.

Pharmaceutics normally comprises of two sections: General Pharmaceutics and Pharmaceutical Microbiology. General Pharmaceutics covers areas as diverse as Dispensing, Pharmaceutical Formulation, Drug Delivery, Physical Pharmacy, Pharmacokinetics and Pharmacodynamics, Biopharmaceutics, Pharmaceutical Technology and Pharmaceutical Packaging Science. The courses in General Pharmaceutics are designed to enable students understand the basis and techniques used in the small scale (compounding) and large scale (pharmaceutical technology) production of pharmaceutical products.

Pharmaceutical Microbiology offers in-depth knowledge on all the major groups of micro-organisms and their relationship to man and animal. The subject covers areas such as Pathogenesis and Immunology, Chemotherapy, Sterilization & Disinfection and Preservation. Industrial fermentation and biosynthetic processes used for the production of compounds of both medical and industrial importance such as antibiotics, vitamins, blood expanders etc are also covered. It also covers sterile products formulation, manufacture and quality assessment. The use of recombinant DNA technology in the manufacture of pharmaceutical products such as insulin and human growth hormones is also covered.

PROGRAMS OFFERED BY THE DEPARTMENT

The Department teaches Dispensing theory, Dispensing laboratory, Sterilization and Disinfection, Infections, Basic Microbiology, Microbiology Laboratory in the BSc Herbal Medicine programme and the following courses in the Doctor of Pharmacy (PharmD) programme: Orientation to Pharmacy and Dispensing, Dispensing, Pharmaceutical Microbiology I, Immunology, Physical Pharmacy, Pharmaceutical Microbiology II, Pharmaceutical Technology I, Pharmaceutical Biotechnology and Molecular Biology, Pharmaceutical Technology II, Biopharmaceutics and Chemotherapy.

The Department also runs 3-year PhD and 2-year MPhil programmes in Pharmaceutics and Pharmaceutical Microbiology as well as a 2-year MSc in Pharmaceutical Technology.

SENIOR MEMBERS IN THE DEPARTMENT

Associate professor - 2

Senior lecturer - 5

Lecturer – 7

TEACHING AND RESEARCH IN THE DEPARTMENT

Senior members in the Department continued to teach courses in pharmaceutics, pharmaceutical technology and pharmaceutical microbiology in the undergraduate Doctor of Pharmacy and BSc Herbal Medicine programmes, as well as the MSc Pharmaceutical Technology programme. The Department continued its research in areas such as Pharmaceutical Technology, Formulation Science, Biopharmaceutics, Pharmacokinetics and Medicinal Plant Research. Some of the research topics currently under investigation in the Department include the following:

1. Physicochemical and tablet disintegration properties of starch extracted from five improved varieties of cassava
2. Availability and quality of essential paediatric medicines in Ashanti Region, Ghana
3. Plants with bacterial resistance modifying activity
4. Immune boosting potentials of certain Ghanaian plants
5. Quality assurance studies of antibiotics on the Ghanaian market
6. Antimicrobial activity of marine algae
7. Bioequivalence studies between locally-manufactured artemether-lumefantrine and Coartem using animal models
8. Antimicrobial activity of microorganisms from soil
9. Antibiotic resistance in humans and animals
10. Microbial quality of various sources of water
11. Development, characterization and evaluation of oral lipid-based Clarithromycin-loaded self-micro emulsifying formulation with improved pharmacokinetics and efficacy
12. Microbial quality assurance of herbal products

During the academic year, Yaw Dua Boakye and Mrs Vivian E. Boamah were awarded a PhD (Pharmaceutical Microbiology) whiles Susana Oteng Dapaah and Esther Eyram Agoba received an MPhil (Pharmaceutical Microbiology). Also, Mrs Mariam El Boakye-Gyasi was awarded a PhD (Pharmaceutics) whiles Mary-Ann Fosu and Martina Aduenimaa Bonsu were awarded MPhil (Pharmaceutics) degrees for their research in the Department.

PROMOTIONS

During the year the following senior members were promoted: Prof. M. T. Bayor – from Senior lecturer to Associate Professor; Dr (Mrs) Vivian E. Boamah – from Assistant lecturer to lecturer; and Dr (Mrs) Mariam El Boakye-Gyasi – from Assistant lecturer to lecturer.

AAU STAFF EXCHANGE PROGRAMME

Professor (Mrs) Oluwatoyin A. Odeku of the Department of Pharmaceutics and Industrial Pharmacy, Faculty of Pharmacy, University of Ibadan, Nigeria undertook a two-week teaching and research fellowship in the Department from 11-25th September, 2015 under the auspices of the Association of African Universities (AAU) Staff Exchange Programme

CONFERENCES, WORKSHOPS AND SEMINARS

In the year under review, Senior Members of the Department attended various conferences, seminars and workshops in Ghana and abroad. Details can be found in the University's Quality Assurance Bulletin.

SERVICE TO THE COMMUNITY

Senior Members of the Department continued to serve on various Boards and Committees of the University and other National and International Boards/Committees. Many Senior members served as reviewers and editorial board members for local and international peer-reviewed journals.

Prof. K. Ofori-Kwakye, Dr N. Kuntworbe, Dr Stephen Y. Gbedema and Dr (Mrs) Mariam El Boakye-Gyasi were Visiting Lecturers at the Faculty of Pharmacy, Madonna University, Elele, Nigeria. Prof. K. Ofori-Kwakye was elected as a Foundation Fellow of the Ghana College of Pharmacists (FGCPharm) on 18th March, 2015.

Dr. Christian Agyare also served in the following capacities:

- a) Chairman, Travel Grant Committee, Society for Medicinal Plants and Natural Product Research, 2016
- b) Member, Board of College of Health Sciences, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, 2016 to date
- c) Editor, OMICS Biomedical Sciences, 2015 to date
- d) Head/Chairman, External Relations Directorate, Pharmaceutical Society of Ghana, 2015 to 2017
- e) Executive Member, Standing Executive Committee, Pharmaceutical Society of Ghana, 2015 to 2017
- f) Member, Scientific Committee, Joint Natural Products Conference, Copenhagen, Denmark, 24 – 28th July, 2016
- g) Chairman, Oral Presentation Session (Short Lectures), 63rd International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 22nd – 26th August, 2015, Budapest, Hungary.
- h) Member, Information Literacy Course Committee, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana, 2015
- i) Guest Editor, Journal of Pharmacy and Nutrition Sciences, 2015 to date

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The Department continued to offer consultancy services in drug formulation, stability studies and quality control of pharmaceutical products to various pharmaceutical and herbal products manufacturing companies and hospitals in the country.

INCOME-GENERATING ACTIVITIES

The Department generated some revenue through consultancy services offered to the Food and Drugs Authority and other pharmaceutical and herbal product manufacturing companies.

DEPARTMENT OF PHARMACOGNOSY

INTRODUCTION

Pharmacognosy is a specialized area of applied science which deals with natural products especially plants for human and animal health. The Department contributes significantly to the teaching of Pharmacy and Herbal Medicine programmes. Due to the widespread use of herbal products in the management of disease conditions in developing countries, as well as their use in industrialized nations, considerably concerns have been raised about their quality, safety and efficacy. Pharmacognosy plays a critical role in ensuring the authenticity, purity and consistency of the materials employed in this regard.

ACADEMIC MEMBERS OF STAFF

The Department has six (6) Senior Members which includes:

Emeritus Professor	–	1
Professor	–	1
Associate professor	–	1
Senior lecturer	–	1
Lecturer	–	2

PROGRAMMES OFFERED BY THE DEPARTMENT

The Department of Pharmacognosy offers various courses as part of the 6 year undergraduate Doctor of Pharmacy (PharmD) and the 4 year Bachelor of Science in Herbal Medicine (BSc. Herbal Medicine) degree programmes. The courses focus on medicinal plants: Botany and Phytochemistry, their cultivation and evaluation and their role in promotion and maintenance of health in both man and animals. At the graduate level, the Department also offers research training in various aspects of medicinal plants to its M.Phil. and PhD students. Two (2) MPhil students and one (1) PhD student graduated this academic year. The Department currently has fifteen (15) post graduate students: eight (8) MPhil and seven (7) PhD students.

MAJOR RESEARCH BY STAFF

The Department continued its research on standardization of Ghanaian medicinal plants, with established biological activity and phytochemical evaluation of medicinal plants with respect to their secondary metabolites. Attention has also turned to validating local plants with anti-leishmania, antimalarial, and anti-inflammatory activities.

The Department has been very fortunate this year as a number of the teaching staff have won some international and local grants to improve on their teaching and research. Prof Abraham Yeboah Mensah won a Building Stronger Universities II, Danida Work Package (WPII) which

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enabled him to organise a short course on ethnobotanical survey of medicinal plants with antimicrobial activity with Prof Henrik Baslev from Aarhus University. Dr Kingsley Amponsah and Prof Abraham Yeboah Mensah successfully applied for Building Stronger Universities II, Danida Work Package (WPIII) grant of Ten thousand United States dollars (\$10,000) to conduct a pilot study on medicinal plants active against biofilm producing microorganism. Dr Isaac Kingsley Amponsah again won a Carnegie African Diaspora fellowship project request fall 2015 that will see the Faculty host a fellow from Texas A & M University, USA to collaborate on socio-behavioural research strategy for addressing rational use of medicines as well as research communication. Dr Edmund Ekuadzi obtained a grant from Building Stronger Universities II, Danida Work Package (WP II) to conduct research entitled Pharmaceutical Products in Leachates and Effluents of Landfills and Waste Treatment Plants in Kumasi. Dr Ekuadzi again won another grant from the KNUST Research fund to develop a Gastroretentive polyherbal tablet that reduces multiple dosing for pain management in the elderly.

PUBLICATIONS

Academic members of staff conducted research which lead to the publication of eighteen papers in several peer reviewed journal. Details of these can be found in the Quality Assurance Bulletin for the year under review.

MAJOR SERVICE TO THE COMMUNITY

Senior Members continued to offer services to the University in various capacities, serving on the College and its various Sub-committees, and the Faculty Board, and its sub-committees. Services were also offered to other national and international organisations including the Pharmacy Council, Pharmaceutical Society of Ghana, the West African College of Pharmacists, the Traditional and Alternative Medicine Directorate (TAMD) and the Food and Drugs Authority (FDA). Emeritus Professor Kwame Sarpong is the Chairman of the Arch-diocesan Health Services Board, Kumasi and a Member of the Diocesan Health Services Board. At the international level, Emeritus Professor Kwame Sarpong continues to serve as the Chairman, Drug Advisory Committee, and West African Postgraduate College of Pharmacists. Prof. (Mrs.) Rita Akosua Dickson continues to serve as Council member of the Ghana Baptist University College and the Zonal coordinator of the Planned Parenthood Association of Ghana. The Department has been collaborating with the Food and Drugs Authority in analysing and characterizing herbal products prior to the issuing of licence for their sale on the market.

DEPARTMENT OF PHARMACOLOGY

INTRODUCTION

The Department of Pharmacology continues to play a key role in the University as the only department involved in the teaching of Pharmacology and Toxicology to almost all the students in the College of Health Sciences and to Optometry students in the College of Science. In performing this unique role, the Department ensures that courses for the different categories of students in the biomedical sciences are designed to meet the exact needs of students without compromising on the basic principles that are essential to appreciate the implications of drug action and use in humans and animals.

TEACHING

The Department offers courses in Physiology, Basic/Applied Pharmacology and Toxicology to undergraduate students studying for the following programmes in the College of Health Sciences and Science:

- Bachelor of Pharmacy (Honours)/Doctor of Pharmacy (Pharm D.) degree programme.
- BSc. Herbal Medicine
- BSc. Human Biology for Medicine & Dentistry
- BSc. Nursing (General, Emergency, Midwifery)
- B.Sc. Nursing (IDL, Nigeria)
- BSc. Medical Laboratory Technology
- B.Sc. Physician Assistant (Anaesthesia)
- Doctor of Veterinary Medicine
- O.D Optometry Science

In addition, staff of the Department undertake postgraduate teaching for students on the 2-year Master's and 3-year Doctorate programmes in Natural Products Pharmacology and Toxicology

ACADEMIC MEMBERS

The department has a total of ten (10) academic senior members. They comprise of a full Professor, two (2) Associate Professors, a Senior lecturer and six (6) Lecturers.

CONFERENCES AND MEETINGS

During the year under review, members of the Department took part in the Continuing Education for Pharmacists organized by the Pharmacy Council and the Pharmaceutical Society of Ghana. In addition, members of the Department participated actively in the Annual General Meeting and Conference organized by the Pharmaceutical Society of Ghana. Prof. Eric Woode and Rev. Prof. Charles Ansah are founding members of the Ghana College of Pharmacist.

Prof. Dr. D. D. Obiri attended the International Deans Course, Africa 2015/2016 in Germany. He also participated in the regional workshops in Accra and Addis Ababa, Ethiopia respectively.

PROMOTION

During the year under review, two academic senior members of the department: Prof. Eric Woode and Prof. Dr. D. D. Obiri were promoted to the status of Full Professorship and Associate Professorship respectively.

POST-GRADUATE TRAINING

The Department is actively involved in the training of post-graduate students. During the period under review Four (4) M.Phil. and two (2) Ph.D. students are due for graduation. Presently, the Department has forty-five (45) graduate students researching into various aspects of natural product Pharmacology and Toxicology.

STUDY LEAVE

The Department currently has two of our lecturers; Mrs. Cynthia Amaning Danquah and Mr. George Kwaw Ainooson undertaking their Ph.D programmes under GETFund and

DAAD Scholarships at the Department of Pharmaceutical and Biological Chemistry, University College, London and Karlsruhe Institute of Technology, Germany respectively

RESEARCH AND COLLABORATION

Departmental research involves pharmacological and toxicological investigations aimed at elucidating the scientific basis for the therapeutic efficacy and safety of indigenous medicinal plants of Ghana.

The Department has specific interest in the area of medicinal plants with potential anti-inflammatory and analgesic, immunostimulant, anticonvulsant, antidiabetic, antiasthmatic, antioxidant and hepatoprotective actions and drugs that enhance learning and memory.

The Department has research links with the Departments of Theoretical and Applied Biology, Molecular Medicine, Medical Laboratory Technology of the KNUST and strengthened its links with the Centre for Scientific Research into Plant Medicine over the past year.

Additionally, the Department collaborates with the Molecular Toxicology Unit of Imperial College London in the area of possible anticancer agents from plant sources.

SERVICE TO THE COMMUNITY

The Department provides consultancy services to the local pharmaceutical industry, research establishments, clinics, traditional medical practitioners and individuals on the therapeutic potential and toxicity profile of new drugs and medicinal plant products.

Members of the Department continue to provide professional services to various Government Departments such as the Traditional Medicine Directorate of the Ministry of Health, the Pharmaceutical Society of Ghana, the West African Postgraduate College of Pharmacists and the Ghana College of Physicians and Surgeons. A member of the Department serves on the Council of the West African Postgraduate College of Pharmacists.

In addition, some members of the Department have continued to serve as External Examiners and Assessors to Universities and Polytechnics in and outside Ghana and also as assessors for scientific journals.

Some members of the Department also served as resource persons for programmes organized by the Pharmacy Council for Pharmacists.

RECENT PUBLICATIONS

In the year under review, academic members of staff published twenty (25) papers in different peer reviewed journals. Details of these publications can be found in the University's Quality Assurance for the year under review.

SCHOOL OF MEDICAL SCIENCES

INTRODUCTION

Established in 1975, the School of Medical Sciences of KNUST trains Physicians and is also involved in the training of other allied health professions including Nurses, Medical laboratory Scientists and Anaesthetists for the country. The School has made great strides in this respect and we are grateful to our stakeholders and the country for the recognition of our efforts. Currently the School runs 3 undergraduate programmes; BSc Human Biology leading to the MBChB (Bachelor of Medicine, Bachelor of Surgery) and Bachelor of Dental Surgery (BDS) degrees, BSc Physician Assistantship (Anaesthesia) and BSc Disability and Rehabilitation Studies. Postgraduate programmes at MSc/MPhil and PhD levels are also run by our Departments of Molecular Medicine, Clinical Microbiology and Anatomy. The Department of Eye, Ear, Nose and Throat also runs Masters programmes in Audiology and Speech Science.

At KNUST, the School services courses in the School of Dentistry, Faculty of Allied Health Sciences, College of Engineering, and the Faculty of Pharmacy and Pharmaceutical Sciences. In collaboration with the Ghana College of Physicians and Surgeons, our faculty are involved in the training of specialist medical personnel for the country.

This year, the School attained 40 years. We have held a number of Community activities to mark this occasion. These include a Surgical outreach programme in the Upper West Region, Cleft lip/palate repair outreach in Sekondi/Takoradi, Diabetes Awareness in the Ashanti Region, Health Walk with Education in Kumasi, Kidney Disease Screening in children at the KNUST Basic Schools, and Blood donation programmes in Offinso and Kumasi. We have planned a clinical outreach programme in Ayeduse in July, and a Public Lecture in August. We will climax the 40th Anniversary celebrations in August with a Durbar and the School's 23rd Oath Swearing and Induction ceremony in August.

To support teaching and learning in the School, 2 important documents were launched by the School in May 2016; a Twi Medical Glossary to help our students interact better with the Twi speaking patients seen at the Komfo Anokye Teaching Hospital, and a Medical School Charter which defines the responsibilities of the School to our students and that expected of our students.

SCHOOL ADMINISTRATION AND DEPARTMENTS

The School is headed by the Dean who is supported by an Administrative staff and Heads of Departments. Currently, the Principal Office holders of the School are;

Prof. Yaw Adu-Sarkodie – Dean

Prof. Francis Agyeman-Yeboah, Vice-Dean

Mr. Kofi Appiah-Koranteng - Senior Assistant Registrar and School Secretary

The School hosts the largest number of Academic departments in the University, 15 in all. These include; Anatomy, Molecular Medicine, Physiology, Behavioural Sciences, Clinical Microbiology, Pathology, Child Health, Obstetrics and Gynaecology, Internal Medicine, Surgery, Community Health, Anaesthesia and Intensive Care, Radiology and Eye, Ear, Nose and Throat. Courses in Pharmacology are offered by the Faculty of Pharmacy and Pharmaceutical Sciences.

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Teaching and learning in these departments is organized by the Heads of Department.

ENROLMENT

Our undergraduate student population currently stands at 1,260 (Human Biology/MBChB), 181 (Disability and Rehabilitation Studies), and 36 (Physician Assistants, Anaesthesia).

The Human Biology programme which continues to be oversubscribed yearly has about 12% of foreign students who come from Nigeria, United Kingdom, Togo, Benin, Australia, Gabon, Niger, Cameroon, Canada, Mali, Pakistan, Angola, Cote d'Ivoire, India and the United States of America.

HUMAN RESOURCE

The total number of senior members now stands at 111 which includes 7 Professors, 13 Associate Professors, 28 Senior Lecturers, 44 lecturers, 30 Adjunct lecturers and other technical staff. Most of the staff offer specialist clinical services to the Ghana Health Service/Ministry of Health.

SUPPORT FOR SISTER MEDICAL SCHOOLS

The School continues to play its role in supporting the growth of the School of Medical Sciences, UCC and the School of Medicine and Hygiene, UDS. Our Vice-Chancellor has consistently granted permission for our faculty to support teaching and other academic activities in these institutions. Through an affiliation agreement with KNUST, the School also supports the Central University College and the Garden City University, both private University Colleges in the training of some health personnel. We currently also train staff for the University of Health and Allied Sciences, Ho.

INITIATIVES FOR USE OF GHANA HEALTH SERVICE FACILITIES FOR TEACHING

The Memorandum of Understanding signed between the University and the Ghana Health Service for the use of facilities of the GHS to teach our students is working very well. Currently we use the Manhyia, Kumasi South, Maternal and Child Health and University Hospitals as affiliate teaching sites. Adjunct lecturers with relevant qualifications and working experience in these facilities have been recruited by the University. Together with faculty from the School they teach and offer specialist services at these affiliate Institutions. With this approach, the provision of specialist health care is made possible at the GHS facilities with no specialists, and also is leading to a decongestion at the Komfo Anokye Teaching Hospital which has served and will continue serving as our main teaching hospital.

We have started using private health facilities with the requisite infrastructure for similar purpose. The Asokwa Children's hospital has been pioneered in this regard and others will come on board in future.

INFRASTRUCTURE

During the academic year under review, some infrastructure to support teaching and learning were completed and others also started. With funding from the GetFund, the Clinical Simulation Centre, an adjunct to the teaching of clinical skills is fully functional. Our students thus practice what they are taught on the wards in this centre as well. We have expanded and created classrooms for our graduate students. We have installed power inverter systems in

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all classrooms. There is therefore no interruption of teaching during periods of utility power outages. We are equipping many of our classrooms with multi-media facilities to enhance teaching and learning. This includes the use of the University's e-learning platform which we have fully subscribed to.

Construction of a 4-storey teaching complex at the KNUST Teaching Hospital is progressing steadily. The School is using its internally generated funds for this.

The School's 150 seater ICT/e-learning centre is about 90% complete. We have commenced the procurement processes for equipping this centre. We intend to convert the old computer centre into an office space for our lecturers who currently do not have any offices on KNUST campus

We will be deploying the use of video-conferencing technology in the teaching of some of our classes in the coming academic year. This has been made possible by the supply of equipment to the school by the National Information Technology Agency (NITA) and some of our research partners and purchases of equipment made from the School's internally generated funds. We are seeking the support of Vodafone (Gh.) Limited on this.

EXTERNAL RESEARCH SUPPORT

The hard work of our faculty continues to attract both local and international researchers for research collaborations. We are in the forefront of malaria vaccine research together with other countries with support from GSK. Other malaria research and capacity building is being supported by the Wellcome Trust, EDCTP, Malaria Vaccine Initiative, DFID (UK) and the Gates Foundation. The Gates Foundation also supports research in Reproductive Health, and Child Survival including growth and stunting. We have funding from the World Health Organisation for research into Buruli Ulcer and other Neglected Tropical diseases. USAID and CDC have provided funding to support research into HIV Most at risk populations. The Fogarty Institute (US) is supporting research and capacity building in Injury prevention. Research into kidney diseases and lifestyle diseases (including obesity and hypertension) is supported by the NIH. Our recent research partner is the Royal Society which is supporting research and capacity building in Cancer and aflatoxins, and liver disease.

COMMUNITY SERVICE

Apart from clinical service provision by our faculty at the Komfo Anokye Teaching Hospital and other Ghana Health Service facilities, we serve on many committees of the Ghana Health Service and the Ministry of Health. We are grateful to these Health training stakeholders for the recognition they give to us for our support.

We are also thankful to the many Ghana Health Service facilities which support the training of our students during their Nursing and Community Health rotation. Their partnership in the training of health manpower for the country has been invaluable.

CHALLENGES

The School continues to experience challenges in the following areas:

- i. Inadequate academic staff to deal with the large student population;
- ii. Inadequate modern facilities for teaching and laboratory work;
- iii. Inability of the school to admit majority of the qualified applicants who apply to pursue the BSc Human Biology programme annually;

SUPPORT FROM CORPORATE GHANA

We have approached some corporate institutions for support especially in the development of our infrastructure. Ghana-Reinsurance has consistently over 10 years been of support to us. This year, we have also received support from Unichem Limited. However in general we have not been successful with many approaches made to Corporate Ghana and hope this will change in the future.

WAY FORWARD

We will continue to pursue our recruitment drive to improve the number of academic staff for teaching. We are looking at various ICT approaches to improve our teaching and learning activities. In the coming year we will approach corporate Ghana to support participation in medical education especially supporting students from needy and difficult to reach parts of the country to enroll in our school. We will again knock on the doors of Government and its partners to support infrastructure requirements in order to support our large student classes.

DEPARTMENT OF CLINICAL MICROBIOLOGY

INTRODUCTION

The Department of Clinical Microbiology has staff strength of 9 full-time Senior Members, and 2 Technical staff, and supported by a secretariat manned by an Administrative Assistant. Two Graduate assistants, and two national service personnel support practical lessons and assist in seminars and other activities in the Department.

The Department teaches courses in Bacteriology, Parasitology, Mycology, Virology and Immunology to undergraduate medical and dental students in the School of Medical Sciences, and the students of Nursing, Medical Laboratory Technology, and Sonography of the Faculty of Allied Health Sciences.

The focus of undergraduate medical and dental students' teaching is the control- knowledge and skills - of infectious diseases, where micro-organisms and their disease/infection causing mechanisms are introduced. The methods are generally, health education, immunization, disinfection and sterilization, culture and isolation of pathogens, and antimicrobial treatment; prevention and control are emphasized, especially those with epidemic potential in Ghana and the sub-region.

Infection control in the health facilities and host response to infections are also addressed. Medical Laboratory Technology students are tutored mainly in the diagnosis, collection and identification of microbial pathogens from various clinical specimens. Much emphasis is placed on laboratory management and practical bench work microbiology.

Students of Nursing and Sonography undertake basic clinical microbiology with emphasis on nursing patients with infections and infection control procedures in clinical settings.

STAFF

The department has a total of twelve (12) members of staff made up of two (2) Professors, one (1) Associate Professor, three (3) Senior Lecturers with one (1) of them being Head of the Department; three (3) Lectures, one (1) Technical Instructor, one (1) Technician and one (1) Administrative Assistant.

TEACHING ACTIVITIES

The breakdown of the undergraduate student population for the Department for 2015/16 are; 239 Medical students, 20 Dental students, 200 Medical laboratory students, 187 Nursing and Midwifery students and 35 students of Sonography.

The Department also runs PhD, MPhil and MSc programmes in Clinical Microbiology. Currently there are 7 PhD Students, 31 MPhil students, and 20 MSc students enrolled.

Completed Graduate Studies for November 2015 and July 2016: PhD-2; MPhil 21, MSc 5

The well established Virology and Molecular Biology laboratory of the Department with funding from a TALIF grant is attracting students from other departments in our university and other sister universities in addition to our own graduate students who are undertaking their studies there. This is greatly enhancing teaching and research activities.

PUBLICATIONS

The department produced 38 peer-reviewed scientific publications most of them were also presented at internationally organized scientific conferences.

COLLABORATION WITH MINISTRY OF HEALTH

Apart from teaching, research and mentoring in the University, the Senior Clinical Staff also serve as Specialist Clinical Microbiologists/Senior Technical Staff at the Microbiology Department of Komfo Anokye Teaching Hospital, Kumasi.

Again, at the hospital, postgraduate clinical teaching for residents preparing for membership/fellowship of the Ghana College of Physicians and Surgeons and the West Africa Postgraduate Medical College forms part of our responsibilities. Many of our senior members are serving as Experts on various Committees of various disciplines of the Ministry of Health, acting as resource persons in seminars/workshops and consultants on projects and policy formulation.

RESEARCH COLLABORATION

Our Department continues to collaborate with the following institutions:

- KCCR, KNUST/ Bernardt Nocht Institute for Tropical Medicine, Hamburg
- Noguchi Institute of Medical Research, Legon
- Navrongo Health Research Institute, Navrongo
- London School of Hygiene and Tropical Medicine, London
- University of Liverpool Medical School, Liverpool
- The Abdul Salam International Centre for Theoretical Physics, Italy
- University of Ghana Medical School, Accra

DEPARTMENT OF ANAESTHESIOLOGY AND INTENSIVE CARE

INTRODUCTION

The Department of Anaesthesiology and Intensive Care of the School of Medical Sciences doubles as the Directorate of Anaesthesia and Intensive Care of Komfo Anokye Teaching Hospital (KATH).

The department has two main subspecialties:

- Anaesthesia
- Intensive Care

AIMS AND OBJECTIVES

1. Undergraduate training in basics of Anaesthesia, Intensive Care and Pain Management.
2. Residency/Postgraduate training in Anaesthesia and Intensive Care
3. Training of Medical and non-medical personnel in Resuscitation

ACADEMIC STAFF

The department has a total of seven (7) Academic members of staff made up of two (2) Senior Lecturers and five Lecturers with two (2) of them being Adjunct Lecturers.

COLLABORATION

1. The Department of Anesthesiology, University of Utah
2. The Department of Anaesthesia, University of Ulm

ACTIVITIES

1. Undergraduate training in basics of Anaesthesia, Intensive Care and Pain Management.
2. Runs a BSc. Physician Assistant (Anaesthesia) course
3. Residency/Postgraduate training in Anaesthesia and Intensive Care
4. Training of Medical and non-medical personnel in Resuscitation
5. Provide clinical anaesthetic Services for KATH
6. Provide intensive Care Services for KATH

ACHIEVEMENTS

1. The Department is organizing an international workshop on Regional/nerve blocks from 23rd May to 27th May 2016
2. In collaboration with the International Association for the Study of Pain, the Department organizes annual UPDATE IN PAIN MANAGEMENT for medical Practitioners in the country
3. The Department produced two specialist in Anaesthesia for the Ghana College of Physicians and Surgeons
4. The department continues to serve as the only centre in the Subregion selected by the world Federation of Societies of Anesthesiologists for training in Nerve blocks.

RESEARCH

1. Antwi-Kusi A, Addison W, Oti AA, Amuasi AA, Sabbah DK, Wilson EB, Abu-Sakyi J. Mother's of Children with Cleft Lip and/Palate Perception about Aetiology, Social Reaction and Treatment of Cleft. Journal of Biosciences and Medicines 2015;3: 98-101
2. Amponsah G, Antwi-Kusi A, Addison W, Abaidoo B. Medication Errors among Physician Assistants Anaesthesia. Advances in Anesthesiology 2016
<http://www.hindawi.com/journals/aan/2016/9243587/>

POSTGRADUATE TRAINING

1. The Department has attained accreditation from both the West African College of Surgeons and the Ghana College of Physicians and Surgeons for training of specialist in Anaesthesia and Intensive Care.
2. Two specialists Anaesthetist were produced under the year in review

PROJECTIONS

1. To strengthen the Pain Management component of our mandate

DEPARTMENT OF PHYSIOLOGY

PREAMBLE

The Department of Physiology is one of the oldest in the School of Medical Sciences. From very humble beginnings, it has grown over the years in stature. Currently, it has one of the highest research profiles in the School of Medical Sciences.

STAFF

The department has a total of seven (7) members of staff made up of one (1) Professor who is currently on Sabbatical Leave, one Associate Professor, one (1) Senior Lecturer/ Head of Department, one (1) Lecturer, one (1) Assistant Lecturer, one (1) Administrative Assistant and one (1) Cleaner.

Post graduate students in the Department

1. Rufai Safianu
2. Olivia Nyarko Mensah
3. Joseph Sarfo Antwi
4. Isaac Kofi Adu
5. Edward Agyapong
6. Christiana Ampofowaa Acquah
7. George Tweneboah
8. Kingsley Apusiga
9. Gordon Manu Amponsah

Mrs. Mabel Kankam Agyiri and Mr. Albert Opoku graduated in the Special Congregation by the School of Graduate Studies.

TEACHING

The Department teaches the Physiology component of the BSc Human Biology programme (Human Biology I and Human Biology II) for Medical and Dental Students. It also provides teaching in Physiology to the BSc Physician Assistant (Anaesthesia) programme of the Department of Anaesthesia, School of Medical Sciences.

The Department also services the teaching of Physiology on the programmes of the Faculty of Allied Health Sciences. This comprises the BSc programmes in General Nursing, Emergency Nursing, Midwifery, Medical laboratory Technology, Sports & Exercise Sciences, Sonography and also the Diploma Programme in Emergency Nursing.

In addition, the Department services the teaching of Physiology on the following: BSc Herbal Medicine programme of the Faculty of Pharmacy & Pharmaceutical Sciences and the DVM programme of the School of Veterinary medicine.

POSTGRADUATE STUDENTS

There are eleven (11) Postgraduate (MPhil) students in the Department. Out of this eleven (11) students 3 are in their 1st year; 4 in their 2nd year; 1 in his 3rd year on the program; 2 are on their 4th year and 1 has defended his thesis waiting to graduate.

ON-GOING PROJECTS BY MEMBERS IN THE DEPARTMENT

1. Vitamin D Ancillary (VIDA) Study. This is a study that will run for three years starting from 2013. It is an ancillary study to the METS study. It is funded by the National Institutes of Health (NIH) of the USA.

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2. A phase III, double blind (Observer-blind), randomized, controlled multi-center study to evaluate, in infants and children, the efficacy of the RTS,S/ASO1E candidate vaccine against malaria disease caused by *P. falciparum* infection, across diverse malaria transmission settings in Africa. Funded by the malaria Vaccine Initiative (MVI).
3. Phase III Randomized, Open, Controlled Study to Evaluate the Immune Response to the hepatitis B Antigen of the RTS,S/ASO 1_E Candidate Vaccine, when Administered as Primary Vaccination Integrated into an EPI regimen to Infants Living in Sub-Saharan Africa (MALO63). Funded by the malaria Vaccine Initiative (MVI).
4. Comparative, Open Label, Dose and Regimen Optimization Follow-up Study of Intravenous and Intramuscular Artesunate in African Children with Severe malaria. Funded by EDCTP.
5. An epidemiology study to assess Plasmodium falciparum parasite prevalence and serological conversion rates in catchment areas of a Phase III trial of the candidate malaria vaccine RTS,S/ASO1E in sub-Saharan Africa. Funded by GSK.
6. Re-defining Cerebral malaria. The Severe malaria in African Children (SMAC) network study. Funded by National Institutes of Health (NIH).
7. Efficacy and safety of rectal Artesunate in paediatric patients a randomized-controlled study. Funded by WHO.
8. Semen quality of male partners in infertile couples. Self-funded.
9. Assessing the ovulatory causes of infertility among women visiting the infertility clinic at Komfo Anokye teaching Hospital. Self-funded.
10. 'Task shifting and Blood Pressure Control in Ghana, A cluster-randomised Trial (TASSH Study)'. This is a three year research project which started in 2012 and is funded by the National Institutes of Health (NIH).
11. Epigenetic Mechanisms, Stunting and Poor Growth; Targets for Intervention. This study started in February 2013 and is funded by the Bill & Melinda Gates Foundation.
12. H3 Africa Kidney Disease Research Network" Study. This is a multicenter collaborative study of the genetic basis of Kidney diseases in Africa which started in February 2013 and is funded by the National Institutes of Health (NIH) of the USA.
13. 12 Year follow-up of Stroke Prevention Study originally funded by the Wellcome Trust of the U.K. This project started in February 2014.

DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY

INTRODUCTION

The Department of Obstetrics and Gynaecology runs a course for the MB ChB programme of the School of Medical Sciences, College of Health Sciences, KNUST. With the establishment of the Ghana Postgraduate Obstetrics and Gynaecology programme in 1989, the Directorate became accredited for residency training by the West African College of Surgeons under the West African Postgraduate Medical College. Additionally, when the Ghana College of Physicians and Surgeons was set up in 2003, the directorate was accredited for residency training under the Ghana College. Since 2008 subspecialty training is being undertaken in the directorate under the Ghana College.

VISION AND MISSION

The vision of the Directorate is in consonance with that of the Komfo Anokye Teaching Hospital and that of the School of Medical Sciences (SMS) of the Kwame Nkrumah University

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of Science and Technology (KNUST): an internationally recognized school/directorate offering undergraduate, postgraduate and professional programmes of exceptionally high quality and providing a high quality service in women's health. Our role involves teaching, research and provision of service to the community.

STAFF

The department has academic staff strength of 13 lecturers: two (2) Professors with one (1) on contract appointment, three (3) Associate Professors with one being the Head and another on contract appointment, two (2) Senior Lectures, seven (7) Lecturers- one (1) being an Adjunct Lecturer and one (1) Assistant Adjunct Lecturer. The academic staff is supported by senior specialists, specialists and residents who assist with teaching.

KEY FUNCTIONS

- i. The Directorate aims to:
- ii. Fulfill the general vision of the School of Medical Sciences through the pursuit of excellence in teaching, research and provision of high quality service to the community.
- iii. Provide basic training in Obstetrics and Gynaecology through lectures, practical and clinical demonstrations.
- iv. Promote and create the conducive environment to conduct research into the various facets of Obstetrics and Gynaecology
- v. Provide postgraduate training for the Fellowship of West African College of Surgeons and the Ghana Postgraduate Medical College.
- vi. Provide high quality maternal health care service to the general public in obstetrics and gynaecology.

TRAINING AND RESEARCH ACTIVITIES

POSTGRADUATE TRAINING

The Department runs the Fellowship postgraduate training programme in Obstetrics and Gynaecology under the West African College of Surgeons and the Ghana Postgraduate Medical College. The ultimate destination of the department as far as postgraduate training is concerned is sub-specialisation. The following sub-specialised areas are being developed: Gynae-oncology, fetal-maternal medicine, Reproductive Medicine and Assisted Conception, Family Planning and Uro-gynaecology. Family Planning and Uro-gynaecology have produced 3 and 1 fellows respectively.

TEACHING

The department has produced two handbooks in Obstetrics and Gynaecology for medical student to reflect our local unique conditions. First edition in 2012 and revised (second edition) in 2014. These handbooks were contributed to by all lecturers in the department. These books have immensely improved teaching and learning in the department. We introduced for the first time the Objective Structured Clinical Examination (OSCE) in our undergraduate examinations in the 2014/2015 academic year.

The department is also involved in teaching and training students in Emergency Nursing, Midwifery and Dental Surgery.

• COMMUNITY SERVICE:

The Directorate provides tertiary level women's health care and training. Most importantly, in order to help our nation achieve the Millenium Development Goals, we are involved in

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the Millenium Development Goal 5 Accelerated Framework (MAF) programme to help reduce maternal mortality and morbidity. Our staff have personal oversight responsibilities over peripheral hospitals where they regularly visit the facilities, provide teaching and clinical support to doctors involved in the provision of services in obstetrics and gynaecology. We organize continuous medical education in basic surgical skills courses and ultrasound for district and mission hospitals.

• **RESEARCH ACTIVITIES**

Current research activities in the directorate include the following:

- Hypertension in pregnancy
- Obstetric and gynaecological ultrasound
- Effects of malaria and helminthic co-infection on birth outcome
- Genital chlamydial and gonococcal infection
- Contraceptive use among high-risk women
- University students knowledge and practice of emergency contraception
- Broad ligament haematoma following snake bite
- Body mass index (BMI) and obstetric outcome
- Assessment of infertility patients; quality of relationship/intrasposal violence
- Post-surgical wound infection
- Pre-malignant lesions of the cervix
- Obstetric fistula
- Medical student training and outcomes
- House Officer training and outcomes

CONFERENCES ATTENDED

Members attend a number of conferences including the following:

- 56th Annual Conference of the West African College of Surgeons in Cameroon
 - 12th Annual Conference, Ghana College of Physicians and Surgeons, Accra
 - Annual General Conference of the Society of Obstetrics and Gynaecologists of Ghana (SOGOG) Accra.
 - 6th Annual Scientific Conference, College of Health Sciences, KNUST
- Presentations were given at some of these conferences.

VISITORS

The Department played host to a number of visitors notably Professor Carolyn Johnston, Professor Tim Johnson and Dr. Lucie V. Moravia all from Michigan USA and Professor David Parkins from UK. Their visit will in no doubt help the department in its subspecialisation agenda.

CONCLUSION

This department continues to be vibrant academically and professionally and is keen in collaborating with other centres of excellence in research and manpower training to help improve women's health. The department is making great strides in teaching, research and service provision.

DEPARTMENT OF COMMUNITY HEALTH

Activities at CEDRES: It is my pleasure to submit for inclusion in your report, highlights of the activities at CEDRES.

ACADEMIC

The first batch of 46 undergraduate students graduated in 2014/2015 academic year; they are currently doing their National Service. Six of them have gained admission to pursue postgraduate studies in various disciplines in the following Universities.

- University of Waikato, New Zealand to pursue Disability and Inclusion Studies
- University of Manitoba, Canada, to pursue Medical Rehabilitation
- University of Manitoba, Canada, to pursue Disability Studies
- Springfield College, USA, to pursue Masters in Disability Counselling
- University of Canterbury, New Zealand to pursue Speech and Language Therapy
- University of Bergen, Norway, to pursue Global Development (Health Promotion)

One of them has left while the remaining five are expected to leave by August this year.

A total of 18 master's students graduated from the Centre in 2014/2015. One of them has gained admission at the University of Tasmania, Australia to pursue PhD in Education.

RESEARCH

Students at both graduate and undergraduate levels conducted studies on disability and related issues. Some of the projects were presented at conferences. For example, abstracts from four of the undergraduate projects were accepted as posted presentations at the 2015 Ghana Biomedical Convention at the University of Ghana, Legon. Two students participated. One undergraduate project work was published in a Peer-Review Journal (Journal of Disability Studies). Also, 14 abstracts from 8 undergraduate theses and 6 Master's theses were accepted for poster presentation at the Disability and the Sustainable Development Goals Symposium at the International Centre for Evidence in Disability, London School of Hygiene and Tropical Medicine in the UK.

DEPARTMENT OF BEHAVIOURAL SCIENCES

INTRODUCTION

This department has been in existence in the medical school since 1982. The department is primarily concerned with the teaching of the behavioral sciences in the pre-clinical as well as psychiatry in the clinical areas.

AIMS

The department aims to:

- help fulfill the general School of Medical Sciences' vision of training of all round, high caliber and highly sensitive doctors with high ethical, moral and social standards
- fulfill the above aim by instilling into the young and budding doctors the importance of behavioural and psychosocial factors in the genesis, course and treatment of physical and mental health illnesses
- research into mental health illnesses and related issues, and
- provide much needed mental health services, thus doubling the Psychiatric Unit at the Komfo Anokye Teaching Hospital (KATH)

MEMBERS OF STAFF

A summary of our staffing situation is as follows

NO.	STATUS OF STAFF	TYPE OF APPOINTMENTS
SENIOR MEMBERS		
1	Professor ; Medical Ethicist/Supportive Psychotherapist	Full-time, KNUST
2	Senior Lecturer (s) Clinical Psychologists	Full-time, KNUST
1	Lecturer, Clinical Psychologist	Full-Time, KNUST
1	Lecturer, Psychiatrist	Full-Time, KNUST
MEDICAL/ NURSING		
3	Specialist Psychiatrists	Full-Time, KATH
4	Medical Officers/Resident(s)	Full-Time, KATH
1	Deputy Director for Nursing Service (DDNS)	Full-Time, KATH
2	Principal Nursing Officer (PNO)	Full-Time, KATH
1	Senior Nursing Officer (SNO)	Full-Time, KATH
13	Staff Nurse(s)	Full-Time, KATH
2	Orderlies	Full-Time, KATH
ADMINISTRATIVE STAFF		
1	Secretary	Full-Time, KNUST
1	Messenger	Full-Time, KNUST
3	National Service / Voluntary Service Personnel	

Among our senior members, we have one Professor, two senior lecturers and three lecturers with areas of expertise as follows;

Psychological/ Counseling Division (Behavioural Scientists)

Rev. Prof. Appiah-Poku	Professor: Medical Ethicist; Rehabilitation and Family Relations; Currently Head of Department
Dr. (Mrs.) Emma S. Adjaottor	Senior Lecturer; Head of Department (2013/14) Clinical Psychologist, SMS, and provides Psychological Services.
Dr. Frances Emily Owusu-Ansah	Senior Lecturer; Clinical Psychologist/Coordinator of Mentoring system, Helps with Disability Studies, Community Health, SMS, and provides Psychological Services.
Mr. Christian Amoah	Lecturer; Clinical Psychologist. Helps with Sports & Exercise Science, Cheshire Home, and provides Psychological Services.

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Medical (Psychiatrists)

Dr. Frimpong-Manso Addo	Lecturer, Psychiatry, SMS and Clinician, Komfo Anokye Teaching Hospital
D. Gordon Donnir	Adjunct lecturer, Psychiatry, SMS and Clinician, Komfo Anokye Teaching Hospital
Dr. (Mrs) Ruth Owusu-Antwi	Adjunct lecturer, Psychiatrist, SMS and Clinician, Komfo Anokye Teaching Hospital

ACADEMIC ACTIVITIES

Our core mandate as with every department includes teaching, mental health service provision and research.

TEACHING

Our teaching activities could be categorized into Preclinical and Clinical.

PRECLINICAL TEACHING

Our department teaches Behavioural Sciences to Human Biology Students (first to third year medical students) at the preclinical level. At this level we teach the students a set of topics in Behavioural Sciences under the broad headings of Foundations of Behavioural Sciences and Personality and Social Behaviour. The curriculum is made up of four main modules as follows:

MODULE I:	Definition and Scope of Behavioural Sciences
MODULE II:	Learning, Behaviour, Cognition and Intelligence
MODULE III:	Personality, Motivation, Emotion, Stress, Assessment and treatment Options in handling illnesses and
MODULE IV:	Professional – Patient Relationship

Module I, is taught in the first year, while Modules II, III and IV, which fall under Personality and Social behavior, are taught in the third year.

In addition to the above, we teach students in the following departments:

NURSING DEPARTMENT	Behavioural Sciences for Nurses I (by Sr. F. E. O Ansah) Behavioural Sciences for Nurses II (Prof. Rev. Appiah – Poku & C Amoah)
SPORTS & EXERCISE SCIENCE	Life, Health & Sports Psychology (F.E.O.Ansa & C Amoah)
MEDICAL LABORATORY DISABILITY (CEDRES)	Intro Psychology for Health Professionals (F.E.O Ansah) Stress Management & Disability and Counseling Skills (F.E. O Ansah)
OPTOMETRY DEPARTMENT	Human Psychology (C Amoah & F.E.O Ansah)

Clinical Teaching

The psychiatric clinicians within the department, Drs Frimpong-Manso Addo, Gordon Donnir, Ruth Owusu-Antwi and Prof. J. Appiah-Poku contribute towards the teaching of Psychiatry. This includes classroom tutorials, bedside teaching and demonstrations in the out-patient clinic.

Our clinical team's activities have included teaching both junior and senior clerks and preparing them for exams on their rotations through psychiatry.

College of Health Sciences

The Psychiatrists have worked harmoniously in tandem with the clinical psychologists in the department to provide more holistic psychiatric care to service users (psychiatric patients and their care-givers).

ONGOING PROJECTS AND COLLABORATIONS

We have maintained our linkage with our partners in the United Kingdom, Ireland and Australia by way of teaching and research. In the year under review, a total of three visiting lecturers (Richard Laugharne of Exeter, Jonathan Laugharne of University of West Australia and Prof Vincent Agyapong of Trinity College, Ireland) found time to come over to help with our Clinical Teaching. This year the department benefited from the visit of Drs Sammy Ohene and Liam Smith through the initiative of psychiatrists in the diaspora who support the teaching of clinical psychiatry in the country.

There is an ongoing yearly Inter Medical Schools Debate specifically in Psychiatry since 2011 championed by Prof Vincent Agyapong. The School of Medical Sciences, KNUST, hosted the third one in November 2013, through the courtesy of the Dean of SMS, Prof. Adu-Sarkodie and the Provost of College of Health Sciences Prof Tsiri Agbenyega. This year the debate was hosted by the UDS.

In collaboration with the Dean of the Medical School, Prof. Adu-Sarkodie, there are plans to set up an early psychiatric intervention service to identify medical students who show early signs of mental illness, with the view of treating them before changes in their functional ability become overtly noticeable. The need for this service is driven by concerns raised by various lecturers of SMS that the incidence and prevalence of Mental illnesses are on the ascendancy among medical students.

There is an on-going collaboration between our department and, Department of Psychiatry, Faculty of Medicine & Dentistry, University of Alberta, Canada initiated by alumnus Prof. Vincent Agyapong to establish a programme at the Department of Behavioural Sciences, SMS, KNUST. The programme, Masters in Global Mental Health Policy, Services and Development is to be taught entirely by an international faculty of experts in the field from Africa, Europe and North America. The department has supported and agreed to host the programme. We have subsequently forwarded the proposal to the provost, College of Health Science, KNUST through the Dean of SMS for consideration.

RESEARCH ACTIVITIES

Prof Appiah-Poku of the Department of Behavioural Sciences teams up with Prof Oye Gureje of University of Ibadan and the PaM-D team is leading a research project aimed at a Partnership between Othodox and Alternative Mental Health Practice and how Mental Health could be developed in Africa.

SERVICE TO COMMUNITY

Our department is a major service provider for mental health services not only for Kumasi and its surrounding geographical areas but also for the entire northern sector of Ghana.

Services provided by our department include Psychiatric (Medical and Nursing); Psychotherapy; Clinical and Forensic Assessment and reports as well as preventive mental

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and educational health talks. We also rendered specialized services to our affiliated satellite organizations such as Kumasi Cheshire home, Garden City Special School, Asokore Mampong and Community Psychiatry in Tafo in the year under review as usual internally, we ran liaison services for other KATH directorates as and when referrals are requested, and contribute regularly to emergency care of patients at the Accidents and Emergency Centre.

HEALTH TALKS/ RESOURCE PERSONS

We offer public education on various topics of Psychiatry through the media (air waves and television) and talks in churches and schools. In the year under review, Dr Gordon Donnir has been very proactive in this area offering talks on radio FM stations across the country.

All year round our Nursing department organizes regular health talks on selected relevant mental health topics such as; “Importance of drug compliance”; “Handling Autistic children”; “Causes and Management of Epilepsy and other mental health disorders”; “Stigmatization and Discrimination against the mentally ill”; to mention a few.

OTHER ACTIVITIES

Prior to the year under review the department had only an unfurnished office space at SMS on campus which could not be used. However, through the help of the office of the Dean of SMS, we have been able to furnish this office up to modern standards. This has partially enhanced our teaching and service provision and in attending to the needs of our students and clients.

We continue to treat and support students who develop mental health problems at the KNUST Hospital. In the past, these students would have had to be referred to Komfo Anokye Teaching Hospital or be taken to their respective homes by their families or care-givers with a lot of inconveniences.

GRATITUDE:

We continue to owe a debt of gratitude to the University Administration for their support of our work. We wish to thank the School as well as the College Administration for the administrative support and coordination of the work of the department towards the training of our students.

DEPARTMENT OF ANATOMY

INTRODUCTION

The Department plays a unique role in the University as the only Department involved in the teaching of Human Anatomy to almost all the students in the College of Health Sciences and to Optometry students in the College of Science. The Department ensures that courses for the different categories of students are designed to meet the needs of the students. The Department has 1 Professor, 2 Associate Professors, 1 Senior Lecturer, 4 Lecturers, 3 Assistant Lecturers, 2 Visiting Professors and 1 Visiting Lecturer. The senior academic staff are supported by 20 research, technical and supporting staff. The Department continues to depend on the support of the technical and supporting staff for the day- to-day running of the Department. During the year under review, two of our postgraduate students joined the teaching staff of the Department.

TEACHING

The Department offers courses in anatomy to undergraduate students pursuing the following programmes in the College of Health Sciences and Science: Medicine, Dentistry, Medical Laboratory Technology, General Nursing, Emergency Nursing, Midwifery, Physician Assistant programme in Anaesthesia, Sonography, Sports Science, Herbal Medicine, Veterinary Medicine, Top-up programmes in Midwifery, Emergency Nursing, and Optometry. The Department also provides courses at the postgraduate level in Reproductive Anatomy, Reproductive Health, Disability and Rehabilitation and at the Medical Professional level (Primaries) for West Africa College of Surgeons and the Ghana College of Surgeons and Physicians.

The Department continues to work tirelessly to improve teaching in the Department to higher standards. The Department encourages research-led teaching and promotes student-centred learning and independent learning by students. The Department has been very successful in motivating the students to develop an interest in Human Anatomy. This has been done through the identification of academically weak students and spending considerable hours with them on one-to-one basis. The result is the dramatic change in the perception of the subject.

Despite the large student numbers, the Department continues to organise Small Group Tutorials, Table Conferences, Demonstrations and Prosections, Computer-Assisted Learning (CAL) LAB Anatomy Tutorials and Virtual Microscopic Anatomy Tutorials to the students. The Department has introduced student-centred teaching and “integrated learning activities and strategies” such as Group Assignments, open- and closed-book Group Assessments and the use of video recording of practical lessons and/or demonstrations and lectures. The Department also promotes independent learning by students by allowing 24-hour access to the Dissection Hall and out-of-hours’ use of the Osteology/Microscopic Anatomy Prep Room. The instituted measures to cope with the large numbers of students and dedication of staff is reflected in the results of the final Anatomy examination which shows a gradual but consistent increase in the number of students who pass their Anatomy examinations with distinction, credit and good pass. Once again the students were given the opportunity to evaluate the lecturers and the courses offered at the end of each semester. This offered the Department a better chance to assess its teaching methods and programmes. In addition the Department is supervising 20 final year Medical Laboratory Technology students.

POSTGRADUATE TRAINING

The Department is actively involved in the training of postgraduate students. The Department runs MPhil programmes in Human Anatomy and Cell Biology, Human Anatomy and Forensic Science, Human Anatomy and Cell Biology (Morphological Diagnostics Option), Mortuary Science and Management and PhD programmes in Human Anatomy and Cell Biology and Human Anatomy and Forensic Science. These programmes combine research with taught courses in Gross, Microscopic and Developmental Anatomy, Cell Biology, Cytogenetics and Molecular Biology, Neuroscience, and Anatomical Techniques employed in the preservation and preparation of human material for teaching and research. The Human Anatomy and Forensic Science programme is to provide training in anatomically-based forensic anthropology, comparative forensic osteology, biometrics and exposure to human form and function with direct relevance to the identification process. The MPhil programme in

Mortuary Science and Management is a unique programme that combines the study of behavioural, physical, and applied sciences with the intent of preparing graduates for careers as knowledgeable, skilled, and innovative as mortuary science and funeral service. During the period under review 4 of our MPhil students in Human Anatomy and Cell Biology graduated. The Department has also made progress in student thesis supervision and are currently supervising 6 PhD students and 28 MPhil students researching into various aspects of skeletal anthropometry, biometry, osteometry, fertility and infertility and reproductive system tumours.

STAFF DEVELOPMENT

In view of the unique role of the Department in providing teaching to several Departments in the University, there is the urgent need for qualified lecturers to join the Department to augment the current staff strength. The Department has responded to this need by admitting 4 PhD students and 5 MPhil students through the KNUST Vice-Chancellor's Staff Development Programme. These students are being supervised in collaboration with Prof Alistair M. Warren, Department of Biomedical Science, University of Sheffield, UK. During the year under review 2 of the MPhil students on the Staff Development Programme successfully completed their taught courses and oral examinations.

RESEARCH AND COLLABORATION

The Department has research links with the Department of Anatomy and Neurobiology, University of Utah, Department of Biomedical Science, University of Sheffield, UK, and the Departments of Anatomy (UGMS), Obstetrics and Gynaecology (SMS), Pharmacology, Pathology (SMS & UGMS) and Biological Sciences, KNUST.

RESEARCH ACTIVITIES

Research in the Department focuses on the traditional disciplines of Gross Anatomy, Neuroanatomy, Microscopic Anatomy, Developmental Anatomy and Forensic Anatomy alongside innovative research programmes that draw basic and clinical scientists together. Our research comprises several integrated themes based on anthropometry, developmental biology, infertility, oncology and musculoskeletal biology. Whilst these research themes are particular strengths of the Department, there is a great deal of crossover and collaboration between researchers from different groupings. Currently, the following collaborative research projects are ongoing:

1. Quantitative assessment of human umbilical cord and placenta and perinatal outcome in HIV seronegative and seropositive mothers.
2. Histomorphometric studies of reproductive system tumours and their association with infertility.
3. Anthropometric assessment of Ghanaian skeletal remains, fingerprint patterns, palmprint patterns, footprint patterns, height, weight, finger length, blood group, dental records and facial morphology.
4. Foetal Biometry and morphology and ultrasonography of the endometrium in fertile and infertile Ghanaian women.
5. *In Vitro* models of human implantation using the human trophoblastic cell line (BeWo) and endometrial epithelial enriched cultures.
6. Effect of ethanolic fruit extract of *Xylopia aethiopica*, garlic, ginger, Chinese aphrodisiacs on the morphology and reproductive function of male and females.

BODY DONATION FOR MEDICAL EDUCATION

The Department administers a body donation programme for Medical Education. The programme which started about 15 years ago is dedicated to provide for the needs of the ever-growing educational and research areas of medical science. So far four people have donated their bodies to the Department. The generosity of these body donors adds immeasurably to our quality of life. These body donations help in increasing knowledge which ultimately improves the quality of life of all people.

SERVICE TO THE COMMUNITY

Members of the Department continue to give invaluable services as external examiners to sister Universities and consultancy services to the Ghana Police Service.

INCOME GENERATION

The Department continues to generate income through embalming and storage of cadavers brought in by the public. Currently there is more storage space for the large numbers of student cadavers required for the increasing student population, for staff and their dependants and also for the public. The Department also hopes to continue to generate some income through the existing training programme for mortuary personnel of the emerging mortuaries.

INFRASTRUCTURE

During the academic year under review, the Dissection Hall and Anatomy Multipurpose laboratory were refurbished to improve the natural illumination and ventilation in these laboratories. With the support of the School, the Department is in the process of expanding and creating classrooms for the postgraduate students.

DEPARTMENT OF MOLECULAR MEDICINE

INTRODUCTION

The Department of Molecular Medicine consists of 9 senior members (2 Associate Professors, 2 Senior Lecturers and 5 Lecturers) and 1 part-time lecturer, 5 Senior/Junior Staff. The Department teaches Medical Students, Allied Health Science Students (Nursing, Emergency Nursing, Medical LabTech, Sonography, Sports Science, Veterinary) and Pharmacy Students all in the College of Health Sciences. Besides, the Department offers graduate training and research programmes leading to the award of M.Sc. /M.Phil. /Ph.D. in Chemical Pathology/ Clinical Biochemistry and Clinical Immunology.

The department has research collaboration with Edith Cowan University (Australia), KCCR, Aptagen LLC, Pennsylvania, USA, the Noguchi Memorial Institute for Medical Research, University of Ghana Medicine and Dentistry, Korle-Bu as well as the following departments and units at CHS, KNUST and Komfo Anokye Teaching Hospital: Medicine, Anatomy, Behavioural/Psychiatry Sciences, Obstetrics and Gynaecology, Surgery, Urology, Oncology and Pharmacology.

We currently have a total of Ninety-three (93) postgraduate students of which thirty, (30) students pursuing programmes leading to the award of Ph.D in Chemical Pathology and

Immunology, and thirty-six (36) students pursuing M.Phil(Chemical Pathology) and Immunology, twenty-seven (27) M.Sc. Chemical Pathology and M.Sc. Immunology.

MEMBERS OF STAFF

The department has a total of fifteen (15) members of staff made up of two (2) Associate Professors- one on contract appointment and the other being head of the department, two (2) Senior Lectures with one (1) on Sabbatical Leave, six (6) Lecturers with one (1) on Part-Time appointment, three (3) Senior Technicians, one (1) Senior Clerk and one (1) Cleaner.

ON-GOING RESEARCH IN THE DEPARTMENT

Prof F. A Yeboah

1. Assessment Of The Burden And Distribution Of Human Papillomavirus (HPV) Genotypes and Associated Cervical Disease In Kumasi, Ghana
2. The Impact of Helicobacter pylori on the immune modulation and clinical course of HIV Patients at KATH, Kumasi
3. Sero- and Genotypic Prevalence of Herpes Simplex Virus Type 1 and Type 2 Among Human Papillomavirus- Infected Women in the Ghanaian Population
- Therapeutic Drug Monitoring of Digoxin at KATH
4. Adiposity and Hyperlipidaemia as Predictive Indices of Obstetric Outcome
5. The Risk Factors of Severe Post-Natal Hyperbilirubinaemia in Kumasi
6. Indicators for the assessment of prostate disorder at Komfo Anokye Teaching Hospital: development of prostate nomogram for predicting prostate biopsy outcome
7. Clinicopathological patterns of colorectal cancer at Komfo Anokye Teaching Hospital
8. Renin and Aldosterone as risk factors of hypertension and cardiovascular Disease at Komfo Anokye Teaching Hospital
9. Urine Lipoarabinomannan as a diagnostic tool of Tuberculosis in Children
10. Procalcitonin as a prognostic indices for evaluating the severity of kidney disease in the Kumasi metropolis
11. Risk factors for the development of kidney disease in Type 2 Diabetic Farmers in Asutifi Districts

Prof F. A Yeboah

Grants

1. Building Stronger Universities (BSU 3) grant from DANIDA to carry out a study on “*Phenotypic and Molecular Characterization of Gentamicin Resistance Gene among Klebsiellae and E.Coli Strains isolated in children at Komfo Anokye Teaching Hospital*”

Conferences Papers Submitted to Eurolab Focus 2016

1. **Assessment of the Performance of Specific prostate Diagnostic Tools in the Detection of Prostate Cancer among Ghanaian Men**, Agyemang-Yeboah Francis Aboah Kenneth Gyasi-Sarpong Kofi Christian, Laing Edwin Ferguson , * Acheampong Emmanuel , Twumasi Frimpong Benjamin, Odame Anto Enoch · Batu Nsenbah Emmanuella · Amankwaa Bright
2. **Lower Urinary Tract Symptoms (LUTS) suggestive of Benign Prostatic Hyperplasia among Ghanaian Men: A Hospital-Based Cross-Sectional Prospective study**, Aboah Kenneth, Agyemang-Yeboah Francis , Gyasi-Sarpong Kofi Christian , Laing Edwin Ferguson , Acheampong Emmanuel, Twumasi Frimpong Benjamin , Batu Nsenbah Emmanuella

DR. E. FLAING

1. Thyroid function and insulin resistance in type 2 diabetes mellitus Vitamin B₁₂ levels in Type 2 diabetics on metformin
2. Therapeutic drug monitoring of digoxin in patients with cardiac decompensation
3. Indicators for the assessment of prostate disorder at Komfo Anokye Teaching Hospital: development of prostate nomogram for predicting prostate biopsy outcome

Dr. WKBA Owiredu

1. Biochemical Characterization of hypertension in the Kumasi metropolis
2. Angiogenic and Oxidative Stress markers in women presenting with hypertensive pregnancies
3. Haemato-Biochemical profile of Psychiatric patients under clinical management at the Komfo Anokye Teaching Hospital
4. Haemato-Biochemical basis of Pregnancy Anaemia in the Northern and Upper West Regions of Ghana
5. Haemato-Biochemical basis of Anaemia secondary to Diabetes Mellitus
6. Assessment of Predictive Equations and Biomarkers for the diagnosis of kidney Disease in children and persons presenting with Diabetic Nephropathy
7. Assessment of the clinical utility of glycated haemoglobin and glycated albumin in the management of Diabetes Mellitus
8. Evaluation of Inflammatory markers in cardiovascular Disease, Diabetes Mellitus and Renal Disease.
9. A comparison of NGal and Cystatin C and conventional diagnostic methods for the Diagnosis of Renal Dysfunction
10. Evaluation of Renal Function among healthy and HIV infected children in the Ashanti region.
11. The role of Thyroid hormones in the incidence of non-communicable diseases
12. Biomedical characterization of Fatty Liver

Dr. Samuel Asamoah Sakyi

1. Selection and application of aptamers as simple diagnostic tool for buruli ulcer
2. Novel RNA based aptamers for the identification and monitoring of gametocyte carriage in malaria endemic countries
3. Antibody functionality in GMZ2 immunized individuals and the interaction between GMZ2 induced antibodies and host genetic factors in relation to the risk of malaria
4. Impact of iron fortificants, haemoglobinopathies, and immune-genetic factors on the risk of malaria and anaemia in Ghanaian children
5. Vitamin D Status and Its Health Implications Among Ghanaians: Does the Abundance of Sunshine Confers Adequate Vitamin D?
6. Changes in Lymphocyte Subsets in the Peripheral Blood of rheumatoid arthritis patients on combination therapy.
7. Evaluation of FTA cards for obtaining DNA and the detection limit of *mycobacterium ulcerans* using the FTA cards.
8. Evaluation of cytokine patterns in hepatitis B patients at KATH
9. Evaluation of procalcitonin, TNF-A, IL-6 and C - reactive protein as diagnostic markers for paediatric sepsis.

Conference Proceedings

Samuel A. Sakyi, Samuel Yaw Aboagye, Isaac Darko Otchere, Albert Liao, Dorothy Yeboah-Manu (2015): *Ribozyme-based RNA aptamer that specifically binds to mycolactone and serves as a diagnostic tool for early diagnosis of buruli ulcer*. America Association of Clinical Chemistry annual meeting in Georgia World Congress Center, Atlanta, GA, 26th-30th July, 2015. B-274 Page 17

Dr. (Mrs.) Linda Ahenkorah Fondjo

On going Research

1. Assessment of Vitamin D status in Diabetics
2. Endothelial Dysfunction mediators in Preeclampsia
3. Multiple markers for predicting preeclampsia
4. RAS-mediated insulin resistance, oxidative stress and dyslipidaemia in the pathogenesis of preeclampsia
5. Quality of Life in women with Breast Cancer
6. Comorbidities assessment in women with Breast Cancer

Max Efui Annani-Akollor

1. Proteomic Analysis of Plasma Membrane-derived Vesicles isolated from malaria samples
2. The Role of micro vesicles in the pathogenesis of malaria
3. A study on Procalcitonin as a diagnostic tool in malaria
4. A study on Erythropoietin a diagnostic tool in malaria
5. A study on C-Reactive proteins a diagnostic tool in malaria
6. ABO/Rh blood grouping in asymptomatic malaria
7. Glycaemic abnormalities amongst KNUST Students
8. HBA1c AS an indicator for metabolic syndrome in hypertensive patients
9. Microvascular complications amongst Diabetes at The KATH

OTHER CURRICULUM ACTIVITIES

The old departmental laboratory has been refurbished with the assistance from industry and Faculty of Allied Health to position the Department for cutting-edge research and postgraduate training. During the year under review the Department also embarked on clinical population screening on prostate cancers among ministers from the Presbyterian Church which was quite encouraging as part of our social/corporate responsibilities.

DEPARTMENT OF PATHOLOGY

1. INTRODUCTION

The Department of Pathology is one of the departments in the composite programmes of Bachelor of Human Biology (BSc Human Biology), Bachelor of Medicine and Surgery (MBChB) and Bachelor of Dental Surgery (BDS). The Department also renders services towards the award of other University Bachelor's degrees to the following departments: Medical Laboratory Technology, Nursing, Midwifery, Optometry, Sonography and Herbal Medicine.

The Department also has a clinical unit which renders Diagnostic Histopathology and Forensic Pathology services to Komfo Anokye Teaching Hospital.

College of Health Sciences

The Department is located in the B block of School of Medical Sciences within the University.

STAFFING

1. Dr N.A Titiloye, Senior Lecturer
2. Dr P.P. Sampene Ossei, Lecturer
3. Dr Babatunde Duduyemi, Lecturer
4. Mrs Eunice Addo-Danso, Administrative Assistant

SUPPORT STAFF

The Department is supported by experience Scientists from the academic staff of the Department of Medical Laboratory Sciences KNUST and demonstrators from the Pathology Department of Komfo Anokye Teaching Hospital

TEACHING SERVICES

- a. General Pathology for Medical and Dental students
This is a course that lays a fundamental basis for Systemic diseases offered to year 3 Human Biology students
- b. Systemic Pathology for Medical and Dental students
This is a course offered to Year 4 Medical and Dental students and builds on the fundamental basis already taught in year 3. It has a theoretical, practical and clinical component.
- c. General Pathology for Allied Health Sciences students
This is a course that teaches the fundamental basis of human diseases to Allied Health Sciences students offered to Year 2 students of the Departments of Medical Laboratory Technology, Sonography, Herbal Medicine, Nursing and Midwifery and Year 3 Student of the Department of Optometry
- d. Histopathology Technique for Medical Laboratory Technology Students
These are series of 5 courses of Histopathology Technique offered to year 2, 3 and 4 students of Medical Laboratory Technology. The scope of these courses include Tissue processing and Routine H&E stains, Histochemical stains, Cytology, Immunohistochemistry, Molecular Pathology techniques, Safety and Management issues in Histopathology Laboratory.
- e. Gross Morphology in Pathology for Sonography students
This course is specifically designed to assist students in Imaging Technique to understand the gross morphology of pathological organs. It is offered to year 2 Sonography students.

CLINICAL SERVICES

The Department offers ranges of Clinical services as a component of health services provider in Komfo Anokye Teaching Hospital and renders Consultancy services to other health facilities in Kumasi and its environs.

The clinical services include:

- a. Diagnostic Histopathological services
- b. Diagnostic cytopathological services
- c. Forensic Pathological services
- d. Immunohistochemistry and Molecular Pathological services

OTHERS

Research Support

The Department renders support to all other units of the University that undertakes research in the areas of diagnostic Pathology. The Department has persistently rendered support to the Department of Pharmacy in their animal model translational researches.

RESEARCH

Current areas of focus on research in the Department include Breast Cancer, Gastrointestinal and Liver diseases, cervical cancer, Prostate Cancer and Lymphomas.

PUBLICATIONS IN 2016

The department has published five (5) articles in 2016 and the details on them may be found in the University' Quality Assurance Bulletin.

RESIDENCY TRAINING

Our academic members of staff who are also honorary consultants to Komfo Anokye Teaching Hospital participates in the residency training of the Department of Pathology of Komfo Anokye which currently has accreditation of the Ghana College of Physicians. This will provide avenue for sustenance of academic manpower of the Department.

CONCLUSION

The department has been positioned for steady growth to support the University in its vision of advancing knowledge in science and technology for sustainable development in Africa.

DEPARTMENT OF SURGERY

INTRODUCTION

The Department of Surgery, School of Medical Sciences, also referred to as the Directorate of Surgery of the Komfo Anokye Teaching Hospital, comprises the following subspecialties:

- General Surgery
- Trauma and Orthopaedic Surgery
- Urology
- Plastic and Reconstructive Surgery
- Maxillofacial Surgery
- Paediatric Surgery
- Neurosurgery
- Cardiothoracic & Vascular Surgery

DEPARTMENTAL AIMS/OBJECTIVES

The Department of Surgery has over the years aimed to:

- (a) Fulfill the general vision of the School of Medical Sciences through the pursuit of excellence in teaching, research and high quality surgical service to the community. The training of doctors with high ethical, moral and social standards remains our goal.
- (b) Provide basic clinical training in all the subspecialties currently available in the department and expand training into other subspecialties such as Transplant Surgery, Endocrine Surgery and Laparoscopic Surgery.

College of Health Sciences

- (c) Provide postgraduate training in surgery through the Fellowship of the West African College of Surgeons and the Ghana College of Physicians and Surgeons as well as provide advanced training to doctors throughout Ghana through short term courses such as Continuing Medical Education (CME) and Continuing Professional Development (CPD) Courses.
- (d) Promote the conduct of research for improving the quality of teaching and surgical service delivery.

ACADEMIC STAFF

The department has a total of nineteen (19) Academic Staff made up of eight (8) Professors with seven being visiting Professors, two (2) Associate Professors – one of them being Head of Department, five (5) Senior Lecturers and four (4) Lecturers as well as seventeen (17) able Surgeons of KATH who voluntarily participate in clinical teaching of students.

SUPPORTING STAFF

In addition to the Academic Staff includes four (4) support staff made up of one (1) Chief Research Assistant and one (1) Senior Administrative Assistant both being KNUST staff with one (1) Library Assistant and one (1) Messenger both being KATH staff.

ACTIVITIES

Specialists in the Department:

1. Organized 3 specialist surgical outreach teams, under the auspices of APRIDEC Medical Group, to Upper East and Upper West Regions
2. Together with Ghana Cleft Foundation organized a cleft surgery outreach team to Ho Regional Hospital
3. In collaboration with the University of Utah Plastic Surgery, USA, organized plastic and reconstructive surgical services for breast reconstruction in the Ashanti Region
4. In collaboration with the University of Michigan Breast Cancer Research Team organized 2 breast cancer seminars on breast cancer treatment and research in the Ashanti Region
5. In collaboration with the International Urological Society/International Volunteers in Urology organized 2 seminars on treatment and research on rare paediatric urological pathologies at KATH
6. Under the auspices of KATH Reconstructive Plastic Surgery and Burns Unit organized 2 workshops on burns wound management to nurses and doctors in KATH and beyond
7. Attended various conferences (both locally and internationally) to upgrade their knowledge and skills in surgery
8. Participated fully, presented papers at the 11th Annual General and Scientific Meeting (AGSM) of the Ghana College of Physicians and Surgeons in December 2015 in Accra and also in the 56th AGSM of the West African College of Surgeons in Yaoundé, Cameroon in March 2016

All the visiting professors visited the Department; gave lectures and seminars/workshops in their various fields to students and postgraduates (surgical trainees) in the Department.

TEACHING:

Teaching continues to be of very high standards in the Department. Lecturers are encouraged to update their lectures to reflect the present state of surgical practice. Both undergraduate

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and postgraduate teaching has been intensified with the introduction of new concepts. All lecturers use PowerPoint presentations. Handouts are made available to students at no cost.

The large increase in student numbers has necessitated a reorganization of our teaching program. The quality of teaching, however, remains high. Our undergraduates performed well in the final examinations last year, ending up with about several credits and good passes. The problem of having both Year 4 and Year 6 by the same time by the same teacher for teaching needs to be looked into seriously. This is of great disadvantage to both student and the faculty.

The locally trained residents continue to perform creditably in the exit examinations. Twelve (12) residents, under the tutelage of the consultants of the Department passed out last year at various levels of the WACS and GCPS and are serving specialists in various hospitals of the country as surgical specialists.

RESEARCH:

Research continues to be a major focus of the Department and all consultants have research programmes. New and ongoing research programmes include:

1. Breast cancer (ongoing)
2. Aetiology of gastric outlet obstruction (ongoing)
3. Gastric malignancies (ongoing)
4. Prospective study in typhoid perforations (ongoing)
5. Buruli ulcer management and disability studies(ongoing)
6. Burns prevention disability studies (ongoing)
7. Epidemiology of trauma and violence in Ghana (ongoing)
8. Colonic cancers (ongoing)
9. Sigmoid volvulus (ongoing)
10. Acute abdomen management and prevention in sub-Saharan Africa Hospital (ongoing)
11. Neonatal malformations (ongoing)
12. Malformations in children (ongoing)
13. Hirschsprung's disease management (ongoing)
14. Prostate cancer (ongoing)
15. Male Infertility (ongoing)
16. Priapism (ongoing)
17. Cleft lip and palate deformity (ongoing)
18. Oral squamous cell carcinoma (ongoing)
19. Autogenous tissue for reconstruction in the maxillofacial region (ongoing)
20. CNS abnormalities (ongoing)
21. Aetiology of road traffic accidents at Komfo Anokye Teaching Hospital (ongoing)
22. Management of complicated leg injuries at Komfo Anokye Teaching Hospital (ongoing)
23. Buccal mucosa use in urethroplasty (ongoing)
24. The incidence of chest injuries in the KATH ICU (ongoing)
25. Pneumatic reduction of intussusceptions (ongoing)
26. CT scan to diagnose unconfirmed cases of typhoid perforation (ongoing)
27. Importance of ultrasonography in breast imaging (ongoing)

PUBLICATIONS

The department has a total of thirty-eight (38) articles published in peer-reviewed journals as well as a total of twelve articles published in conference proceedings and these details may be found in the Quality Assurance Bulletin.

COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY/RECOGNITIONS

During the year under review the Department of Surgery faculty members continued to provide high quality specialized services to the community. Outstandingly, one of our colleagues – Dr. Joseph Akpaloo, a Plastic and Reconstructive Surgeon – has been appointed as the Chief Executive Officer (CEO) of the Komfo Anokye Teaching Hospital.

Listed below are some of the community services/contributions to society/recognitions during the year:

- **PROF. P. DONKOR**

1. Examiner for Ghana College of Physicians and Surgeons
2. Examiner for West African College of Surgeons
3. International Partner, Smile Train, USA
4. President, Ghana Cleft Foundation
5. Council Member, West African College of Surgeons

- **PROF. R. E. QUANSAH**

1. Examiner for Ghana College of Physicians and Surgeons
2. Board Chairman, KNUST Photocopy
3. Facilitator Forgarty Project with the American Health Services
4. Supervisor for a post graduate project in Immunology

- **PROF. P. AGBENORKU**

1. Examiner for Ghana College of Physicians and Surgeons
2. Examiner for West African College of Surgeons
3. Monitoring Invigilator for West African College of Surgeons
4. SMS Representative on College of Science Appointments and Promotions Sub-Committee
5. External Examiner for BSc Physician Assistantship, Central University, Miotso-Accra
6. External Examiner for MB ChB School of Medicine & Dentistry, University of Ghana, Accra
7. External Examiner for MB ChB School of Medicine & Health Sciences, University for Development Studies, Tamale
8. External Examiner for MB ChB School of Medical Sciences, University of Cape Coast, Cape Coast
9. External Examiner for BSc Physician Assistantship School of Medicine & Health Sciences, University Health & Allied Sciences, Ho
10. Presbyter and Annual Synod Meeting Facilitator, Global Evangelical Church, Ghana
11. Chairman, Global Evangelical Church Health Services Board
12. Chairman, International Christian Medical and Dental Association (ICMDA) West Africa Chapter
13. Vice-President, Pan African Burns Society (PABS)

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14. Vice-President, Pan African Association of Cleft Lip and Palate (PACCLIP)
15. Consultant to World Health Organization (WHO) on Buruli ulcer
16. Technical Consultant to the America Leprosy Missions (ALM) on Buruli Ulcer
1. International Partner, Smile Train, USA
2. International Partner, ReSurge International, USA
3. International Partner, ReSurge Africa
4. Fellow, **Association for Academic Surgery, USA**
5. **Fellow, International College of Surgeons**
6. **Alumnus, Haggai Institute for Leadership Training**
7. **Board Member Representing Plastic & Reconstructive Surgery on Faculty of Surgery Board, West African College of Surgeons**
8. **Board Member Representing Plastic & Reconstructive Surgery on Faculty of Surgery Board, Ghana College of Physicians & Surgeons**

• **DR. E. PALMER-AMANING**

1. Examiner for Ghana College of Physicians and Surgeons
2. External Examiner for MB ChB, Department of Surgery, School of Medicine and Health Sciences, University for Development Studies, Tamale

• **DR. C. K. GYASI-SARPONG**

1. Examiner for Ghana College of Physicians and Surgeons

• **DR. E. ADU**

1. Examiner for West African College of Surgeons
2. External Examiner for MB ChB, Department of Surgery, School of Medicine and Health Sciences, University for Development Studies, Tamale
3. Volunteer, APRIDEC Medical Outreach Group
4. Vice President, Ghana Burn Association
5. Chairman, Ghana Burn Survivors Foundation

• **DR. K.E.K. ABOAH**

1. Examiner for Ghana College of Physicians and Surgeons
2. Resource Person, Medical and Dental Council of Ghana
3. Chief Invigilator for Kumasi Center, West African College of Surgeons Primary Examination

• **DR. J. AKPALOO**

1. Partner, Charis Missions International
2. Volunteer, APRIDEC Medical Outreach Group
3. Chief Executive Officer, Komfo Anokye Teaching Hospital, Kumasi

• **DR. J. YORKE**

1. Partner, Charis Missions International
2. Volunteer, APRIDEC Medical Outreach Group
3. Deputy Clinical Examinations Officer, SMS-KNUST

• **DR. ADAM GYEDU**

1. Member, International Surgical Society
2. Member, Society of American Gastrointestinal and Endoscopic Surgeons
3. Volunteer, APRIDEC Medical Outreach Group

PUBLIC EDUCATION:

Late presentation, ignorance and superstition continue to account for the poor prognosis in most patients. The Department intensified its public education program during the year under review. The Department participated in public lectures, radio and television programs. Patients attending outpatient clinics were educated particularly on the advantages of early attendance to hospital. Community education by the Department on Burns Prevention in Children is an important ongoing activity within the identified communities of high prevalence of childhood burns.

LINKS/INTERNATIONAL RELATIONS

At the undergraduate level, the department enjoys linkages with the various Universities that have linkages with the School of Medical Sciences. Students from the U.S.A., Germany, Sweden, Denmark and UK came for their surgical elective training in our Department.

At the postgraduate level our linkages with the University of Ulm, Germany, the University of Washington, University of Michigan and the University of Utah, all in the USA continue to be strong.

CONCLUSION

The Department is making progress in the areas of teaching, research and service. We diligently prepare our students to make them understand the rudiments of surgery to be able to stand on their own when they become house officers. The challenge is getting the requisite number of surgeons to teach the increasing numbers of medical students in the University. An effort should be made by the authorities of the University to employ more lecturers in surgery. At the moment, we have twelve (12) applicants who are still waiting to be interviewed and employed by the University to enable us beef up our staff numbers.

DEPARTMENT OF MEDICINE

INTRODUCTION

The Department of Medicine is made-up of eleven full-time academic staff, supported by six Adjunct Lecturers.

The undergraduate programme aims to train undergraduates in specific clinical skills and promote a desire to continuous professional development, proficiency and commitment in patient care. The department also takes a lead role in training post-graduate residents for the various Postgraduate Professional Colleges.

ACADEMIC STAFF

The department has a total of eleven (11) Academic Staff made up of one (1) Professor, two (2) Associate Professors with one of them being Head; four (4) Senior Lecturers and four (4) Lecturers.

ACTIVITIES

The Department of Medicine curriculum is designed for Junior and Senior Clerkships spanning two academic years. The emphasis is the acquisition of technical skills as the basis of diagnosis and clinical problem-solving, and the interpretation of data from a variety of investigative techniques.

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The persistent increase in student numbers continues without reference to staff, patient numbers, or clinical facilities.

The postgraduate and undergraduate programmes are supported by Trainers from UK, US and parts of EU. The Department of Medicine also organized three internationally accredited CPD Seminars/Workshops in Viral Hepatitis, and Transfusion Medicine.

International Faculty include:

Dr. Mark Denyer, United Kingdom	Gastroenterology
Dr. David Chadwick, United Kingdom	Infectious diseases
Dr. David Renner, Utah, USA	Neurology
Dr. Uli Schwab, Newcastle, United Kingdom	Infectious Disease/HIV
Dr. Wayne Samuelson	Pulmonary Medicine
Dr. Kwame Owusu Dapaah-Afriyie	Infectious Disease
Dr. Paul Acheampong	Neurology/Stroke

RESEARCH/TRAINING COLLABORATION

Viral Hepatitis	Loyola University, Chicago, USA
Trial of MIRASOL in Transfusion Products	TERUMO/University of Cambridge
CARDIOSTAT Team, Cardiology	Utah/Michigan/UK
Aflatoxin in Liver Disease	Alabama, USA
HCV Screening in Obuasi/Daboya	Loyola/GILEAD

COMMUNITY SERVICE

The academic staff is responsible for specialist clinics in the Directorate of Medicine, KATH.

The clinics include:

- Oncology
- Haematology
- Renal/Hypertension
- Asthma
- Diabetes mellitus
- Cardiology
- HIV/AIDS

INTERNATIONAL AFFILIATIONS

The Department of Medicine has links with University of Utah, School of Tropical Medicine, Liverpool, St Georges Hospital, London, James Cook University Hospital, University of Hamburg, Middlesbrough, and THET, UK.

Publications 2014

The department has a total of thirty-eight (38) publications for the relevant year the details of which may be found in Quality Assurance Bulletin

FACULTY OF ALLIED HEALTH SCIENCES

The Faculty of Allied Health Sciences is one of the Faculties in the College of Health Sciences, and comprises the following Departments:

- Department of Medical Laboratory Technology
- Department of Nursing

College of Health Sciences

- Department of Sports and Exercise Science
- Department of Sonography

Deanship

The current Dean of the Faculty of Allied Health Sciences is **Dr. Alexander Yaw Debrah**.

STAFF

Low staffing situation still remains a big challenge. We have intensified our effort in our recruitment drive and have every hope of success. Most of our lecturers who still have Master's degree are being encouraged to enroll in PhD programmes. As a result, five of them are currently doing their PhD in the UK, Germany and South Africa. More will hopefully be enrolled next year.

OFFICE ACCOMMODATION FOR LECTURERS AND CLASSROOMS FOR STUDENTS

One of the challenges facing the Faculty was lack of office accommodation for lecturers and classrooms for students. However, this is no more a problem for the Faculty. With the Vice-Chancellor's support, the Faculty has acquired office spaces for lecturers and classrooms for students at the new Examination building (The Destiny Block). We are very grateful for the support of the Provost and the Vice-Chancellor for their effort and we thank them for their continued support of endeavors.

NEW UNDERGRADUATE AND POSTGRADUATE PROGRAMMES

The Department of Nursing in collaboration with the Ministry of Health has mounted Diploma Top-Up programmes in Nursing, Midwifery and Community Health Nursing for certificate holders. Plans are well advanced to mount BSc Top-Up programmes in Nursing, Midwifery and Community Health Nursing in some selected Nursing and Midwifery Training Colleges dubbed "Centres of Excellence". Plans are also far advanced to mount postgraduate courses such as Master's and PhD in Hematology and Biomedical Sciences in the Department of Medical Laboratory Technology and Master's and PhD programmes in the Department of Nursing.

RESEARCH ACTIVITIES IN THE FACULTY

The Faculty continues to win international grants to do groundbreaking research mainly in Neglected Tropical Diseases (NTDs). This, the Faculty does in collaboration with other sister universities such as Edinburgh University in the UK, Bonn University in Germany, Case Western University in the USA and the University of Buea in Cameroon among others.

LINK WITH OTHER INSTITUTIONS OF HIGHER LEARNING

The Faculty has exchange programmes with some world-class Universities such as Westminster University, UK, University of Nottingham School of Nursing, Midwifery and Physiotherapy, UK and the School of Nursing, Ramapo College, New Jersey.

The University of Michigan, USA, is supporting the training in the Emergency Nursing programme and the School of Nursing, Ramapo College, New Jersey is supporting in the development of postgraduate programmes. Plans are also far advanced to sign a Memorandum of Understanding (MoU) with other universities such as the University of Bonn in Germany, University of Utah in the USA, and University of Brisbane in Australia for student exchange programmes.

DEPARTMENT OF MEDICAL LABORATORY TECHNOLOGY

STAFFING

Lecturers	9
Service lecturers	10
Administrative Assistant	1

STUDENT POPULATION

The Department of Medical Laboratory Technology, which has a current student population of 180, has graduated 619 students so far and most of these graduates are working in the laboratories of Government and Private Hospitals, Food and Drug industries and Research institutions.

LINK WITH OTHER INSTITUTIONS OF HIGHER LEARNING

The Department has exchange programmes with some world-class Universities such as Westminster University for both students and Faculty members. Plans are also far advanced to sign a Memorandum of Understanding (MoU) with other universities such as University of Bonn in Germany, University of Utah in the USA, and University of Brisbane in Australia for student exchange programmes.

The Department also has research collaborations with top class Universities such as Bonn University in Germany, The Bernard Nocht Institute in Germany, Liverpool School of Tropical Medicine in the UK, Edinburgh University in the UK, Case Western University in Cleveland, USA, Washington University in St. Louis in the USA among others.

RESEARCH WORK UNDERTAKEN BY THE DEPARTMENT

The Department has four main research units in the areas of Haematology, Clinical Biochemistry, Molecular pathology and Microbiology/parasitology. The entire teaching staff have specialized with specific research interests in the above research domains.

Microbiology/Parasitology (Dr. Alexander Y, Debrah)

The parasitology research unit of the Department has been involved in a number of research activities in Neglected Tropical Diseases (NTDs). These activities have led to some groundbreaking findings, some of which have already found their ways into current Tropical Medicine textbooks. For instance, the Department in collaboration with sister universities such as Bonn University have found treatment for Onchocerciasis (River blindness) and lymphoedema (elephantiasis), in which doxycycline, a very cheap antibiotic on the market is used for the treatment of elephantiasis. What this means is that elephantiasis patients would not be turned away by doctors anymore because there is now treatment discovered by the Department. These groundbreaking findings have received a number of international awards including the prestigious German Momento Price Award 2015 in Berlin in March 2015.

As a result, the Department has this year received from the German Ministry of Education and Culture and the German Research Foundation a total of over 3 million Euros (**•3 million**) for the establishment of **Elephantiasis clinics** in some endemic areas in the country and also to research more into the causes and better treatment of elephantiasis.

Haematology (Dr. Clement Opoku Okrah, Dr. Otchere Addai Mensah, Mr. Benedict Sackey, Mrs. Lilian Antwi Boateng)

The haematology unit is presently involved in research on malarial haematology, looking at various substances like Procalcitonin, C - reactive protein and Erythropoietin as potential biomarkers for malaria severity. Research on malaria vaccine candidates is also ongoing with the view to helping develop a vaccine for malaria

Molecular Pathology (Dr. Kwabena Owusu Danquah and Mr. Ernest Adankwah)

The molecular pathology research unit is involved in key research areas looking at the interface of cancers and infectious agents (HIV, HPV, EBV and schistosoma). With a kind support from College of Health Sciences, Dr. Danquah set up Cancer and Infection Research Facility (CIRF) in 2014, with a prime purpose of encouraging and training young researchers in Cancers and Infections. Since its establishment, CIRF has been organizing weekly (every Monday) Molecular Biology Forum-this has been a fertile ground for scientific research discussions. CIRF also organized a training workshop in 2014 on “Versatile application of PCR in Diagnosis and Research” with a satisfactory achievement. The Facility is accessible to and is being used by several researchers including graduate students from Colleges of Sciences and Health Sciences, as well as being used to train International Exchange Medical Students (recent one being March 2015 that trained 2 Germans and 1 Japanese).

In collaboration with Brown University-USA, Dr. S. E Quayson of Ghana Medical School and Dr. Danquah have been awarded **\$25, 000** by **CFAR** for a pilot project research on “Postmortem Diagnoses Of Lung Diseases And Sensitivity of Infectious Agents In HIV/AIDS Patients In A Tertiary Referral Hospital In Ghana”

INTERNATIONAL APPOINTMENT

Dr. Alex Debrah, a member of the Department and the Dean of the Faculty, has been appointed as Co-chair of the planning committee of The Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC) of the American Society of Microbiology for a 3 year term period. In fact, he is the first African to be appointed into this committee since its formation about 60yrs ago.

FUTURE PLANS FOR THE DEPARTMENT

The Department is in the process of starting an MPhil in Haematology next academic year, haven gone through almost all the processes necessary for starting. There are also plans to start a PhD in Haematology as well as an MPhil in Biomedical Sciences.

The Department has taken delivery of a multi-headed teaching microscope, an ELISA reader and a Spectrophotometer. There are discussions which are almost in conclusion to secure more microscopes, a haematology analyzer and a microtome to help in the realization of the present management’s drive to bring back the practical orientation of the programme.

PUBLICATIONS

Details of published research findings, book chapter and abstracts from conference proceedings can be found in the Quality Assurance Bulletin in the year under review.

DEPARTMENT OF NURSING

PROGRAMMES OFFERED BY THE DEPARTMENT

The Department offers programmes leading to Bachelor of Science in General Nursing, Emergency Nursing, Midwifery and Diploma Top-up programmes for trainees from the Midwifery, Community Health Nursing and General Nursing in Nursing Training Institutions in Ghana leading to Diploma in Midwifery, general nursing and Community Health Nursing. The Vice Chancellor's Centres of excellence are also being pursued. These Centres will offer Bachelor of Science in Nursing, Midwifery and Community Health Nursing. A number of nursing training institutions have been identified and workshops organized for the tutors who will assist in teaching in these programmes.

STAFFING

Lecturers: full time – 8 (1 is pursuing her PHD on part-time basis in South Africa)

Part time Lecturers – 6

Administrative staff – 1

- One lecturer resumed work after pursuing a PHD programme in The University of Nottingham, UK.
- One lecturer has been given sponsorship by the Common Wealth Scholarship Programme and will leave in August for his PHD. Two other lecturers have gotten admission to pursue PHD Programmes in Nursing in South Africa and Australia.

STUDENT NUMBER

The Department has a total of six hundred and fifty-nine(659) students, comprising those in the General nursing, Midwifery and Emergency nursing programmes. Seven and ten (710) students were admitted into the diploma sandwich top-up programmes being ran at the nursing training institutions sited all over the country. These comprised nursing, midwifery and community health nursing students.

No. of Students for 2015/2016 Academic Year at end of the Second Semester 2015/2016

EMERGENCY NURSING	TOTAL NUMBER	FEMALE	MALE
3 rd Year	45	34	11
4 th Year	49	35	14
Total	94	69	25
GENERAL NURSING			
1 st Year	56	40	16
2 nd Year	65	32	33
3 rd Year	66	39	27
4 th Year	68	40	28
Total	255	151	104
MIDWIFERY (REGULAR)			
1 st Year	31		
2 nd Year	35		
3 rd Year	40		
4 th Year	33		
Total	139		
MIDWIFERY (SANDWICH)			
2 nd Year	56		
3 rd Year	64		
4 th Year	51		
Total	171		

TEACHING

The Department provides intensive theoretical and clinical teaching in nursing, building on knowledge in the basic sciences. This prepares students to become professional nurses capable of effectively delivering nursing care to their clients and significant others. The Department benefits immensely from the service courses in the basic sciences. The course also prepares the students to identify pertinent health problems in health institutions and communities and to effectively design programmes to address them. The Skills laboratory has been equipped with resources to provide pre-clinical teaching of nursing procedures. A state of the art skills laboratory has been equipped with modern skills training equipment and materials at the Destiny Building. This was largely made possible by the support of Jhiepego who not only provided these equipment and materials but also sent their staff who came and set up the skills laboratory.

PROMOTIONS

Three Assistant Lecturers were promoted to the positions of lecturers during the 2015/2016 academic year. One lecturer was also promoted to Senior Lecturer position and another has processed her promotion documents to the position of Senior Lecturer which has been assessed at the college level and now pending assessment by the university's appointments and promotions committee. Two lecturers have been interviewed by the college and the University's Appointments and promotions committees respectively. Their appointments are almost ready and they will soon add to the Department's teaching team which will increase the lecturers' number to 10.

RESEARCH IN THE DEPARTMENT

Staff continue to engage with collaborators on research projects, publications and dissemination of research findings in order to promote knowledge in health issues. Staff also continue to supervise students' researches in nursing, midwifery and general health issues. Lecturers also supervised student care study work by students. The underlisted were publications from the Department during the period:

1. **Bam, V.**, Bell, S. (2015). Emergency Nursing in Ghana: Outcomes after a five year pilot programme. *Annals of Global Health* 81, 1, 15. Poster abstract from the 6th Annual CUGH Conference: Mobilizing Research for Global Health. March 26 – 28, Boston MA.
2. Bell, S. A., **Bam, V.** and Acheampong, E. (2015). Developments in emergency nursing education in Ghana. *Emergency Nurse* 23(8), 18-21
3. **Diji, A. K-A.**, Asante, E., Obirikorang, Y., Agyeman, Y. N., Amoako, E., & Ampomah, E. (2015, August 27-28). *Knowledge, attitude and practices on the prevention and management of cholera*. Paper presented at the 6th College of Health Sciences' Annual Scientific Conference: Non-communicable diseases–the significance of nutrition, School of Business Auditorium, KNUST, Kumasi. S1A4.
4. **Diji, A. K-A.**, **Bam, V.**, **Asante, E.**, **Lomotey, A.**, Yeboah, S., & Owusu, H. A. (2015, August 27-28). *Challenges and predictors of exclusive among nursing mothers in a regional hospital in Ghana*. Paper presented at the 6th College of Health Sciences' Annual Scientific Conference: Non-communicable diseases–the significance of nutrition, School of Business Auditorium, KNUST, Kumasi. S1B1.

5. **Diji, A. K-A.**, Moses, M. O., **Asante, E.**, Agyeman, Y. N., Duku, J., & Agyeiwaa, S. A. (2015). Life with female partners after mastectomy: the perception of Ghanaian men. *International Journal of Applied Science and Technology*, 5(4), 122-127.
6. Nakua, E. K., Otupiri, E., Owusu-Dabo, E., **Dzomeku, V. M.**, Otu-Danquah, K., and Anderson, M. (2015). Prevalence of refractive errors among junior high school students in the Ejisu Juaben Municipality of Ghana. *JUST Vol. 35*(1) pp. 52-62. Dx.doi.org/10.4314/just.v35i1.5
7. Nakua, E. K., Otupiri, E., **Dzomeku, V. M.**, Owusu-Dabo, E., Agyei-Baffour, P., Yawson, A. E., Folsom, G. and Hewlett, S. (2015). Gender disparities of chronic musculoskeletal disorder burden in the elderly Ghanaian population: Study on Global Ageing and Adult Health (SAGE WAVE 1) *BMC Musculoskeletal Disorder*, 16: 204 DOI 10.1186/s12891-015-0666-3
8. Nakua, E. K., Sevugu, J. T., **Dzomeku, V. M.**, Lipkovich, H. R., Otupiri, E., and Owusu-Dabo, E. (2015). Home birth without skilled attendants despite Millennium Villages Project interventions in Ghana: insight from a survey of women's perceptions of skilled obstetric care. *BMC Pregnancy and Birth*, 15:243 DOI 10.1186/s12884-015-0674-1
9. Rominiski, S. D., Lori, J., Nakua, E., **Dzomeku, V.**, Moyer, C. A. (2015). What makes a likely abortion provider? Evidence from a nation-wide survey of final-year students at Ghana's public midwifery training colleges. *Contraception CON* 8637. DOI:10.1016/j.contraception

SERVICE TO THE COMMUNITY

Senior members of the Department continue to offer services to the University in various capacities, serving on some university committees and boards. Some staff also serve on national boards like the Nursing and Midwifery Council Board. They serve the university in other capacities as moderators for Nursing and midwifery programmes in affiliated University colleges such as Central University College, Garden City University College, St Karols School of Nursing (Accra), Christian Service University College and the Pentecost University College. They provide technical support to the Ghana Health Service and also serve as moderators to the Ministry of Health's Nursing and Midwifery Training institutions that run diploma programmes. Two lecturers in the Department participated in the National accreditation of health institutions undertaken by the National Health Insurance Authority in February/March, 2016 and the April May, 2016.

LINKS WITH INSTITUTIONS OF HIGHER LEARNING

The Department continued its international collaboration with the School of Nursing, University of Michigan, USA, University of Nottingham School of Nursing, Midwifery and Physiotherapy, UK and the School of Nursing, Ramapo College, New Jersey. It is also collaborating locally with universities that offer nursing and midwifery programmes. School of Nursing, University of Michigan, USA, supports the training in the Emergency Nursing programme and the School of Nursing, Ramapo College, New Jersey is supporting in the development of postgraduate programmes.

PARTICIPATION IN WORKSHOPS/CONFERENCES/SEMINARS

Staff participated in some international and local conferences and workshops and made presentations:

- The head of Department facilitated in the workshop organized by the affiliation office for tutors in the health training colleges who will assist in the teaching of the Bachelor of Science programmes on the 10th May, 12th May and 17th May, 2016. These were zoned into Sothern, middle and northern zones and the workshops organized respectively.
- Two lecturers attended the Nurse-Educators Group Conference at the University for Development Studies, Tamale, in February, 2016.

EXCHANGE PROGRAMMES

In pursuit of the collaboration between KNUST and the University of Michigan Emergency Department, two emergency nursing students benefitted from a four weeks clinical rotation at the Emergency Department in Michigan. This was supported by the Medical Education Partnership Initiative (MEPI) project. The Department also received students and Faculty from Ramapo College USA for a two-week public health programme in Ghana.

EXTERNAL AND NEW PROGRAMMES

KNUST has oversight responsibility for academic programmes in the Ministry of Health's Training institutions hence the Department organizes terminal examinations for these schools. All Nations University College (ANUC), Koforidua, serves as a campus for the KNUST nursing programme which is a Top-up for registered nurses. The Department is continuing with its offshore BSc. Nursing programme through the Institute of Distance Learning, KNUST, in collaboration with the AllOver Polytechnic in Nigeria. It has also developed three Bachelor of Science Top-up programmes in General Nursing, Midwifery and Community Health Nursing which is expected to begin in June, 2016 and will be delivered in selected Nursing and Midwifery Training institutions. Two postgraduate programmes; Master of philosophy (MPHIL) in Nursing and Master of Science (MSc) in Nursing will commence in the 2016/2017 Academic year. The necessary arrangements have already been made and hopeful these programmes will take off as planned. The doctor of Philosophy (PHD) in Nursing Programme is about to start probably this academic year depending on the speed of work on the taught courses by the committee set up to draw up the courses. A set of computer and a printer were bought for each of the seven (7) training colleges currently running the diploma top-up programmes to facilitate the work of the programmes.

GRADUATION OF DIPLOMA NURSING, COMMUNITY HEALTH NURSING AND MIDWIFERY SCHOOLS

The University graduated the third batch of students from the Diploma Midwifery, Nursing and Community Health Nursing programmes from the nursing training colleges that the Department organized terminal examinations for. This was done from 31st May to 2nd June, 2016 for over three thousand diploma students nationwide who were successful in the terminal examinations organized at the Diploma level in Nursing, Midwifery and Community Health Nursing from the Nursing Training Colleges.

DONATIONS/GRANTS

- The Department received text books from Ramapo College, New Jersey
- The Department also received equipment and materials from Jhiepego, an NGO based in Ghana

College of Health Sciences

- Books were also received from U.S.A through Prof. Kwasi Obiri-Danso, the Provost of the College of Science, now appointed Vice-Chancellor of Kwame Nkrumah University of Science and Technology
- The Department also received an Ultrasound machine from German Rotary-Volunteer Doctors. A branch of Rotary International facilitated by Rita Appiah (BSc. Midwifery Sandwich II student)

PROFESSIONAL LICENSING EXAMINATION

The Department registered fifty-two (52) candidates for the professional nursing examination organized by the Nursing and Midwifery Council of Ghana in August, 2015. All of them (100%) were successful in all subjects. The Department also registered sixteen (16) midwifery candidates for the professional nursing examination organized by the Nursing and Midwifery Council of Ghana in August, 2015. Fifteen (15) of them passed all subjects (93.75%), one was referred in one subject. She has rewritten the referred paper and passed.

RGN 2015

52 = All passed (100%)

RM 2015

16 = 15 Passed (93.75%)

DEPARTMENT OF SONOGRAPHY

The Department of Sonography is one of the Departments in the Faculty of Allied Health Sciences. The BSc Sonography programme started in the 2008/2009 academic year.

ACADEMIC STAFF:

E. F. Laing	FGCP (Ghana College) PhD, MSc, (Leeds Uni, UK), MB ChB, BSc (KNUST, Kumasi)
Ann Charna Polin	RDMS, RDCS, RVT, MSc Radiological Science (Midwestern Uni), BSc (Washington State Uni)
Yaw Amo Wiafe	RDMS, Grad Dip Med Ultrasound (Monash Uni) MSc Medical Ultrasound (Derby Uni, UK)

The co-ordinator for the Department is currently Dr. Edwin F. Laing. Basic Science courses are handled by lecturers from the Departments of **Anatomy, Physiology, Pathology, Microbiology, Molecular Medicine** of the School of Medical Sciences and from the Department of **Physics**. Clinical Practice is taught by Department of **Nursing** and **Radiology**. Currently core staff are **Ms Ann Polin** and **Mr. Yaw Amo Wiafe** who are both qualified and experienced sonographers.

The student population has grown from three (3) in 2008 to one hundred and six (106) in 2016. The fourth batch of students will graduate in June 2016. The Department recently acquired four (4) ultrasound machines to enhance teaching.

PROPOSED PROGRAMME

Plans are underway to replace the BSc Sonography programme with BSc Medical Imaging. Intake into this programme would be fifty percent (50%) regular and fifty percent (50%)

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fee-paying initially. Students will take courses in Sonography and Radiology and then major in one area of interest in the final year.

Activities for 2015 / 2016 Academic Year

PUBLICATIONS

During the year under review the department has a total of three (3) publications with a total of five (5) conference/seminar presentations the details of which maybe found in the Quality Assurance Bulletin.

Ann Charna Polin:

Currently assisting KNUST Sonography graduates to prepare and sit for sonography certification examinations. Also assisting previous graduates in obtaining scholarships for admission to post-graduate degree programmes.

Yaw Amo Wiafe:

Yaw Amo Wiafe is currently a PhD candidate. His research work, is still ongoing. He is investigating the value of intrapartum ultrasonography in monitoring the progress of labour. The study has so far identified a novel ultrasound technique for measuring cervical dilatation for pregnant women in the latent and active phases of labour.

He has also recently collaborated with the Department of Medical Laboratory Technology in a study comparing the prevalence of goitre and iodine concentration levels in school children and pregnant women living in urban and rural settings. The manuscript for the goitre study is almost ready to be submitted for publication.

DEPARTMENT OF SPORTS AND EXERCISE SCIENCE

INTRODUCTION

The Department of Sports and Exercise Science is a programme awarding BSc. (Sports and Exercise Science). In order to promote the University's vision and mission, the Department of Sports and Exercise Science (S.E.S) seeks to inculcate in students the scientific principles essential for total wellness (health and fitness), leadership and professional growth by:

- i. Preparing students who would exhibit competency and professionalism in Sports and Exercise Science primarily as determined by national and international needs.
- ii. Providing science-based education and training in Sports and Exercise Science that enable graduates to meet the challenges of the Exercise Science and Sports Medicine professions in a rapidly changing world.
- iii. Promoting acceptance of Exercise as Medicine to enhance wellness for University Staff, students and the community (athletes and non- athletes) at large.
- iv. Collaborating with renowned institutions of higher learning in Sports and Exercise Science profession to improve and share academic experiences in research and teaching for quality graduate output, and also enhance adeptness of our products in meeting the yearning of the ever changing world.

The reviewed curriculum of the Department is currently under consideration by the College of Health Sciences Academic Board. The programme is also before the university Quality

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Control Unit for reaccreditation. The Exercise Physiology Laboratory (EPL) of the Department is being equipped to commence rendering services to the university community soonest.

The Department renders services to the programme of other university bachelor's degrees of the following Departments: Fisheries, Geomatics and Petroleum specifically, and in the following Vice Chancellor initiative courses across many programmes.

- SES.171 - Basic Swimming
- SES.172 - Intermediate Swimming
- SES.284 - Men Soccer
- SES.296 - Basic Tennis
- SES.292 - Intermediate Tennis
- SES.397 - Track and Field

The Department is located in the Faculty of Allied Health Sciences at the rear of School of Medical Sciences within the university.

STAFFING

The department has nine (9) Academic and Administrative members of staff

• Lecturer	-	1
• Senior Lecturer (Post Retirement)	-	1
• Assistant Lecturer	-	2
• Part-Time	-	4
• Snr. Administrative Assistant	-	1

SUPPORT STAFF

The Department is supported by experience Scientists from the academic staff of the Departments of Anatomy, Physiology, Molecular Medicine, Behavioural Science, Medical Laboratory, Community Health, Physics, Biochemistry and Biotechnology, Computer Science, Theoretical and Applied Biology, Environment Science, Mathematics, Public Law and Commercial Law, and School of Business.

TEACHING

Sports and Exercise Science programme takes a biophysical structured to study human movement around Exercise Physiology, Biomechanics of Human Motion, Basic Principles of Biomechanics, Care and Prevention of Athletic Injuries, Scientific Principles and Methods of Sports, Sports Nutrition, Sports Psychology, Strength and Conditioning, and Performance analysis to produce qualified health and wellness practitioners.

RESEARCH

Current areas of focus on research in the Department include exercise in Chronic Diseases, Obesity, Body Types, Quality of life of postmenopausal women, and Athletes Mood, Health and Wellness.

PUBLICATIONS

Details can be found in the Quality Assurance Bulletin for the year under review.

PROJECTIONS

The Department hopes to take possession of Hale and Healthy facility, have a well-equipped Exercise Laboratory, make the KNUST swimming facility attractive, increase its intake substantially in the next academic year and look forward to new senior members who would aid in meeting the yearnings of the profession.

CONCLUSION

The Department is being repositioned for steady growth to support the University in its vision of advancing knowledge in science and technology for sustainable development in Africa.

SCHOOL OF VETERINARY MEDICINE

INTRODUCTION

The School of Veterinary Medicine (SVM) was established in 2009 as a constituent of the College of Health Sciences and accredited to run a six-year Doctor of Veterinary Medicine (DVM) programme. The School is in close collaboration with other Colleges of the University, essentially the College of Agriculture and Natural Resources, and the College of Science.

ACCREDITATION

The National Accreditation Board has approved the grant of five (5) years accreditation for the running of the Doctor of Veterinary Medicine programme effective January 1, 2011. Documents for reaccreditation has been submitted since August, 2015 to the National Accreditation Authority.

LIST OF ACADEMIC DEPARTMENTS

- Veterinary Anatomy and Physiology
- Veterinary Pathobiology
- Veterinary Pharmacology and Toxicology
- Veterinary Public Health, Food Hygiene and Food Safety
- Veterinary Clinical Studies

SCHOOL ADMINISTRATION

Acting Dean	Prof. Raphael D. Folitse
Head, Anatomy and Physiology Department	Dr. Tony Opoku-Agyemang
Head, Veterinary Pathobiology Department	Dr. Ben Emikpe
Head, Veterinary Clinical Studies	Dr. David Eyarefe
Head, Veterinary Public Health	Dr. William Tasiame
Clinical Coordinator	Dr. Joseph Atawalna
School Examinations Officer	Dr. (Mrs) Esther Amemor
Assistant Registrar	None

STAFF STRENGTH

The school has an academic staff strength of six (6) permanent full time Lecturers, two (2) on sabbatical leave and 8 Part-Time Lecturers. Teaching staff are supported by four (4) technical staff, two (2) administrative staff, a driver and two (2) casual labourers.

STAFF DEVELOPMENT

One of the young Lecturers is currently pursuing PhD programme in the Department of Clinical Microbiology, School of Medical Sciences.

CURRICULUM REVIEW

To keep pace with emerging trends in veterinary education and practice, the school submitted a reviewed curriculum to the Vice-Chancellor's office through the Provost, CHS for consideration and approval. Hopefully it will be approved on time for use at the start of next academic year.

ENROLMENT

The student population of the school during the period under review was eighty eight (88).

GRADUATION, OATH SWEARING AND INDUCTION

During the year under review, first batch of students of the DVM programme graduated. Ten (10) out fourteen (14) who started the programme successfully graduated.

With the support of the College and the Vice-Chancellor, the School successfully organized the first Oath Swearing and Induction ceremony where the newly qualified veterinary doctors took the professional oath and were inducted into the veterinary profession by the Chairman of the Veterinary Council of Ghana supported by his Registrar. Support from all staff of the College of Health Sciences, College of Agriculture and Renewable Natural Resources was very encouraging.

Awards were given to deserving students in selected disciplines. The following awards and donations were made:

1. Prof. Djang-Fordjour made a donation of Gh₵ 1000.00 (One Thousand Ghana cedis) awarded to the best student in Anatomy. The recipient was Sia, Daniel Dakolgo
2. Dr. David Eyarefe donated Two Hundred Ghana cedis (Gh₵ 200.00) awarded to the best student in Theriogenology. The recipient was Sia, Daniel Dakolgo
3. Dr. W. B. Amanfu donated Microbiology Text book valued at \$350 (Three Hundred and fifty US dollars) awarded to the best student in Infectious Diseases. The recipient was Boakye Oliver Dankwa
4. OAK Farm Company Ltd. (Dr. S. Ockling as MD) donated one Laptop computer awarded to the best student in Parasitology. The recipient was Sia Daniel Dakolgo
5. Dr. R. D. Folitse donated Two Hundred Ghana cedis (Gh₵ 200.00) awarded to the best student in Virology. The recipient was Boakye, Oliver Dankwa
6. Dr. Ben Emikpe donated Two Hundred Ghana cedis (Gh₵ 200.00) awarded to the best student in Pathology. The recipient was Boakye Oliver Dankwa
7. Dr. Andrew Quarcoopome donated one Ipad, One Bible and one Stethoscope awarded to the overall best student. The recipient was Boakye Oliver Dankwa

WHITE COAT CEREMONY

The School for the first time organized "White Coat Ceremony" which symbolically ushers preclinical students into the clinical phase of the veterinary education. At the ceremony 19 students were decorated with white coats and stethoscopes.

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The white coats and the stethoscopes were all donated by Dr. Andrew Quarcoopome of Tema Animal Hospital, who has promised to make such donations for the next five years.

FACILITY FOR CLINICAL TRAINING

In the absence of Veterinary Teaching Hospital on campus, the School continued to use the Government Veterinary clinic at Amakom and the Kumasi Abattoir in Ahinsan for clinical training of the students.

LONG VACATION HANDS-ON TRAINING

Long vacation field trip was organized for the 4th and 5th year students to enable them acquire hands-on skills. Pong-Tamale and Ejura were adopted as Veterinary Field Stations for the purpose. The students also spent two (2) weeks in Accra at:

- Equine Clinic, 38 Military Hospital;
- Veterinary Diagnostic Laboratory, Veterinary Services Directorate;
- Amrahia Artificial Insemination Centre.

The trip was financially supported by the Vice-Chancellor and Provost of the College.

INTERNATIONAL COLLABORATION

The School has Memorandum of Understanding for academic collaboration with the Schools of Veterinary Medicine of Tuskegee University, Tuskegee, Alabama and Purdue University, Lafayette, Indiana. Proposed areas of collaboration include faculty and students exchange programmes, research, access to electronic video and audio teaching aids, and partnership in physical infrastructural development. However, during the year under review no activity was undertaken.

The School also has Memorandum of Understanding for academic collaboration with Faculty of Veterinary Medicine, University of Ibadan, Nigeria. During the year under review we were privileged to continue to have the services of the two Senior Lecturers who have been on sabbatical from University of Ibadan.

VISITING LECTURERS

1. Maarten C. Bosland, Professor of Pathology, College of Medicine, University of Illinois at Chicago, USA paid a follow-up visit to the school to renew discussions on a possible academic collaboration between our Veterinary School and College of Veterinary Medicine, University of Illinois. Discussions are well advanced in this regard. The visit was initiated by Pathology Department of KNUST School of Medical Sciences in partnership with Dr. Ben Emikpe.
2. David Robertshaw, Professor Emeritus from Cornell University, visited the School under the initiative of Dr. Anthony Akunzule of Veterinary Services Directorate, Accra. The visit was sponsored by US government. Discussion was focused on Faculty development programmes for our School and students exchange programmes. The future looks promising.

CONSTRUCTION OF SCHOOL OF VETERINARY MEDICINE COMPLEX

The first phase of the construction of the School of Veterinary Medicine Complex building is steadily progressing. The project is being funded by Ghana Educational Trust Fund (GETFund).

CHALLENGES

The challenges as expected of a new school are many. They include the two listed below.

1. **Finance:** One of the greatest challenges facing the school is finance. The population of students is very low, hence very small amount of AFUF is disbursed to the school. Such an amount is not even adequate to take care of the needs of a department let alone the entire school. The school therefore relies heavily on the Provost and the Vice-Chancellor for financial bailout. This situation is very frustrating and stressful to the Management of the school.
2. **Faculty:** Academic staff strength and numbers are extremely low. The School faces difficulties attracting qualified specialists to teach most clinical courses, hence relies heavily on Part-Time Lecturers majority of whom are above 60 years of age. The way forward is to identify our newly qualified veterinary doctors who are willing and have the ability to enter the academia. Selected DVM graduates should be employed and offered the opportunity for postgraduate training. Such arrangement should continue for the next five years.

Office accommodation: Lack of office accommodation is creating a lot of inconveniences for Lecturers and other staff. The School has only 3 offices located at the Destiny block for use by the Lecturers.

SCHOOL OF PUBLIC HEALTH

BACKGROUND

The Kwame Nkrumah University of Science and Technology-School of Public Health (KNUST-SPH) was established in June 2014. The School has fourteen (14) fulltime staff and 25 part-time/adjunct staff/presenters. For the 2015/2016 academic year the School hosted a Fulbright Scholar from the University of Louisville (USA). The teaching and supporting staff serve the six (6) departments within the School: Epidemiology & Biostatistics, Health Promotion & Education, Health Policy Management and Economics, Occupational and Environmental Health, Population Family & Reproductive Health, and Global and International Health.

The School of Public Health (SPH) continues to pursue steps that will transform it into a veritable social movement that supports collective public health action at all levels of society – personal, family, household, community, national, regional, global, and planetary. By pursuing this philosophy, the School will become the most competitive centre of excellence, and preferred destination for public health training, research and community service in Africa. Our objectives are: to protect and promote health and wellbeing, to prevent disease and disability, to eliminate conditions that harm health and wellbeing, and to foster resilience and adaptation. The School seeks to promote knowledge as a major source of social transformation, and the right to realize progressively, the highest attainable levels of health and wellbeing. Together with empowered individuals and communities, we can demand health action from political and traditional leadership at all levels. By conducting cutting-edge translational research in public health, we shall be seeking to translate science into evidence-based policies, programmes and practice – advancing knowledge in science and technology for sustainable development. The School will work as an innovator, partner,

advocate and convener to bridge the gap between knowledge and implementation, and promote access to universal health care.

NEW PROGRAMMES

Two new programmes are in the offering:

1. Executive Master of Public Health (MPHEx) designed to serve public health practitioners who are unable to take up fulltime MPH programmes. The proposal is currently under review.
2. MSc/MPH Occupational & Environmental Health designed to meet the market demand for environmental health and occupational health specialists to address the myriad of occupational health & safety, and environmental health challenges that Africa and the developing world face. This programme is in partnership with the University of Michigan and the University of Ghana-School of Public Health.

SPECIAL INITIATIVES

The current paradigm emphasis in public health calls for a more open knowledge systems approach – where evidence-based public health knowledge/information is made available to all, in a language that is understandable, and in forms that meet the needs of all communities and households in an equitable manner. The new planetary perspective to our challenges invites us to rethink the way in which knowledge is produced and used by society. The KNUST-SPH has adopted Anwomanso (near KNUST) as a pilot public health community. Steps are underway to conduct a population-based situation analysis, and based on the outcome, community-directed strategies will be developed to address the public health challenges. Similarly, the teaching staff of the School has adopted ten (10) districts in the Ashanti region to serve as pilot public health districts. The staff will work with the various district/municipal health directorates to promote the more open knowledge systems approach to public health in these communities.

Currently the School runs three (3) flagship research projects: the Malaria Capacity Development Consortium (MCDC), the Performance Monitoring and Accountability 2020 (PMA2020) and the Primary Health Care Performance Initiative (PHCPI).

The MCDC project comes to an end this year but the impressive output has called for an extension. The career development centre in College of Health Sciences has provided remarkable career path training for staff. The PhD candidates selected by the project have all completed their studies and are generating manuscripts out of their PhD works.

The PMA2020 project will conduct the fifth survey round in July 2016. The nationally representative surveys have generated data that have informed policy directions in reproductive, maternal and adolescent health. The water and sanitation component has also generated a lot of discussion and subsequent action at the national level. Steps are being taken to generate sub-national data by pooling data across rounds to inform action at the sub-national level (regional and district levels).

The PHPI is a Bill and Melinda Gates Foundation funded project that seeks to assess the performance of primary health care systems in developing countries. The KNUST-SPH will be the first institution worldwide to pilot this assessment. The project will conduct a

population-based nationally representative survey with a focus on service delivery points and women of reproductive age. The PMA2020 platform will be used for data collection and analysis.

COLLABORATIONS

The School's current network of collaborators is extensive and comprehensive. We collaborate with public health research scientists of international repute in the following highly acknowledged academic settings: the Johns Hopkins Bloomberg School of Public Health, the Harvard School of Public Health, the University of Utah, the University of Michigan, the University of Washington, Georgetown University, the University of Louisville and Columbia University (all in the USA), the London School of Hygiene and Tropical Medicine and Loughborough University (UK), the Academic Medical Centre and the University of Applied Sciences (the Netherlands), and the Bernhard Nocht Institute of Tropical Medicine and the University of Greifswald (Germany). In addition we have links with public health institutions in Nigeria, Liberia, Ethiopia, Malawi, Uganda, Kenya and Egypt. Locally, we partner the University of Ghana-School of Public Health, the Catholic University College of Ghana, the University for Development Studies, the University of Cape Coast, the Garden City University College, the Ministry of Health/Ghana Health Service, the Ghana Statistical Service, the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), the World Health Organization (WHO) and various civil society groups and non-governmental organizations in health, to conduct top-notch public health research with the view to improve public health outcomes nationally and internationally.

FUTURE PLANS

The School of Public Health is poised to blaze the trail for public health training in Africa. In the short term, the School is focused on branding and identification through the marketing of its programmes and training philosophy, participation in international forums, publications and presentations. In the medium term we look forward to the construction of a facility to serve the teaching space and office accommodation needs of the School, and the development of an electronic dimension to our current programmes. This will give the School a great opportunity to improve access to the training programmes on offer at the School. The addition of other market-driven public training programmes and courses, the conduct of research to answer current and future questions, and the development of 'public health communities' will be the future. In short the School is poised to realize its vision of being the preferred destination for public health training, research and community service in Africa under the mantra: technology for public health improvement.

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

INTRODUCTION

The College of Humanities and Social Sciences is made up of three faculties – the Faculty of Law, the Faculty of Social Sciences and KNUST School of Business - and a research centre, - the Centre for Cultural and African Studies (CeCAST). The College has fourteen departments and runs service courses for the entire University. The rationale is that graduates of a science and technology University need some knowledge of the humanities and social sciences for the world of work.

During the year under review the College vigorously pursued its mandate of training graduate manpower in the humanities and social sciences through teaching, research and service to community. The College has over the years turned out thousands of graduates, some of whom now occupy very sensitive positions in the financial, commercial, industrial, planning, legal, economic and other sensitive sectors of the economy.

Faculties of the College

- Faculty of Law
- Faculty of Social Sciences
- KNUST School of Business
- Centre for Cultural and African Studies

COLLEGE ADMINISTRATION

The College administration is headed by a Provost assisted by a team of administrators and academic staff. The College Registrar is the head of the administrative staff; the College Accountant heads the Finance and Accounts staff while the College Librarian directs library services for students and staff. The faculties are headed by Deans, the departments by heads of department and the Centre by a Director.

The office of the Provost is responsible for the coordination of teaching, research, students' welfare and other activities reported by the faculties and departments. The College administration comprises the following personnel:

The Provost	Prof. I. Braimah
Ag. College Registrar	Mr. Y. Owusu-Asamoah
College Accountant	Mr. J. Owusu
Ag. College Librarian	Mr. E.M. Borteye
Chief Admin. Assistant	Mr. S. Afriyie
Administrative Assistant	Mrs. M. Okra
Office Support	Mr. S. Baffour Senkyire

STAFF RECRUITMENT AND DEVELOPMENT

The transient embargo on employment affected the recruitment of staff in the College. However, following a relaxation of the embargo and with the support of the University management, the College was able to hire 16 lecturers to augment its staff strength. The College hopes to recruit more staff to support teaching and learning. The College continues to look for avenues for staff development and staff capacity building to ensure professional

College of Humanities and Social Sciences

advancement for efficient and effective academic work. The College through the Vice-Chancellor's Staff Development Initiative continues to support non-PhD holders to acquire terminal degrees.

TEACHING METHODS

Faculty members continue to make improvements in their pedagogy. Some members prepared courses in the form of modules for students. Students were guided to search for information through the use of IT and library search. The use of power-point in teaching has caught up with many lecturers. Arrangements are in place to ensure that all lecturers use power-point in the delivery of their lectures.

NEW PROGRAMMES

During the year under review the College in collaboration with faculties rolled out the following new programmes which have received approval from the Graduate School Board and the Planning and Resource Committee. Others programmes are at the consideration stage.

- PhD in Sociology
- PhD in Organisational Leadership
- MPhil/PhD in Business and Management
- PhD in Political Studies
- MA/MPhil in Geography & Rural Development
- LL.M in Law
- BSc. in Hospitality and Tourism Management

ACTIVITIES

In the course of the year, the College made significant strides in the area of research, industrial and professional linkages, capacity building, infrastructural development, teaching, exhibitions and participation in conferences.

RESEARCH AND PUBLICATIONS

The policy of the College to improve research activities and publications continues to produce results in improving professional advancement of academic staff in the College. Among the activities were faculty and departmental workshops, research retreats and colloquia etc. The College research fund to promote research and publications continues to yield fruitful results. The College is happy to report that within the year under review it has funded three (3) research projects and has paid publication fees to the tune of GH<12,492.75 to some senior members. The institutionalization of the research fund has enabled the College to continue to see much improvement in research publications. During the year under review, academic staff of the College produced one hundred and fifty (150) journal articles, thirty-six (36) peer-reviewed conference papers, fifteen (15) books, three (3) book chapters, and twenty (20) conference papers.

LINKAGES WITH INSTITUTIONS AND INDUSTRY

The College continues to establish linkages with industries and institutions both locally and internationally. The results of these linkages continue to show. The collaboration between the KNUST School of Business and the University of Maryland Eastern Shore gave birth to a joint PhD programme between the two institutions.

College of Humanities and Social Sciences

The Department of Sociology and Social Work continues to enjoy a fruitful collaborative relationship with the College of Social Work, University of Utah, Salt Lake City, U.S.A. As part of the collaboration, four students of the Department who were awarded scholarships to study for Masters degrees in Social Work have completed their studies and are now pursuing their PhD programmes. Six (6) students in B.A. Social Work undertook eight weeks internship with a number of agencies in Salt Lake City. Eight (8) Year 3 students of B.A. Social Work and two lecturers left for the University of Utah, Salt Lake City, for an exchange programme from 20th May to 3rd July 2016.

The French Embassy in Ghana continues to provide technical and financial support to the Department of Modern Languages. Under this package four (4) Universities, including KNUST and the University of Strasbourg, France have established a programme called the Doctoral College for French Students Programme to provide terminal degrees for French students. Currently two students from the Department of Modern Languages are among thirteen (13) students who have been enrolled in the doctoral programme.

EXTENSION SERVICES

The College, in collaboration with the Centre for Business Development and HFC Bank continues to organize an entrepreneurship clinic for all final year students of KNUST. The programme is to equip students to initiate their own private ventures to reduce pressure on employment in the public sector.

INFRASTRUCTURAL DEVELOPMENT/PROJECTS

A contract for the construction of the College administration and the Faculty of Social Sciences blocks has been awarded and construction is expected to start in July, 2016. During the year the Department of Economics completed the renovation and extension of a block to serve as offices for lecturers and classrooms. The Faculty of Law also renovated the faculty building to give it a face-lift. To meet the standards of contemporary higher education the faculty has ensured that all classrooms have LCD projectors and air-conditioners. Plans are far advanced to construct an ultra-modern office complex to accommodate all staff and to digitize the Faculty Library to meet international standards. Work on the proposed School of Business Graduate block complex and an ultramodern Library project will soon commence as approval has been given.

AWARDS

The College continues to show appreciation for high performance and excellence through awards for its students and staff. This year's awards under the theme '*Rewarding Academic Excellence*' was held on 19th February 2016 at the New Auditorium where individual students and staff who had distinguished themselves in various disciplines and areas were recognized for their outstanding performances and contributions. The College reports that the Royal Bank Ghana Limited has renewed its sponsorship package in the sum of \$50,000.00 for another 3 years.

CHALLENGES

In spite of these successes chalked, we would not say all is well with the College. The College continues to face some challenges including inadequate infrastructure, high student-teacher ratio and slow professional advancement of academic staff. The provision of spacious lecture

halls could go a long way to improve teaching and learning. In the case of staff, the provision of office accommodation with internet facility and staff common rooms could serve as motivation for professional advancement. Due to persistent interruption in electricity supply, the various units of the College have to spend large sums of money to purchase fuel for generators at the expense of other activities such as research. The examination centres of the Faculty of Social Sciences are scattered and some are unsuitable for examinations. We believe that with the construction of the faculty complex the problem will be resolved.

FACULTY OF LAW

INTRODUCTION

The Faculty of Law was established thirteen years ago to offer undergraduate programme leading to the award of Bachelor's Degree in Law (LLB). The LLB is a taught course with emphasis on both theory and practice. The practical aspects include moot courts, field trips, public outreach and vacation training programmes which are to help enrich students' practical experience and orientation. The Faculty is made up of three departments namely Departments of Commercial Law, Public Law and Private Law.

The Faculty continues to offer the undergraduate programme. It also continues to admit students from Ghana and from jurisdictions other than Ghana with Nigerian students constituting the majority of the international students. Total student enrollment in the 2015/2016 academic year stood at 593 constituting 17.19 percentage increase over the previous year's enrollment figure.

STAFF

The Faculty of Law has very experienced academic and professional staff made up of eighteen (18) members. The academic staff consists of five (5) Adjunct professors, three (3) Senior Lecturers, eight (8) Lecturers, four (4) Assistant Lecturers, and three (3) Principal Research Assistants. With this number of teaching staff and a reduction in student numbers in order to meet quotas prescribed by the General Legal Council and the student teacher ratio of 18:1, the quality of teaching has been improving considerably to maintain the Faculty's competitiveness.

ADMINISTRATIVE STAFF

The Faculty administrative staff remains a dynamic and formidable team. The administrative team was recently complemented by a new Senior Assistant Registrar, Mr. Simon Yaw Boribah, who was transferred from the Faculty of Allied Health Sciences to take over from Mr. Seth Mbrah Assan who is currently pursuing further studies at the University of Florida. Mrs Mary Agalega, a Principal Accounting Assistant, took over from Mrs. Faustina Oppong as the Faculty Accountant. Mr. Michael Owusu, a Senior Administrative staff in the Dean's Office was transferred to the Department of Pharmacology. As a result of inadequate staff in the University, Mr. Michael Owusu was not replaced when he was transferred from the Faculty.

STAFF DEVELOPMENT

The Faculty has several members of staff who are currently pursuing or are about to complete their postgraduate research at doctoral level:

1. Mr. Oswald K. Seneadza was granted study leave to pursue a course of study leading to the award of a PhD degree while
2. Mr. Victor Chimbwanda, an expatriate staff is on study leave without pay at the Metropolitan University of London.

POSTGRADUATE PROGRAMME

In the year under review, the Faculty of Law gained accreditation to offer postgraduate programme leading to the award of Master's degree in Laws (LLM). Arrangements have been made to begin the LLM programme in the next academic year. The LLM programme will come in two forms: viz the LLM for LLB graduates, and LLM for all first degree graduates to be offered on modular basis in specific areas of Law

TREND OF DEVELOPMENT IN THE FACULTY

The Faculty of Law saw several changes in the 2015/2016 academic year. Professor Stephen Offei handed over the deanship position to Dr. (Mrs.) Lydia A. Nkansah since his appointment with the University ended at the end of the previous academic year. In effect, the Faculty entered the year under review with Dr. (Mrs.) Lydia A. Nkansah as the Dean. Mr. Chris Adomako Kwakye became Head of the Department of Commercial Law while Mr. Justice Osei Afriyie took over from Mr. Chris Adomako Kwakye as the Faculty Examinations Officer.

STAFF RESEARCH ACCOMPLISHMENT

A significant number of academic papers and textbooks have been published by Senior Members of the Faculty this academic year. The current Faculty staff research outputs are as follows:

Monographs

Seneadza K. O. (2013). *Administrative Law: An Imperative Tool for the University Administrator*, University Printing Press, Kumasi.

Journal Articles and Book Chapters

Seneadza K. O. (2013). *Protection of Child Rights in Ghana: A call for Legislative Intervention and Comprehensive Policy Strategy*, in: *Nigerian Journal of Public Law*, Vol. 2 pp 264-289.

Morhe, R.A.S., Morhe, E.S.K. & Danso, K.A. (2014). *Legal and Social Issues of Reproductive Health in Africa* in: Danso, Kwawukume, Tagbor & Asante (eds), *Comprehensive Reproductive Health and Family Planning in the Tropics* at 461-494, University Press KNUST, Kumasi, ISBN 978-9988-1-5454-7.

Osei-Hwere, R. (2013). *Joint operating agreements between Ghana National Petroleum Corporation (GNPC) and International Oil Companies (IOCs): Prospects and Challenges*. *Oil, Gas and Energy Law Intelligence*, 11(5)

Nkansah, L. A. (2014). *Justice within the Arrangement of the Special Court for Sierra Leone versus Local Perceptions of Justice: A Contradiction or Harmonious?* *African Journal of International and Comparative Law*, 22.1, 103-119.

Nkansah, L. A.. *The International Criminal Court and Peacebuilding in Africa: The Socio-Cultural Dimensions*. Paper presented at a conference by the Centre for Cultural and African Studies (CECAST) on "Culture and Conflict Resolution, October 22-23, 2013 Proceedings (Forthcoming).

Adomako-Kwakye, C. (2013). *Critical issues in Ghana's oil revenue management law*. In: *Proceedings of CASS Oil & Gas Conference*, August 2013, KNUST, Kumasi, Ghana.

Agyei, D. A. (2013). *The emerging oil and gas industry in Ghana: A saviour or slayer?* In: The Emerging Oil and Gas Industry in Ghana: Social Dimensions (ICIL), August 28-31, 2013, KNUST Kumasi, Ghana.

INFRASTRUCTURAL DEVELOPMENT

Further, renovation and painting of the Faculty buildings were made. In addition to the renovation of buildings, plans are put in place to construct an ultra-modern office complex to accommodate all staff in the Faculty and to make rooms available for mooted and practical training sessions. To meet standards in contemporary higher education setting, LCD projectors, laptop computers and air-conditioners have been fixed in all lecture rooms in the Faculty. Plans have been initiated to digitize the Faculty Library to upgrade it to international standards.

OUTSTANDING PERFORMANCE

Students from the Faculty have been excelling at the Ghana School of Law. At the 2014 Enrolment and Call to the Bar of new lawyers, ten (10) out of fifteen (15) students who were awarded prizes were from the KNUST Faculty of Law. The Faculty won the 2016 Georgina T. Wood moot court competition held at KNUST. Law Faculties from University of Cape Coast, GIMPA, Mouncrest University College and KNUST took part in the moot court competition, which was organised as part of the 13th Faculty of Law week celebration where outstanding students were recognised for their excellent academic performance.

VISITS AND DONATIONS

Sir Dennis Dominic Adjei, Court of Appeal in Accra, donated two books to the Faculty. The books are:

1. Adjei, D. D, (2015), Land Law, Practice and Conveyancing in Ghana, Adwinsa Publications (GH) Limited, Accra; and
2. Adjei, D. D, (2015), Modern Approach to the Law of Interpretation in Ghana, Adwinsa Publications (GH) Limited, Accra.

The Lebanese Ambassador to Ghana, Mr. Ali Halabi led a delegation of Lebanese business community in the country to the Faculty and promised to increase the award of full scholarships to sixteen students every academic year. The sponsorship which is intended to complement government's efforts to improve the human resource capacity, will be granted on an annual basis and is to cover tuition and living expenses. Selection of the student-beneficiaries is based on their academic performance.

SERVICE TO THE COMMUNITY

Faculty members continue to offer their skills and expertise, through consultancies, legal advice and training programmes to members of the University community and the outside public. Lecturers continue to serve on investigative committees set up within KNUST.

In addition, the Faculty offers service courses to several other Faculties/Departments of Land Economy, Building Technology, School of Veterinary Medicine, Faculty of Biosciences and Faculty of Social Sciences.

Through the Law Clinic Programme, staff and students are currently involved in initiatives to provide pro bono services to pre-trial detainees at police stations in Kumasi. This is part

College of Humanities and Social Sciences

of the Faculty's commitment to improving access to justice in the community and to enhance our collaboration with other stakeholders in the justice system.

SIR ARKU KORSAH LAW LIBRARY

The Faculty has improved the library stock by procuring additional text books, law journals and law reports for the Sir Arku Korsah Law Library.

FACULTY OF SOCIAL SCIENCES

The vision of the faculty is academic excellence in teaching and research to support socio-political and eco-cultural advancement of Ghana. Our mission therefore is to build the desired human resources and capacities to support the socio-economic development of Ghana.

The Faculty of Social Sciences is the largest faculty in the entire University in terms of number of departments and the number of undergraduate programmes. The seven academic departments of the faculty are:

- Department of Economics
- Department of English
- Department of Geography and Rural Development
- Department of History and Political Studies
- Department of Modern Languages
- Department of Religious Studies
- Department of Sociology and Social Work

The key officers of the Faculty are;

Prof. Kofi Osei Akuoko	-	Dean of the Faculty
Dr. Charles O. Marfo	-	Vice Dean
Dr. Confidence Sanka	-	Faculty Examinations Officer
Mr. Kweku Appiah-Badu	-	Assistant Registrar
Ms. Cecilia Addison	-	Principal Administrative Assistant
Mr. Seth A. Grechie	-	Principal Accounting Assistant
Gertrude Mary Buabeng	-	Accounting Assistant
Mr. Abraham Donkoh	-	Assistant Librarian

There are eleven (11) undergraduate programmes in the Faculty. The Department of History and Political Studies runs undergraduate programmes in History and Political Studies. The Department of Geography and Rural Development offers two undergraduate programmes in Geography and Rural Development and Culture and Tourism. Department of Modern Languages offers two programmes in French, Chinese and Akan. Department of Sociology and Social Work offers two programmes in Sociology and Social Work. The other programmes are Economics, Religious Studies and English. All the undergraduate programmes are also offered under the Parallel Programmes.

Postgraduate Programmes: With the exception of History and M.Phil Political Studies, the following postgraduate programmes are run by the departments in the Faculty: M.Phil Geography and Rural Development, PhD Geography and Rural Development, M.Phil French, PhD French, MA/M.Phil Sociology, PhD Sociology, M.Phil English, Ph.D English, MSc/ MPhil/PhD Economics and M.Phil Religious Studies.

Student – Lecturer Ratio

The student-lecturer ratio is still higher than the required mandatory ratio. We are therefore in the process of building greater staff capacity to reduce the teaching load per staff especially at the undergraduate level to enable lecturers have sufficient time to undertake advanced basic and applied research.

Collaboration

The Faculty has benefited from the benevolence and cooperation of institutions, national and international agencies, and private personalities. These have been featured in the ensuing Departmental Reports. We continue to collaborate with sister universities from Denmark, China (UEST), Canada, United Kingdom, the USA and a host of institutions across the African continent. The French Embassy in Ghana has provided technical and financial support to the Department of Modern Languages. The British Council is also supporting the English Department with technical facilities to enhance the teaching of English Language.

Faculty of Social Sciences Building

In December of 2011, the Faculty renewed its efforts towards the construction of a Faculty building to house all its departments in the near future. A three-man Committee was put together to work on the Project. The Provost led the Faculty's Building Committee to hold consultations with representatives of the Director of Works. In March, land was identified for the project and survey works had been completed. New drawings have also been completed for the proposed Faculty Building and a meeting had been held to discuss the drawing with representatives of the Director of Works. It is our hope that work would commence as soon as approval is given.

Rehabilitation of Car Park

The Car Park in front of the Faculty Block is being rehabilitated through re-designing into a number of individual parking lots and tarring with bitumen.

Faculty ICT Centre

Faculty of Social Sciences ICT Centre is almost completed but for the lack of extension of adequate electricity supply to the centre. It is our hope that efforts will be hastened to solve that problem.

Staff Training

A One-Day Research Methodology Seminar was held for Teaching Staff of the Faculty at the Anita Hotel on 14th April, 2016. It was opened by the Pro-Vice Chancellor on behalf of the Vice-Chancellor. It was intended to sharpen the Research and Publication Output of Lecturers in the Faculty.

Challenges

In spite of the above, the Faculty is confronted with the following challenges:

- a. The high lecturer-student ratio: Almost all the seven (7) Departments within the Faculty have large student intake compared with few lecturers' population. This obviously places a lot of pressure on the lecturers.
- b. Inadequate lecture rooms and office accommodation for staff: These problems are seriously affecting effective learning and research work.

- c. The problem of intermittent power cuts is also affecting teaching and learning.

Notwithstanding the above challenges, the Faculty is working relentlessly with the support of the College to find solution to the problems.

DEPARTMENT OF ECONOMICS

RECEIPT OF GRANT FROM HFC

The Department of Economics received a grant of Fifteen Thousand Ghana Cedis (GHC15,000.00) from the HFC Bank in the 2015/2016 academic year. This amount is 50% higher than the amount received in the 2014/2016 academic year. Indeed, the Department of Economics established partnership with the HFC Bank in 2014.

AWARD OF SCHOLARSHIPS BRILLIANT BUT NEEDY STUDENTS IN THE DEPARTMENT OF ECONOMICS

The Department of Economics awarded scholarships to seven (7) brilliant but needy economics students. Of the seven students four were undergraduate students and the three were graduate students. Funds for the scholarship were from the grant received from the HFC bank in the 2014/2015 academic year.

COMMISSIONING OF THE NEW DEPARTMENT OF ECONOMICS BLOCK

The new economics block at the Department of Economics has been completed and furnished. Computers have been installed in all offices. The new block constructed using internally generated funds was commissioned on the 21st April, 2016.

VOLKSWAGEN POSTDOCTORAL FELLOWSHIP

Dr. Daniel Sakyi, lecturer in the Department of Economics won Volkswagen's Postdoctoral fellowship for the period 2015–2018. The highlights of the fellowship are as follows:

- Amount: 124,500 EUR
- Spend three months: June – August, each academic year for the next three years, in a European partner institution.
- Work with a Master's student in Economics for the three years and pay stipend of 7,900 EURO.
- Hire an assistant lecturer for the department to allow for reduction of teaching workload for Dr. Sakyi with the salary for the three years totaling 6000 EURO.

DEPARTMENT OF ENGLISH

INTRODUCTION

In the 2015/2016 academic year, the major activities of the Department of English were in two main areas - reviewing postgraduate academic programmes, and establishing a departmental library and a language laboratory.

ACADEMIC PROGRAMMES

In consonance with its policy of reviewing its programmes every five years, the Department successfully reviewed its programmes and the new undergraduate programme which is in its fourth year and has been very successful.

Hitherto, the main focus at the graduate level had been on literature. However, owing to the ever-growing number of applicants who are interested in language studies, the Department undertook to introduce such studies to accommodate those seeking to improve themselves in the teaching of English at the secondary and tertiary levels. A consortium of experts from sister Universities which was formed with Dr. Esther Serwaah Afreh as the co-ordinator, submitted their report, thereby placing the Department in a position to mount the MPhil and PhD (language Option). The programme was mounted in the 2015/2016 academic year and two of the experts from the sister Universities in the persons of Prof. L. A. Boadi and Prof. Yaw Sekyi-Baidoo have been teaching some of the courses.

INCOME GENERATING ACTIVITIES

The Department continues to provide students with Proficiency Certificates in English for which a small fee is charged.

ENGLISH FOR FRANCOPHONE STUDENTS

The Department is able to report that as a demonstration of its seriousness in all its efforts, the programme to assist non-English speaking students of KNUST and those in the West African sub-region, to improve themselves in English language usage, has started, in consonance with the responsibility assigned it by the Academic Board. In March 2016, 69 students from the francophone countries around us were referred to our Department for the Proficiency in English Programme. This generated an income of forty-one thousand and four hundred Euros (•41,400) for the Department and the University.

ESTABLISHMENT OF A DEPARTMENTAL LIBRARY AND LANGUAGE LABORATORY

Plans are far advanced for the establishment of a departmental library. Effort is also on-going to build a well-equipped laboratory to ensure effective work. The department counts very much on the financial and other material support from the University as the Proficiency in English programme for the non-English speaking students would help enhance the image of the University.

SERVICE TO THE UNIVERSITY

The Department, in spite of major constraints, continues to provide service courses in English Language and Literature to students from all academic units of the University. It also plays a central role in the setting of questions, supervision and marking of examination scripts for MATURE CANDIDATES TO BE ADMITTED TO PROGRAMMES WITHIN THE FACULTY OF SOCIAL SCIENCES.

INTERNATIONAL LINKS

Prof. Rachel Hadas from Rutgers University, USA, visited the University and the Department in March 2016. While here, she delivered talks to students and staff in the Department. She also explored the possibility in the area of collaboration, particularly in the area of staff development.

STAFF RESEARCH

Dr. Esther Serwaah Afreh has been working on her African Humanities Programme (AHP), and has been revising her manuscript for publication by the University of South Africa – Press (UNISA).

DEPARTMENTAL SEMINAR SERIES

The Department is able to report that as a demonstration of her seriousness in all her efforts in the pursuit of her goals, a departmental seminar series have been established. In the year under review, five lecturers in the Department delivered papers which are now being revised for publication.

SERVICE TO THE COMMUNITY - TEACHING OF ENGLISH PROJECT

The Department continues to provide service to the communities around. Some third year students of the Department have been teaching in some of the public schools at Kotei and Ayeduase. The Department plans to facilitate training programmes or refresher seminars for the teachers in those schools.

DEPARTMENT OF GEOGRAPHY AND RURAL DEVELOPMENT

INTRODUCTION

The Department of Geography and Rural Development (DGRD) is one of the seven (7) Departments of the Faculty of Social Sciences in the College of Humanities and Social Sciences. The quality of Teaching, Learning and Research is high. The Department delivers over seventy-seven (77) courses on the average, per semester to an undergraduate student population of about one thousand, five hundred (1,500) with staff strength of sixteen (16) full time lecturers and two (2) part timers. This makes it one of the largest Departments in the University in terms of student numbers.

As a student focussed learning centre, the department provides service lectures to the following colleges: The College of Science, the College of Health Sciences; the College of Agriculture and Renewable Natural Resources, and the College of Engineering, all in the Kwame Nkrumah University of Science and Technology (KNUST).

In consonance with the university's core values and objectives, the Department of Geography and Rural Development offers a wide range of courses from Geomorphology, Climatology and Biogeography, Cartography to Map interpretation. It also offers courses in Gender and Population Studies, Decentralisation and Rural Development, Geography of Tourism Transportation and Development. Courses on the multi-disciplinary Culture and Tourism Programme include Transport and Tourism, Events Management, Tourism Marketing, African and Indigenous Architecture, Tourism Impact Studies and Tourist Destinations among others.

Teaching and learning activities in the Department are motivated by the expectation that the Department's quota of first grade students will be transformed into outstanding and versatile graduates, ready to take higher responsibilities and challenges in all fields of endeavour for national development. In furtherance of this goal, the department has reviewed all current programmes on offer and designed new demand driven programmes at both the undergraduate and postgraduate levels. A new Bachelor of Science Programme in Geography and in Rural Development, Tourism and Events Management, Tourism and Heritage Management; MSc in Geography and Rural Development will be mounted in the near future after all necessary processes have been completed.

College of Humanities and Social Sciences

The Department continues to deliver courses leading to the Award of the Four (4)-year Bachelor of Arts Degree in Geography and Rural Development, and also Coordinates and runs the Four (4)-year Bachelor of Arts Degree in Culture and Tourism concurrently as undergraduate programmes. It also offers a Two (2)-year Master of Philosophy Degree programme and Three (3) year PhD Geography and Rural Development Programme.

The Head of Department is assisted by coordinators of undergraduate and graduate programmes, a coordinator of the Culture and Tourism Programme, an Internship Coordinator, an examination officer, a draughtsman, A Graduate Assistant/Demonstrator and one (1) Principal Administrative Assistant. A number of Teaching and Research Assistants contribute to the work of the department.

STUDENTS' ACHIEVEMENT AND PARTICIPATION

Staff and Students' participation in club activities and field trips to promote teaching and learning have been vibrant. Various lecturers have led student groups to undertake field trips and excursions to various places of Geographic and Touristic interest. These include selected areas in the Central, Eastern, Volta, Ashanti, Brong-Ahafo and the Northern regions. A Week-long Field study for Graduate students on 'Sustainable Livelihoods in the Krachi East District' was accomplished in July 2014. The next Field Study for Graduate Students would be in July 2015

The Tourism Students Association (TOURSA) have obtained a Digital Light processor to enhance teaching and learning, while the Geography Students Association (GEOSA) have presented Two (2) sets of Public Address Systems to facilitate teaching in large classes. GEOSA and TOURSA Week Celebrations saw high levels patronage which culminated in inter class sporting activities at the Paa Joe Stadium. Staff, Teaching & Research Assistants and Students contested in a Gala Competition in which the students triumphed. A trophy was presented by the Head of Department to the winners of the Annual Departmental Games organised by GEOSA and TOURSA.

A publication by John Ganle, Kwadwo Afriyie and Alex Segbefia entitled Microcredit; Empowerment and Disempowerment publish by World Development was selected for the university DRUSSA programme. Resource persons invited from the Ghana Maritime University and CARE International presented seminars to students this semester.

About eight (8) students passed their viva voce and graduated with seven (7) Master of Philosophy and one (1) Doctor of Philosophy degrees during the 2015 November graduation. The Departmental Graduate Seminar series which comes off every fortnight has resumed. A Weekly Workshop on Practical GPS and GIS proficiency course has been ongoing since March 2015. Hon. Akwasi Oppong Fosu, then Minister for Environment, Science and Technology has provided three (3) scholarships for students in the Department, Preparations are underway to sign a Memorandum of Understanding (MOU) to that effect.

FOREIGN COLLABORATIVE/PARTNERSHIPS

Our active international linkages remain with the following foreign Universities: The Department of Geography, State University of New York (SUNY), Geneseo. The President of Savanna State University and the Chair of the University of Western Michigan visited the Department in March 2014 to discuss possible collaborations in Teaching and Research and International internship placements for our students.

The Department has also initiated discussions with the Department of Geography, University of Birmingham for possible collaboration. Significantly too, within the period under review, the Department benefited from the African Diasporan Support for African Universities Initiative by the Council for the Development of Social Science Research in Africa (CODESRIA). Through this initiative the Department received and hosted two (2) CODESRIA sponsored Visiting Professors namely Professor Joseph Zume, a Physical Geographer from the Department of Geography and Earth Sciences, Shippensburg University, USA, and Professor Samuel Adu-Prah, a Physical Geographer with focus on GIS from the Department of Geography and Geology, Sam Houston State University, U.S.A. The two Visiting Scholars were to support the Department Staff Capacity Development in GIS and Hydrology and also discuss opportunities for future collaborations with their respective Universities in the areas of research and teaching.

INFRASTRUCTURAL DEVELOPMENT/PROJECTS

The office space challenge facing the Department has improved tremendously. Completion of repartitioning works has transformed the space that could accommodate only seven (7) lecturers to one which now accommodates fourteen (14) lecturers, a head of Department office and Secretariat, four (4) seat Washroom with Hand wash facilities (two on each floor) and a mini Board/Conference Room. The Department also houses the Fibre Optic main Junction that serves the College of Agriculture and Renewable Natural Resources, Architecture and Engineering. We are most grateful to the Vice Chancellor and the Development Office of the University for making this transformation possible. In spite of the great strides made, there is the need to provide additional office accommodation as some of our lecturers still share office spaces with their colleagues. Renovation works are on-going at the Graduate Lecture Theatre and the relocated GIS lab at the Central Classroom Block.

New office desks, chairs and book cases have been procured for senior members of the department. The process of fitting offices with air conditioning has been completed. These investments have created the congenial environment conducive for enhanced teaching and research which has translated into improved quality publications. There have been about sixty-five (65) publications in high impact journals emerging from the department from 2014 to date. Four (4) promotion applications were submitted with three persons promoted to Senior Lecturer status in the 2015/2016 academic year.

FUTURE PROJECTIONS

The department hopes to enhance its research drive to a level that will facilitate the rapid promotion of members. Steps are afoot to recruit capable replacements for two (2) senior members who retired during the 2011/2012 period and another two who have retired during the 2013/2014 academic year.

As mentioned earlier, the department is planning to offer improved/modified and upgraded demand-driven courses on full-time, part-time and through distance education modules in the near future. To this end several committees are working hard to fine-tune proposals for study and approval.

In conclusion, in spite of the pressures of increased academic workload on members, the Department of Geography and Rural Development is poised to maintain its leadership position in the years ahead, and to position itself as one of the most dynamic and progressive Departments in the Faculty of Social Sciences, the College of Humanities and Social Sciences and in the University at large.

STAFF

As at the year under review, the department has a total of eighteen (18) academic senior staff

SERVICE

Dr. Prince Osei-Wusu Adjei (Senior Lecturer/Hod)

- Head, Department of Geography and Rural Development
- Member, Ghana Geographical Association (GGA)

Mr. Kwadwo Afriyie (Senior Lecturer)

- Member, Ghana Geographical Association (GGA)
- Coordinator, Culture and Tourism Programme, February 2012 to Date.

Mr Kabila Abass (Senior Lecturer)

- Member, Ghana Geographical Association (GGA)
- Patron, Geography Students Association, KNUST
- Coordinator, Institute of Distant Learning (Sociology and Social Work)

Mr. Divine Odame Appiah (Senior Lecturer)

- Fellow, the Energy Center, KNUST
- Member, Ghana Geographical Association (GGA)
- Chairman, Odum Methodist Church Co-operative Credit Union, Kumasi

Dr. Alexander Yao Segbefia (Lecturer)

- Head, Department of Geography and Rural Development, August 2013 to July, 2015
- Head, Department of Geography and Rural Development, August 2011 to July, 2012.
- Member, Ghana Geographical Association (GGA)
- Coordinator, Culture and Tourism, September 2008 – July 2011
- Executive Member, KNUST Senior High School PTA, 2011 to Date

Felix Asante (Lecturer)

- Executive member (KNUST Representative), Ghana Geographical Association (GGA)
- Faculty Examinations Officer, Faculty of Social Sciences, KNUST

Dr. (Mrs.) Charlotte Monica Mensah (Lecturer)

- Executive member (National Treasurer) Ghana Geographical Association (GGA)
- Counsellor, Tutor, Patroness of KNUST Social Sciences Christian fellowship.
- Patroness of Ghana Fellowship of Evangelical Students (GHAFES)

Mrs. Lawrencia Pokuah Siaw (Lecturer)

- Member, Ghana Geographical Association (GGA)

Mr. Emmanuel Kofi Garsonu (Lecturer)

- Member, American Congress on Surveying and Mapping
- Member, British Cartographic Society

Dr. Dacosta Akwasi Aboagye (Lecturer)

- Member. American Association of Geographers (Student Member)

College of Humanities and Social Sciences

Dr. Seth Agyemang (Lecturer)

- Member, Ghana Geographical Association (GGA)

Dr. Foster Frempong (Lecturer)

- Member, America Association of Geographical
- Member, Ghana Geographical Association

Dr. Gabriel Eshun (Lecturer)

- Member, Ghana Geographical Association, (GGA)
- Member of Crystal Clear Creators, UK
- Reviewer, Bulletin of Geography University of Copernicus
- Reviewer, Emotion, Space and Society Elsevier
- Senior Research Fellow, University of Johannesburg School of Hospitality and Tourism
- Founder Sankofa Ecotourism International (SEI)
- Board member, Community and Entrepreneurial Development Initiative (CEDI)

Dr. David Forkuor (Lecturer)

Mr. Joseph Yaw Yeboah (Assistant Lecturer)

- Member, International Society on Urban Health (ISUH)
- Member, Ghana Geographical Association
- Departmental Board Secretary, Department of Geog. & Rural Dev't
- Member, Organizing Committee of 2014 CASS Entrepreneurship Clinic, KNUST

Dr (Mrs) Eva Tagoe-Darko (Senior Lecturer On Post Retirement Contract)

- President, Ghana Geographical Association (GGA) 2011 to Date
- African Senior Research Scholar at the State University of New York (SUNNY) Geneseo, U.S.A.(2009 to 2011)

Mr. Henry Asare-Baah (Part-Time Lecturer)

- Founding Member of Afro Jazz Ensemble, Western Region, Ghana (2005)
- Association Director of Music, Abibigromma Theatre Company, School of Performing Arts, University of Ghana, Legon. Composed and arranged music for the stage production of Ayi Kwei Armah's novel "The Beautiful Ones Are Not Yet Born." (2002)
- Ghana Association of Visual Artists (GAVA) exhibition, Takoradi (1993)

PROF. DR. DR. DANIEL BUOR (SENIOR LECTURER on (Part-Time Professor)

- Special Services Rendered as Part-Time Professor at KNUST, 2015 to Date
- Monthly Meetings with PhD Candidates
- Editorship of KNUST Journal of Geography and Development

DEPARTMENT OF HISTORY AND POLITICAL STUDIES

INTRODUCTION

The Department of History and Political Studies is one of the academic units in the Faculty of Social Sciences, College of Humanities and Social Sciences. The vision of the department is to position itself at the Heart of the Social Sciences in order to train the “Next Generation” of Ghanaian academics, administrators, teachers, civil servants, among others fit for the 21st century world. In line with this vision, the department undertook a number of activities during the year under review.

ADMINISTRATION & HUMAN RESOURCES

Administration

Dr. George M. Bob-Milliar headed the Department during the year under review, and was assisted by Madam Felicity Dapaah, a Senior Administrative Assistant.

Staff Strength

The staff strength of the Department during the year under review was as follows:

CATEGORY	NUMBER
Senior Members (Senior Lecturers)	2
Senior Members (Lecturers)	9
Senior Members (on contract/part-time)	2
Scholars on Sabbatical	1
Adjunct Professor	1
Senior Staff Member	1
National Service Personnel	12

STAFF MOVEMENTS

1. Dr. Vincent Dodoo's appointment on post-retirement contract was renewed for one year from 1st August 2015.
2. Dr. Wilhelmina J. Donkoh appointment as a part-time lecturer in History was renewed for one year from 1st August 2015.
3. Dr. Kojo Opoku Aidoo, a Senior Lecturer, from the University of Ghana took up his sabbatical leave appointment from 1st August 2015. He returns to Legon in August 2016.
4. Dr. George M. Bob-Milliar was promoted to the rank of Senior Lecturer, effective 1st August 2015.

Appointments

There were no new faculty appointments during the 2015/2016 academic year.

FELLOWSHIPS, AWARDS, & GRANTS

The under listed Senior Members of the Department received prestigious fellowships and grants:

- In March 2016, Mr. Aminu Dramani, a lecturer at the Department was awarded the Next Generation Social Sciences PhD dissertation proposal development fellowship for 2016/2017.

College of Humanities and Social Sciences

- In November 2015, Dr. George M. Bob-Milliar was awarded the American Political Science Association APSA-Africa Workshop Alumni Professional Development Grant of USD \$1,500.

ACADEMIC PROGRAMMES

Undergraduate Programmes

The Department runs two undergraduate degree programmes: Bachelor of Arts in History and Bachelor of Arts in Political Studies on the regular stream. The current population of undergraduate students pursuing History is 352 and those pursuing Political Studies stands at 1,230. The total student population for undergraduate programmes in the department is one thousand five hundred and eighty-two (1,582).

STUDENT POPULATION FOR 2015/2016 ACADEMIC YEAR

GHANAIAAN NON FEE PAYING STUDENTS					
PROGRAMME	YEAR 1	YEAR 2	YEAR 3	YEAR 4	TOTAL
History	76	67	57	63	263
Political Studies	152	202	159	147	660
GHANAIAAN FEE PAYING STUDENTS					
History	2	3	9	3	17
Political Studies	26	7	60	74	167
FOREIGN FEE PAYING STUDENTS					
History	-	-	-	-	0
Political Studies	4	7	17	10	38
PARALLEL STUDENTS					
History	1	57	8	6	72
Political Studies	44	17	195	109	365

Graduate Programmes

The Department currently runs two postgraduate programmes: MPA and MPhil in Political Science. Both programmes are on the IDL platform. The current number of first year graduate students is as follows: MPA (18) and MPhil (5); Second Year students stands at MPA (4) and MPhil (4).

However, the Department has received accreditation from the NAB to start the two programmes on the regular stream. The two programmes will start in August 2016. Graduate programmes in Historical Studies (MA, MPhil and PhD) are currently been worked on.

EDUCATIONAL TRIPS/EXPERIENTIAL LEARNING TOURS

- In November 2015, Dr. Daniel Owusu-Ansah organized a day's field trip to Kokofu for his elective (History of Sports and Development in Ghana); a class of twenty students.
- In March 2016, Dr. Daniel Owusu-Ansah represented the Department at the National History Day Celebration at the University of Education, Winneba.
- In March 2016, Dr. Edward Brenya organized an educational trip to Accra and Cape Coast for his Third Year Public Administration class. The students visited Parliament House, HQs of the Electoral Commission, and the Public Utilities Regulatory Commission (PURC).

RESEARCH ACTIVITIES

Institutional, Joint & Individual Research Activities

The Department responded to the call from Carnegie and submitted two applications for Carnegie African Diaspora Fellowship Programme (CADFP). Unfortunately, our projects were not approved for funding by the CADFP Advisory Council. Nonetheless, the experience is very good for the growth of the Department and one that we hope to build on in the near future.

PUBLICATIONS

In the academic year under review, over 10 publications emanated from individual research in the department. Senior Members published in top ranked academic journal and edited book published academic publishers. Details of these can be found in the University's Quality Assurance Bulletin for 2015/2016.

SEMINARS/CONFERENCES & WORKSHOPS

Details of these can be found in the Quality Assurance Bulletin in the year under review.

SENIOR MEMBERS PROFESSIONAL DEVELOPMENT ENGAGEMENTS

- In February 2016 – Dr. George M. Bob-Milliar (together with Richard Dowden & David Maxwell) was invited to join the Committee for the African Affairs African Author prize sponsored by the Royal African Society based in the UK to read and rank submission for the award.
- In March 2016, Dr. Ali Yakubu Nyaaba and Dr. Daniel Owusu-Ansah attended a meeting organized by the Historical Society of Ghana in Accra.
- In April 2016, Dr. Vincent Doodoo, Dr. Daniel Owusu-Ansah, Dr. M. M. Kuusaana and Dr. Ali Yakubu Nyaaba took part in the congress of the Historical Society of Ghana in Accra.
- In August 2015 – Dr. George M. Bob-Milliar (together with Megan Hershey, Whitworth University and Matthew Mitchell, St. Paul University) was nominated by the executive committee of the African Politics Conference Group (APCG) to serve as a Committee Member to evaluate submissions for the award of the *APCG-African Affairs* Best Graduate Student Paper, 2014/2015 Award.

- In September 2015 - Dr. George M. Bob-Milliar was selected (with Dr. Jeffrey W. Paller of Columbia University) to serve a two-year term as Co-Editor for APSA Africa Workshop Newsletter.

NEW INITIATIVES AT THE DEPARTMENT

In September 2015, the Department instituted a Departmental Seminar programme. The series known as the '*Nyansapɔ*' Seminar Series will be the department's flagship platform for scholarly debates. Senior Members, visiting scholars and local researchers will have the opportunity to present their research.

CHALLENGES

The department faces a number of challenges - staff development, issues with pedagogy and inadequate infrastructure. Professional development opportunities for senior members are limited. Additionally, the staff strength is a major challenge because of the large student numbers. The student population in both programmes has exceeded the international recommendation of 1: 18-25. The quality of teaching and the lack of teaching aids including dated reading materials is another major challenge that requires the attention of university. Another challenge being faced by the Senior Members is lack of office space for lecturers. This affects their work.

CONCLUSION

Working under these very difficult conditions, the department carried out its core duties. On the whole, the year under review was a productive one for the Department.

DEPARTMENT OF MODERN LANGUAGES

INTRODUCTION

The Department of Modern Languages is made up of three sections – i.e. Akan, Chinese and French. It is worthy of note that the French Section is the first, having been separated from English of the then Department of Languages. The Chinese Section is the newest among the three, having taken off only September 2015 and it is presently being pursued by students as a minor programme. The Akan Section, which has been running for the past ten (10) at the undergraduate level, is set to begin postgraduate programme (in addition to that of French) as soon as the green light is given by the appropriate bodies. The postgraduate programme in Akan is expected to go a long way to enable teaching staff in the Akan Section who do not yet have a terminal degree to acquire one.

TEACHING

Like many other departments of the University, the Department has over the years fervently engaged in the core areas of teaching at both graduate (in French) and undergraduate levels (in all the three sections) in the areas of cores in language studies, linguistics, literature, translation and interpreting. The year abroad programme, from which the students of French have once more benefitted, thanks to the generosity of the Ghana Government, still constitutes a significant component of the French section's BA programme.

In the year under review, eight candidates were admitted to read the MPhil French programme and three (3) candidates for the PhD programme to add up to our postgraduate candidates. Eight of our postgraduate candidates also graduated at the MPhil level.

The Department continues to strive towards increasing courses in both foreign and local languages. It also continues to strategize with the aim of rebranding its courses/programmes to make them more attractive in view of current developmental needs of Ghana.

OUTREACH PROGRAMMES

The Department continues to be accessible to the University community in the acquisition of some knowledge in language. For French, the Department continues to offer service courses such as French for communication (Beginners and Intermediate levels) to various departments and faculties of the University with the most recent one being Faculty of Pharmacy. The Akan Section also continues to offer service course to international students; both visiting and regular students. The Chinese club, as part of strategies of strengthening the Chinese Section, has also been actively patronized by students from several faculties and departments of the University. The Department hopes to attract people outside the University to come and take part in the Chinese club. Undoubtedly, these outreach programmes are gradually transforming the Department into one of the largest academic departments of the University.

STAFF

For the year under review, the Department has permanent/full-time teaching staff of sixteen (16) and three (3) part-time lecturers. The Department also has one (1) expatriate staff from France and two (2) from China to help in the French and Chinese programs respectively, while also helping to strengthen the relations between the University and their respective embassies and some universities in their countries. Twelve national service persons are also working in the Department.

RESEARCH ACTIVITIES

The Department is also very much involved in research. Members of the Department are actively carrying out individual and joint research projects and several of these have been accepted for publications. For the purposes of organizing research, a research unit has been set up in the Department to encourage collaborations and enable senior colleagues to mentor the younger ones in their research to boost publications.

Some members of staff have been doing research in their individual capacities and in collaboration with others on the following research themes:

- Dr. Charles Marfo
 - i. Phonology/prosody drives syntax
 - ii. Questions and disjunction in Akan
 - iii. The syntax of extra-sentential clauses (in Akan)
 - iv. The interface between language and literature
 - v. The old as repository of knowledge: Reflections in African texts
 - vi. Humor as a tool in language use
 - vii. The structure of political rhetoric
 - viii. Reduplicated structures in Akan
 - ix. Two glossary for technical disciplines
- Mr. George Appiah
 - i. Philosophy behind some kente clothes and their communicative values
 - ii. The communicative values of some gestures use in some Akan traditional dance

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- Mr. Bernard Ampong
- i. The importance of the non-verbal in the argumentative orientation
- ii. Pragmatic analysis of the Kente and Adinkra
- iii. Analyse pramatique des titres d'ouvrages

SERVICE TO THE COMMUNITY

The Department has been undertaking translations of all texts from French or Akan to English, from English to French or Akan as part of its community service. The Department also continues to enjoy high patronage of the learning of French as a service course.

In collaboration with the KNUST School of Medical Sciences, the University of Michigan and some doctors from the Komfo Anokye Teaching Hospital, the Department contributed immensely to the publication of the 1st Edition of Twi Medical Glossary (the first of its kind) under the Medical Education Partnership Initiative (MEPI) project. The book aims at facilitating learning by clinical students, as well as serving as an aid to clinicians who are not conversant in Twi.

Some members of staff have ensured community services in their individual capacities as follows:

- Dr. Charles Marfo
 - ✓ Board Chair: House of Faith Credit Union (HoFCU), Kumasi
 - ✓ Board Member: Osei Kyeretwie Secondary School
 - ✓ President: Linguistics Association of Ghana (LAG)
 - ✓ Vice-President: UTAG-KNUST
 - ✓ Chairman: Transportation Committee, Faculty of Social Sciences
 - ✓ Panel Member: The Super Morning Show, Luv FM, Kumasi
 - ✓ Panel Member: Angel in the Morning, Angel FM, Kumasi
 - ✓ Panel Member: Fox Morning Drive, Fox FM, Kumasi
 - ✓ Editorial Board Member: Ghana Journal of linguistics (LAG)
- Mr. George Appiah
 - ✓ Patron: Ghanaian Language Students' Association
 - ✓ Academic Tutor: Economics First Year Student
- Ms. Juliet Oppong-Asare
 - ✓ National Treasurer, Linguistics Association of Ghana (LAG)
 - ✓ Secretary, Mandatory Course committee (Faculty of Social Sciences, KNUST)
- Mr. Michael Damoah
 - ✓ Patron: French Student Association (Faculty of Social Sciences KNUST)
 - ✓ Exams: Officer, Department of Modern Languages (Faculty of Social Sciences KNUST)
- Dr. Kofi Adu Manyah
 - ✓ Council Member : International Phonetic Association (IPA)
- Mr. Bernard Ampomg
 - ✓ Member: Faculty Examination Board Committee (Faculty of Social Science, KNUST)
 - ✓ Recorder: Department of Modern Languages (Faculty of Social Science, KNUST)
 - ✓ Affiliate: Unity Hall, KNUST

- ✓ Member: Anniversary Committee, OLHR Catholic Chaplaincy, KNUST

OTHER ACTIVITIES

For the second time in a row, the Department of Modern Languages was represented at the 15th Chinese Bridge Competition held at the University of Ghana, Legon, to market and enhance the image of the Department. Once again, two students represented the Department; Ming Mei and Malian. At the end of the proceedings, Ming Mei won the Prize for the Second Runner Up and received prizes in the form of an I-Pad and other giveaways, while Malian received an encouragement prize.

The French Section, through its students' body French Students' Association (FrenSA), in collaboration with the Alliance Française in Kumasi, celebrated the Francophone week which was well patronized. The Akan Section, with its students' union, the Ghanaian Language Association (GLASA), also marked its fourth GLASA week celebrations in grand style.

INCOME GENERATING ACTIVITIES

Plans are far advanced to step up income generation activities in the Department where more work in the area of Teaching of French for Specific Purposes, Akan for Foreigners and Basic Chinese are intended. A translation bureau (Transbureau) for a more coordinated service of translation and interpretation of languages in the areas of business, literary, scientific and technological innovations as well as conference interpretation services is included in the latest development on income generation activities.

COLLABORATION

A Memorandum of Understanding has been signed between the University of Strasbourg and a consortium of Universities in the West African sub-region including KNUST. In tandem with this collaboration, the Department of Modern Languages will be hosting the next Inter-University Seminar for Doctoral Studies in Literature, Linguistics and Teaching of French, in June with some Visiting Professors from Strasbourg, Lille attending. Senior Members and Doctoral students from the four public Universities will be present.

BENEFACTORS

The French Section of the Department of Modern Languages continues to receive support from the French Embassy. Three of our students (First Class and Second Class Upper Division) are currently on French Government Scholarships pursuing various Masters programmes in France. They are in the following universities: Université de Nantes, Linguistics (2013-2014), Université de Bordeaux, Teaching of French as a Foreign Language (2014-2015) and Université d'Orléans, Didactics and Linguistics (2015-2016). One of our first class female students has been selected for the Didactics and Linguistics programme at Université d'Orléans (2016-2017).

Once more, over the past year, the French Embassy made valuable donations in journals, basic texts and reference books to help in the students' studies. The Chinese Government also, through the Chinese Embassy, donated a great number of books, a laptop and other teaching aids to the Chinese Section to enhance teaching and learning. This year, the Chinese Ambassador to Ghana also visited KNUST and gave out cash scholarships, amounting to five hundred dollars, and other encouragement prizes to deserving Chinese learners in the Department.

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The French Embassy continues to provide support for the refurbishment of the Maison Francaise in a bid to help maintain it as a multimedia research centre for the French outreach program. As usual the Embassy is also going to sponsor the sixth Inter-University Seminar for doctoral studies to be hosted by the Department. They have also sponsored various cultural activities on the campus organized in collaboration with the Alliance Française. The Department is, indeed greatly indebted to the French and the Chinese Governments for their constant support and encouragement in all activities.

CONCLUSION

The Department of Modern Languages is working towards positioning itself to training and equipping more students to meet the developmental needs of the nation. It is striving to make its students very relevant for the growth of the sub-region and humanity in general.

On the whole, both academic and administrative staff of the Department have worked assiduously to meet its core responsibilities in the areas of administrative work, teaching, research and service to the University and the larger community. As a body, we hope to continue to improve in all these areas in the years ahead.

DEPARTMENT OF RELIGIOUS STUDIES

HIGHLIGHTS

The Department has two hundred and eight-six (286) Students, seventeen Academic Staff (full-time and part-time) and one Supporting Staff. Of the Academic Staff, one is an Associate Professor, seven are Senior Lecturers, nine Lecturers, and one Assistant Lecturer.

For the period under review the Academic Staff have conducted various researches; produced a number of Peer Reviewed Journal Articles, Books, Book Chapters, Conference Papers and Proceedings (See Quality Assurance Bulletin for details).

The Academic Staff served on various committees at KNUST, in Ghana and outside Ghana. The Department organised a field trip for the students on October 30, 2015 to various religious institutions in Sunyani.

STAFFING

The department has seventeen academic staff and one administrative staff

STUDENTS

Programme	Year	Number
BA	1	76
	2	59
	3	61
	4	34
M.Phil	1	16
	2	18
	3, writing stage	8
Ph.D	1	8
	2	6
TOTAL		286

TEACHING

- **Very Rev. Dr. Fr. F. Appiah-Kubi**
RS 252: Issues in Religion and African Worldview
RS 361: Introduction to Christian Theology
RS 385: Introduction to African Theology
RS482: Christology
RS 501: Research Methodology
RS 601: Research Methodology I
RS 602: Research Methodology II
RS 608: Systematic Theology
- **Rev. J. E.T. Kuwornu-Adjaottor**
RS 355: Introduction to the New Testament
RS356: Theology of the New Testament
RS359: New Testament Greek I
RS 362: New Testament Greek II
RS 459: New Testament Greek III
RS 505: Theology of the New Testament
RS 523: The Bible in African Christianity
RS536: Mother Tongue Biblical Hermeneutics
RS 559: Intermediate New Testament Greek
RS560: Advanced New Testament Greek
RS 564: History and Theory of Bible Translation
- **Rev. Dr. N. I. Samwini**
RS 155: Introduction to Islam
RS 256: Introduction to African Myths and Symbols
RS 384: Islam and Ecumenism
RS 464: Comparative Ethics
RS 502: Religious Pluralism and Co-operation in Ghana
RS 508: Administration and Management of Faith Based Organizations
RS 616: Christian-Muslim Relations in Africa
- **Rev. Dr. A. Atiemo**
RS156: Introduction to Eastern Religions
RS 363: Pentecostalism in Ghana
RS389: African Traditional Religion and Contemporary Social Issues
RS 601: Research Methodology I
RS 602: Research Methodology II
RS 603: Theories and Methods of Religious Studies
- **Dr. V. S. Gedzi**
RS 351: Research Methods
RS 390: African Traditional Religion and Development
RS 393: Christianity and Development
RS 395: Culture and Development
RS 452: New Religious Movements
RS 506: African Pentecostalism and Charismaticism
RS 601: Research Methodology I
RS 602: Research Methodology II
- **Rev. S. Asiedu-Amoako**
RS 153: Introduction to Christianity

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RS 251: Introduction to Psychology of Religion
RS 396: African Traditional Religion and Earthkeeping
RS 537: Religion and Ecology
RS 455: Religion and Science
RS 458: Religion and Environment
RS 481: Religion and Social Controls
RS 516: Topics in Human Sexuality

- **Shekh S. M. Zakaria**

RS 154: Introduction to the Study of Religions
RS 375: Introduction to Islamic Theology
RS 376: Islamic Ethics
RS 379: Modern Trends in Islam
RS 381: Articles of Faith in Islam
RS 383: The Practice of Islam
RS 473: Islam and African Culture
RS 474: Islamic Spirituality
RS 556: Faith and Practice in Islam

- **Dr. YunusDumbe**

RS 373: Qur'anic Studies
RS 374: The Caliphate
RS378: Sharia
RS 466: Religion and Media in Ghana
RS 469: Islam in West Africa
RS 476: Islam in Ghana
RS 477: Hadith Studies
RS 506: New Trends in Islam
RS 601: Research Methodology I
RS 602 Research Methodology II
RS 614: Islam in Africa

- **Rev. Fr. Dr. E. K. E. Antwi**

RS 367: The Gospels
RS 369: Prophecy in the Old Testament
RS 460: New Testament Apocalyptic Literature
RS 462: Biblical Hermeneutics
RS 463: Old Testament and African Life and Thought
RS 467: The Epistles
RS 517: Theology of the Old Testament
RS 521: Theology of Paul

- **Rev. Fr. J. K. Opoku**

RS 152: Introduction to Philosophy of Religion
RS 254: Introduction to Ethical Theories and Religious Ethical Systems
RS 358: Christian Ethics
RS 372: Religion, Medicine and Spirituality
RS 398: African Traditional Religion, Medicine and Healing
RS 453: Religion and Human Rights
RS 487: Religion and Bioethics

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- **Rev. F. Wiafe**
RS 353: Introduction to the Old Testament
RS 354: Old Testament Theology
RS 357: Hebrew I
RS 360: Hebrew II
RS 364: Wisdom Literature
RS 518: Themes in the Old Testament Theology
RS 561: Intermediate Biblical Hebrew
RS 576: Advanced Hebrew
 - **Most Rev. Prof E.K. Asante**
RS 521: Church and Society
RS 526: Historical Development of Christian Tradition
RS 528: Biblical Hermeneutics in African Christian Scholarship
RS 563: Religion, Culture and Science
RS 604: African Philosophy
 - **Rev. Dr. K. Effah-Ababio**
RS 388: African Traditional Ethics
RS 479: Religion, Morality and Leadership
RS 480: Contemporary Moral and African Ethical Issues
RS 557: Ethics and Economic Life
 - **Rev. Dr. P. K. Boafo**
RS 253: History of the Early Church
RS 365: Medieval Church History
RS 368: History of the Reformation and Counter Reformation
RS 461: History of the Church in West Africa
RS 454: Professional Ethics
RS 547: Issues in the Early Church
 - **Rev. Fr. Dr. P. Addai-Mensah**
RS 387: African Supernatural Beliefs and Practices
RS 456: Religion and Gender
RS 470: Christian Spirituality
RS 478: African Spirituality
RS 485: Traditional Ghanaian Social Institutions
 - **Rev. Dr. K. OpuniFrimpong**
RS 392: Traditional Patterns of Learning
RS 468: Christianity and African Culture
 - **Rev. Mgr. Dr. J. Opoku-Agyemang**
RS 352: Critical Thinking
RS 371: Introduction to African Philosophy
RS 521: Ethical Reasoning and Decision Making
RS 555: Topics in African Philosophy
- Michael Kwadwo Ntaimoah**
RS 389- Contemporary Issues in African Traditional Religion.
RS 451- Comparative Study of Religion.
RS 481- African Traditional Religion and Social Control.
RS 251- Introduction to Psychology of Religion.
RS 392- African Indigenous Patterns of Learning.

RS 370- Contemporary Ghanaian Christianity.

RS 468- Christianity and African Culture.

RS 156- Introduction to Eastern Religions.

RESEARCH ACTIVITIES

1. Rev. Fr. Dr. Francis Appiah-Kubi

- (a) Ando Korsah, L. and Appiah-Kubi, F. (2015). Towards an understanding of Ministerial priesthood in the light of priesthood of the baptized, in Asian Horizons Dharmaram Journal of Theology Vol. 9 No.2 June 2015, p.310-323
- (b) Appiah-Kubi F. (2015). The Church , Family of God; A paradigm shift in the second vatican Ecclesiology in, Revisiting Vatican II:50years of Renewal, Vol II, 2015, p. 124-137
- (c) Appiah-Kubi , F and Leo Andoh-Korsah, (2015). *The Theology of Priesthood: Understanding the specificity of the Catholic Priesthood*. Cita Press, Kumasi. 100 p.

2. Rev. Jonathan Edward Tetteh Kuwornu-Adjaottor

- (a) Kuwornu-Adjaottor, J. E. T. & Yankyere (2016). The meaning and Significance of tetestai in John 19:30. American Journal of Academic research 1 (1): 1-11
- (b) Arthur, P and Kuwornu-Adjaottor, J. E. T. (2016). The New testament of “Living Water” (John 4) and “Living Bread” (John 6) in Different Contexts: A Look at the Feeding Symbol in the Judeao-Christian, Western and Ghanaian Cultures. *E-Journal of Religious and Theological Studies* 2(1): 1-19
- (c) Kuwornu-Adjaottor, J. E. T. (2016). *Before you Confirm Your Faith*. Kumasi: NUPS KNUST, pp.56.
- (d) Kuwornu-Adjaottor, J. E. T. (2015). The Practice of Mother Tongue Biblical Hermeneutics in Ghana: A Case Study of *bny ysr’l* [Deut. 32:8] in Some Ghanaian Communities. *Journal of Mother Tongue Biblical Hermeneutics* 1 (1):134-157.
- (e) Kuwornu-Adjaottor, J. E. T. (2015). African Biblical Hermeneutics: A Methodology for Mother Tongue Biblical Hermeneutics. . *E-Journal of Religious and Theological Studies* 1(2): 1-24
- (f) Kuwornu-Adjaottor, J. E. T. (2015). Biblical Studies and Biblical Studies: An Interface. In Daniel Berchie, Daniel Kwame Bediako and dziedzorm Reuben Safo, eds., *Bible, Cultural Identity and Mission*, Cambridge Scholars Publishing, p.386-406

- 3. (a). Asante, E (Ed.) 2016, *Love and Tolerance: Peaceful Co-Existence in Diversity*. New Jersey: Blue Dome Press.

4. Rev. Dr. Kwabena Opuni Frimpong

- (a) Opuni-Frimpong, K. (2015). *Christian Ministry of Advocacy*. Accra: Son Life Press. 100 p.

(b)

5. Rev. Dr. Kofi Effah Ababio

- (a) Effah-Ababio, K. (2015). *The Church and Traditional Rule: Church-Traditional State Relations*. Accra: Adwinsa Publications. 115 p.

6. **Dr. Victor Selome Gedzi**
 - (a) Gedzi, V. S., (2015). Context and Erection of Legal System in Ghana. *Advances in Social Sciences Research Journal*, 2 (20): 116-121.
7. **Rev. Fr. Dr. Peter Addai-Mensah**
 - (a) Addai-Mensah, P. and Opoku, J. K. (2015). *The Word of God: Food for our Souls*. Vol. 3 Kumasi: University Press, KNUST, pp. 160.
 - (b) Addai-mensah, P. (2015). The Future of Palliative Care in Medical Treatment in Ghana, *All Nations University Journal of Applied Thought* 4(1): 239-255.
8. **Very Rev. Dr Paul K. Boafo**
 - (a) Boafo, P.K.(2015). *Keeping the Charge: Reflections on John Wesley's Notes for Preachers*. Kumasi: Great Impressions, 124 p.
9. **Rev. Dr. Atiemo Abamfo Ofori**
 - (a) Abamfo, O. A. (2015). Religion and Custom are not the same: Sacred Traditional States and Religious Human Rights in Contemporary Ghana. In: Pieter Coertzen, Len Hamsen and Christy Green (eds.), *Law and Religion in Africa – The Quest for the Common Good*. Stellenbosch: SUN Press, p. 15-35.
10. **Very Rev. Dr. Frimpong Wiafe**
 - (a) Wiafe, F. (2015). Exodus 201:7, Its Implication for the Ghanaian Legal, Political and Social Institutions. *International Journal of Social Sciences and Humanities Invention*, 2 (2): 1000-1012.
11. **Rev. Samuel Asiedu-Amoako**
 - (a) Asiedu-Amoako, S. (2015). Thinking Ethically Towards Birim Ecological Basin. *All Nations Journal of Applied Thought*. Vol. 4 (2): 274-285.
 - (b) Asiedu-Amoako, S and Ntiamoah, M. K. (2015). African Spirituality and Sustainable Environment: A Discourse on African Ecological Theology. *Journal of Environmental Science, Computer Science and Engineering and Technology*. Vol. 4 (2): 526-535.
12. **Rev. Fr. John Kwaku Opoku**
 1. **Opoku, J. K. and Addai-Mensah, P.** (2015) "The Future of Palliative Care in Medical Treatment in Ghana". In: *All Nations University Journal of Applied Thought* (ANUJAT), Vol.4, No. 1: 239-255. ISSN 2026-691X
 2. **Opoku, J. K., Addai-Mensah, P. and Wiafe, F.** (2015) 'Traditional and Modern Medicine: A Survey of Views on its Integration in Ghana'. *International Journal of African Society, Cultures and Traditions* Vol.3, No.5: 2015, pp.22-36. ISSN: 2056-5771
 3. **Opoku, J. K.,** (2015) 'African Traditional Ethics: An Appraisal of Its Impact on Human Development in the Kumasi Metropolis, Ghana.' *All Nations University Journal of Applied Thought*, Vol. 4 No.2: 2015, pp.286-304. ISSN 2026-691X
 4. **Opoku, J. K. and Manu, E.,** (2015) "The Status of the Human Embryo: An Analysis from the Christian and Islamic Viewpoints". *European Journal of Biology and Medical Science Research*, European Journal of Biology and Medical Science Research, Vol.3, No.5: 2015, 19-29. ISSN 2053-406X

5. **Opoku, J. K.** Addai-Mensah, P. and Manu E., (2015) "Practitioner-Patient Relationship: An Evaluation of Perceptions in Ghana". *European Scientific Journal (ESJ)*, ISBN 978-608-4642-44-2
6. **Opoku, J. K.,** Manu E. and Wiafe, F., (2015) "Religion, Education and National Development in Ghana: A Historical Perspective". *Global Journal of Arts, Humanities and Social Sciences*, Vol. 3 No. 12: 6-18. ISSN: 2052-6350
7. **Opoku, J. K.** and Addai-Mensah, P. (2016) "Negligence and Medical Practice: Perceptions and Impact on Health and Care Delivery in the Kumasi Metropolis". *All Nations University Journal of Applied Thought*, Vol. 5 No.1: 273-292. ISSN:2026-691X
8. **Opoku, J. K.** and Addai-Mensah, P. (2016) "Ethics and Bioethics in African University Education: Towards a Genuine Need". *E-Journal of Religious and Theological Studies(ERATS)*, Vol. 2. No.1.
9. **Opoku, J. K.,** (2015) *Understand Philosophy of Religion*. Kumasi: Richmar Business Centre, pp.239. ISBN: 25826000319856
10. **Opoku, J. K.** and Addai-Mensah, P., (2015) *The Word of God: Food for our Souls*, Vol. 3. Kumasi: University Press, pp.109.

12. Kwadwo Ntiamoah Michael

- (a). Ntiamoah, M. K. (2015). 'Religious and Social Relevance of Nsuae (Oath Swearing) in Akan Indigenous Leadership Formation'. *E-journal of Religious and Theological Studies*, Vol. 1, No. 2. (September, 2015): 122-139.
- (b). Asiedu-Amoako, S. and Ntiamoah, M. K. (2015). 'Ethical, Moral and Spiritual Foundation for a Prosperous Africa: Climate Justice - The Role of the Church'. *E- journal of Religious and Theological Studies*, Vol. 1, No. 2. (September, 2015): 105- 121.
- (c). Asiedu-Amoako, S and Ntiamoah, M. K. (2015). 'Women, Climate Justice and Sustainable Peace in Kwahu-Tafo: A Theological Reflection'. *Prime Journal of Social Sciences*, 4 (9), (September, 2015): 1180- 1185.
- (d). Asiedu-Amoako, S and Ntiamoah, M. K. (2015). 'African Spirituality and Sustainable Environment: A Discourse on African Ecological Theology'. *Journal of Environmental Science, Computer Science and Engineering and Technology*. Vol. 4, No. 2. (May, 2015): 526- 536.

13. Asiedu Amoako Samuel

Asiedu Amoako S, and Ntiamoah M.K, (2015). Ethical, Moral and Spiritual Foundation for a prosperous Africa: Climate Justice-The Role of the Church. *E-journal of Religious and Theological Studies*, Vol 1 No 2. (September, 2015):105-10521.

COMMUNITY SERVICE

- **Rev. Dr. Fr. F. Appiah-Kubi**
 - (a) Moderator, Theology Programme, Fountain Head University College, Tema
 - (b) Chairman, Graduate Programmes Committee
 - (c) Chairman, Awards Committee, College of Art and Social Sciences, Kumasi
 - (d) President, National Union of Ghana Diocesan Priest Association (NUGDPA)

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- **Rev. J. E. T. Kuwornu-Adjaottor**
 - (a) Moderator, Theology Programme, Heritage Christian College, Accra.
 - (b) External Examiner
 - Department of Religion and Human Values, University of Cape Coast
 - Department of Biblical Studies, All Nations University College, Koforidua
 - School of Theology, Christ Apostolic University College
 - (c) External Assessor, Christian Service University College
 - (d) Chairman, Consortium of Researchers, Centre for African and Cultural Studies, KNUST
 - (e) Editorial Board Member,
 - Journal of African Biblical Studies
 - Journal of Applied Thought
 - (f) Reviewer, International Journal of Asian Social Science
 - (g) Chairman, Ghana Zone of the West African Association of Theological Institutions
 - (h) Ghana Representation, International Cooperation Initiative (ICI) of the Society of Biblical Literature (SBL)
- **Rev. Dr. N. I. Samwini**
 - (a) Bishop, Northern Dioceses of the Methodist Church Ghana
 - (b) General Secretary, West African Association of Theological Institutions
 - (c) Moderator, Religious Studies Programme, Spiritan University College, Ejisu
- **Rev. Dr. A. Atiemo**
 - (a) Member, PhD Committee
 - (b) Member, Guidance and Counseling Committee
 - (c) Editorial Committee Member, Ghana Bulletin of Theology
 - (d) Chairman, African Association for the Study of Religion
 - (e) Member, Religion and Law Consortium
- **Dr. V. S. Gedzi**
 - (a) Chairman, Faculty of Social Sciences, KNUST Research Council
 - (b) Chairman, Guidance and Counseling Committee
 - (c) Chairman, Internship Programme Committee
 - (d) Chairman, Departmental Quality Assurance Committee
 - (e) Member, Postgraduate Committee
 - (f) Member, Fundraising Committee
- **Rev. S. Asiedu-Amoako**
 - (a) Department Examination Officer, 2012-2014
 - (b) Member, M.A. Programme Committee
 - (c) Board Member, Asante Presbytery Bible School
 - (d) Adjunct Lecturer, Special Ministerial Training Programme of the Presbyterian Church of Ghana
- **Shekh S. M. Zakaria**
 - a. Chairman, Dept. MA/MPhil committee
 - b. Member, Guidance and Counseling Committee

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- c. Member, Fundraising Committee
- d. Member, National Disaster Management Organization
- e. Member, Sheikh Osman Nuh Sharubutu Educational Trust Fund

- **Dr. Yunus Dumbo**

- (a) Member, Graduate Programmes Committee
- (b) Member, Transport Committee, Faculty of Social Sciences
- (c) Patron, Religious Studies Students and Associates
- (d) Member, Guidance and Counseling Committee

- **Rev. Fr. Dr. E. K. E. Antwi**

- (a) Chairman, PhD. Committee
- (b) Coordinator, Department Website Activities
- (c) Member, Mandatory Courses Committee for the Faculty of Social Science

- **Rev. Fr. J. K. Opoku**

- (a) Chairman, Fundraising Committee
- (b) Member, Faculty of Social Sciences Admissions Committee
- (c) Patron, Religious Studies Students Association.
- (d) Member, Dept. MA/MPhil committee

- **Rev. F. Wiafe**

- (a) Department Examinations officer
- (b) Adjunct Lecturer, Theological Education by Extension Programme of the Methodist Church Ghana

- **Most Rev. Prof E.K. Asante**

- (a) Presiding Bishop, Methodist Church Ghana
- (b) Chairman, National Peace Council
- (c) Chairman of Council, Methodist University College, Accra
- (d) Chairman of the Board of Governors, Wesley College of Education, Kumasi
- (e) Chairman of the Board of Governors, Wesley Girls Senior High School, Cape Coast
- (f) External Examiner,
- (e) Department for the Study of Religions, University of Ghana, Legon
- (f) Akrofi-Christaller Institute of Theology, Mission and Culture, Akropong-Akuapem

- **Rev. Dr. K. Effah-Ababio**

- (a) Chairman of the Area Board, Presbyterian Church of Ghana Health Service, Brong-Ahafo Area
- (b) Member of Council, Presbyterian University College
- (c) Member, Presbyterian University Finance Committee
- (d) Member, Presbyterian Church of Ghana Constitution Review Committee

- **Rev. Dr. K. Opuni Frimpong**

- (a) General Secretary, Christian Council of Ghana

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- **Rev. Dr. P. K. Boafo**
 - (a) Assessor, National Accreditation Board
 - (b) Director, Theological Education by Extension (TEE) Programme of the Methodist Church Ghana.
 - (c) Editor, Weekly Bible Lessons, Methodist Church Ghana.
- **Rev. Fr. Dr. P. Addai-Mensah**
 - (a) Member, Dean of Students Welfare Service
 - (b) Member, Residence Committee
 - (c) Member, Discipline Committee
 - (d) Member, Postgraduate Religious Studies Programmes Committee
- **Rev. Mgr. J. Opoku-Agyemang**
 - (a) Member, Guidance and Counseling Committee
 - (b) Rector, St. Gregory the Great Provincial Major Seminary, Parkoso

DEPARTMENT OF SOCIOLOGY AND SOCIAL WORK

VISION AND MISSION

The vision of the Department is to promote excellence in social sciences for the socio-economic development of Ghana and the World at large. The mission of the Department focuses on the training and the production of high level human resource capable of applying knowledge and purposeful research, relevant to the Ghanaian environment and the International community.

UNDERGRADUATE PROGRAMMES

The Department runs two undergraduate degree programmes: Bachelor of Arts in Sociology and Bachelor of Arts in Social Work for regular students. Additionally students can pursue these degree programmes through Distance Education and Parallel programmes. The current student population for undergraduate programmes in the Department is One Thousand Seven Hundred and Nine (1709).

SOCIOLOGY			SOCIAL WORK		
Year	Regular	Parallel	Year	Regular	Parallel
One	137	48	One	82	12
Two	125	24	Two	114	14
Three	135	310	Three	100	119
Four	190	155	Four	97	47
TOTAL: 1124			TOTAL: 585		
GRAND TOTAL 1709					

The third year Social Work students in the Department undertake a compulsory practicum (in groups) throughout the second semester of year three at various Social Welfare Institutions in the Ashanti region. At the end of the practicum, each group writes and presents report on the various activities they undertook and also share their experiences with the rest of the groups. The Social Work lecturers in the Department also visit the students at the various institutions periodically to monitor their progress.

GRADUATE PROGRAMMES

The Department currently runs two postgraduate programmes: Master of Arts (M.A.) and Master of Philosophy in Sociology (M.Phil). The total number of Postgraduate students currently stands at Forty One (41) for both programmes.

The Department has submitted proposals for consideration by the School of Graduate Studies to offer Doctor of Philosophy (PhD) in Sociology. The PhD programme proposal, if approved, will facilitate staff development and create opportunities and access for interested staff and others at a lesser cost locally.

DEPARTMENTAL ACTIVITIES / EDUCATIONAL TRIPS

Garden City Special School: The Department sponsored the Garden City Special School, Kumasi with an amount of One Thousand Ghana Cedis (GH¢1000.00). This amount helped them to participate in a sports competition. At the end of the games they won some medals and wrote an appreciation letter to the Department.

Kumasi Central Prison: Final Year Social Work students offering a course in ‘Correctional Services: Working with Offenders’ in the Department made an academic visit to Kumasi Central Prison on Monday, 22nd February, 2016. The trip enabled the students to acquire first hand knowledge and practical experience about the theories and concepts they learn in the classroom.

Komfo Anokye Teaching Hospital: Third Year Medical Sociology students also visited the Komfo Anokye Teaching Hospital on 30th March, 2016 to acquaint themselves with the processes and practices regarding health care delivery in Ghana

Lake Bosomtwe: The Final Year Environmental Sociology Students also undertook an academic trip to Abono (Lake Bosomtwe) on Friday, 1st April, 2016. This trip afforded the students the opportunity to assess the effects of socio-cultural and human activities on the lake and how they can help develop policies and strategies for environment sustainability.

School of Deaf: Lastly, Final Year Social Work students offering a course in ‘Working with Disability’ also undertook an academic visit to Ashanti School of Deaf at Jamasi on Friday, 18th March, 2016. The purpose was to enable the students understand and appreciate the challenges people with disabilities encounter and what interventions can be designed to combat these challenges.

SERVICE COURSES

The Department continues to offer service courses to other Departments. These are Publishing Studies, Computer Science, Engineering, Optometry and Visual Science, IRAI, Geography and Rural Development and Faculty of Law.

STAFF IN THE DEPARTMENT

Academic Staff

The department has seventeen (19) academic Senior Staff and one (1) supporting staff

Prof. Kofi Osei Akuoko - Dean of the Faculty/ Associate Professor

Dr. Kwadwo Ofori-Dua - Head of Department/ Lecturer

PROMOTION

Dr. Kofi Osei Akuoko was promoted to the position of Associate Professor with effect from 1st August, 2014.

Dr. Kwadwo Ofori-Dua has been promoted to the position of Senior Lecturer. The promotion takes effect from 1st August, 2016.

STAFF DEVELOPMENT

Mr. Peter Dwumah (a lecturer in the Department) and Mr. John Boulard Forkuor (a volunteer Assistant lecturer in the Department) completed PhD programmes in Sociology at the Department in November, 2015.

Three Assistant Lecturers: Mr. Edward Asamoah, Mr. Nelson Gyasi-Boadu and Mr. Vincent De Paul Kanwetuu are pursuing their PhD programmes in the Department.

APPOINTMENT

Dr. John Boulard Forkuor was appointed as a part-time lecturer in the Department in October, 2015.

TRANSFER

Rev. Dr. Owusu-Boateng and Dr. Albert A. Saah were transferred from the Institute of Distance Learning to the Department as full time lecturers with effect from 1st September, 2015.

RESEARCH ACTIVITIES

A total of Twenty (20) papers were published by senior members in the Department during the period under consideration. Below is the list of publications.

PUBLICATIONS

In the 2015/2016 academic year twenty (20) papers were published in refereed and peer reviewed journals. Details can be found in the Quality Assurance Bulletin under review.

COLLABORATION WITH OTHER UNIVERSITIES

The Department hosted eleven (11) students and two (2) Senior Members from the College of Social Work, University of Utah, USA, from March 12-20, 2016. The purpose was to observe and experience social work practice in the Ghanaian cultural setting.

Six (6) KNUST Social Work students also undertook eight (8) weeks field internship with a number of agencies in Salt Lake City, USA, through our collaboration with the University of Utah. The programme enabled our students to appreciate the diversity of social problems as well as intervention strategies in different cultural environment.

The Department currently has fruitful collaborative relationship with Hochschule Darmstadt University of Applied Science, Germany.

College of Humanities and Social Sciences

The Department will also host six (6) students and two (2) senior members from Ramapo College, New Jersey, USA from May 15 – May 29, 2016.

INCOME GENERATION

The Department supplements its AUFU with income derived from the parallel B.A Degree Programmes in the Faculty of Social Sciences and Institute of Distance Learning Programmes. Efforts are being made to come out with fee-paying Master of Arts (MA) programmes.

CHALLENGES

The greatest challenge facing the Department is lack of office space for lecturers in the Department. As many as six lecturers currently do not have offices and therefore work from their homes. This affects their interaction with students, particularly project students. There is also lack of bigger lecture rooms to accommodate the growing student population in the Department.

CONCLUSION

In spite of these challenges, the Department is carrying out its duties with dedication. It is our hope these challenges would be considered and efforts would be made to solve them to enhance teaching and research in the Department.

KNUST SCHOOL OF BUSINESS (KSB)

INTRODUCTION

The School of Business continues to grow. During the 2015/2016 Academic Year, the School undertook several activities with the following as highlights:

CELEBRATION OF THE 10TH ANNIVERSARY

Established in 2005 the School celebrated its 10th Anniversary under the theme “Celebrating our Past, Charting our Future”. The one week long celebration began from 7th to 13th March, 2016 with the launching and climaxed with an Alumni Homecoming and dinner dance. It was revealed that the School started without any seed money, no classrooms, and no facilities for teaching and learning including offices for lecturers. Within the ten year period of its existence the School has experienced significant growth in several areas including staff strength, students’ enrollment, staff development and promotion, infrastructural development, facilities for teaching and learning among others.

CAPACITY BUILDING OF FACULTY MEMBERS

The School continued to develop its Faculty to improve on teaching and learning during the year under review. Two more people who had completed their PhD Programmes under the Vice-Chancellor’s Special Initiative for PhD Programmes were correspondingly appointed to the Department of Human Resource and Organisational Development and the Department of Information Systems and Decision Sciences while one more Faculty was transferred from the Institute of Distance Learning (IDL) to the Department of Human Resource and Organizational Development following the restructuring of the Institution. This brings the number of Faculty Members who have PhDs in the School to an enviable eighteen (18). It is delighting to note also that one academic staff under the Building Strong Universities Initiative has successfully defended the PhD thesis and will graduate this year.

INTRODUCTION OF MPHIL/MSC.AND PHD PROGRAMMES

Having built such a strong capacity, the School began the efforts to mount MPhil, MSc and PhD Programmes in all the four Departments last academic year. The processing of proposals for accreditation is at an advanced stage. The School is expecting to commence these Programmes during the 2016/2017 academic year. The collaboration between the School and the University of Maryland Eastern Shore to mount a PhD in Organizational Leadership and a B.Sc. in Hospitality and Tourism Management Programmes is expected to take off at the same time.

LINKAGE WITH INDUSTRY

The School has been engaged in several activities to strengthen its linkage with industry. In October 2015, the School organised a one day seminar for all Rural Banks in the Ashanti Region to share with them some findings from a research on Service Quality. The Programme was well attended with representatives from almost all the Banks. Further to that, a team from the School and the Provost of the College undertook a tour to some of the industries in Accra as part of efforts to make the School visible apart from building strong linkages. In all, about ten (10) institutions were visited including Association of Ghana Industries (AGI), UT and Stanbic Banks among others. The visit was very successful with several offshoots including the development of a proposal to develop local content case studies for the MBA Programmes with sponsorship from Stanbic Bank. A committee is earnestly working to finalise the proposal.

TEACHING AND LEARNING

During the past year, The School worked hard to improve teaching and learning by properly furnishing classrooms with air-conditioning units, PA systems, curtains with the aim of making the rooms more suitable for the MBA Programmes especially. Efforts are underway to replace all broken down LCD projectors. Given that most lectures for the MBA Programmes are held in the evenings, and in order to avoid interruption of lectures as a result of the ongoing load shedding of electricity from the national grid, the School procured a 550 KV Generator set to ensure constant and instant power supply.

It is gratifying to note also that, the School being mindful of the increasing difficulty in getting placement for students to do industrial attachments, has introduced certain softwares (Country manager and Cross Cultural Management) which are virtual simulation programmes as substitute for industrial attachment. The softwares allow students to manage businesses online as well as giving them the opportunity to work and build synergies with other international students around the globe,

COLLABORATIONS

The School continued to collaborate with other institutions and professional bodies for the training of the critical mass of human resource in business education and entrepreneurship development for the economic advancement of the nation. During the year under consideration, the School completed the development of a joint Undergraduate Programme with the University of Arizona USA and it is expected to begin during the 2017/18 academic year. A team of local representatives of the World Bank visited the School for a possible collaboration to run short courses in Corporate Governance and we are hoping to begin next academic year. In line with the vision of the University, the School is seriously promoting

College of Humanities and Social Sciences

research uptake from its own resources. The School has just completed a nationwide research on Stress Situation in the banking Industry and plans are under way to share the findings with all Universal Banks nationwide.

The School is working with the Institute of Chartered Accountants, Ghana for the establishment of a Chair in Accountancy who is expected to champion the course for Professional Affiliation for accounting students at the Undergraduate and Postgraduate Levels.

CORPORATE SOCIAL RESPONSIBILITY (CSR)

As part of its Corporate Social Responsibility, the School teamed up with the National Board for Small Scale Industries to organize English lessons (Foundation) for about fifty (50) Small Scale Enterprises (SMEs) within the Metropolis. Following a successful end of the first phase, and the impressive performance of the participants, the School upon request from the candidates is continuing the lessons at the intermediate level. This programme resulted from the needs assessment training done for the SMEs in the first quarter of 2015.

EDUCATIONAL TOUR IN DUBAI

Keeping to the Department's commitment to make teaching practical, the Department of Marketing and Corporate Strategy in collaboration with Skyline University, Dubai, organized an educational Tour to Dubai for its International Marketing Students.

ESTABLISHMENT OF RESEARCH AND CONFERENCE FUND

Taking cognisance of the importance of research and participation in international conferences in academia, the School set up a Research Fund from its IGF to facilitate staff research and participation in conferences and promotion.

ESTABLISHMENT OF SCHOLARSHIP SCHEME

From the remuneration of the Parallel Programmes, the School has established a scholarship scheme to support needy but brilliant students in the School. The Scheme begins next academic year.

DEPARTMENT OF ACCOUNTING AND FINANCE

INTRODUCTION

The Department of Accounting and Finance undertook several activities during the period under review with following as highlights:

FINANCIAL MODELING WORKSHOP

This training programme was designed to provide basic understanding of financial modeling with Excel. Financial Modeling is a product under capacity building and development. Participants of the workshop made up of lecturers, teaching assistants and students, were guided on how to use MS Excel to develop financial models or to automate their work schedules or repetitive jobs. The main objective of the workshop was to equip participants with the proficient use of Advanced Excel to develop business solutions/models. Key among the topics covered by the workshop include Record Keeping and Database Management; Financial Reporting Modeling; Automating the payroll systems with auto-generate pay slips,

Treasury and Portfolio Modeling and Cash Budget Modeling. The workshop was well attended. With positive feedback, the department intends to organize such workshops from time to time.

FINANCE RESEARCH WORKSHOP

As part of the department's efforts at enhancing quality research among its postgraduate students, this workshop was organized to take students through the essentials of finance research. Specifically, students were taught how to use the STATA software to analyze quantitative data.

WORKSHOP ON HOW TO USE KNUST ONLINE REPOSITORY AND SOME OTHER WEBSITES

This workshop was organized for postgraduate students and the teaching assistants in the department. The aim was to equip them with the tools for accessing information in their research activities. This is in line with the department's resolve to promote quality research.

MEMORANDUM OF UNDERSTANDING

Plans are underway to establish a Chair of Accountancy in the department. The Chair of Accountancy is to be sponsored by the Institute of Chartered Accountants, Ghana (ICAG). The establishment of the Chair is to promote research and the study of accountancy in the department and beyond. As part of the MOU, the ICAG is to offer our undergraduate and postgraduate (MBA) students exemptions under its professional examinations.

STAFF DEVELOPMENT

The staff capacity of the department has been enhanced with the recruitment of three Assistant Lecturers. One staff, Kwame Mireku is expected to complete his studies with PhD in Finance very soon.

NEW PROGRAMMES

The department has introduced the following industry-driven programmes:

- MSc Accounting and Finance
- MSc Finance and Investment

AWARDS

At the recent College of Humanities and Social Sciences (COHSS) Awards sponsored by The Royal Bank two students from the department, Benjamin Agyare and Amanda Esi Buckman, won the overall best and second overall best student awards of the college respectively.

DEPARTMENT OF HUMAN RESOURCE AND ORGANISATIONAL DEVELOPMENT

NEW PROGRAMMES

a) The Department in conjunction with the Faculty (KNUST School of Business) hosted a team from the University of Maryland Eastern Shore (UMES) from 8th – 10th July, 2015 for further discussion on the KNUST/KSB-UMES PhD in Organizational Leadership (ORLD) and BSc in Hospitality and Tourism Management (HTM) programmes. The meetings were held at the Golden Beam Hotel Conference Room and KNUST School of Business Conference Room.

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- b) As part of initiatives to further expand on its academic programmes, the Department has introduced two more postgraduate programmes to meet the needs of industry players.

These are:

- i. M.Sc. in Management and Human Resource Strategy
- ii. M.Sc. in Industrial Management

The two programmes are scheduled to take off during the 2016/2017 academic year subject to subscription rate and accreditation related issues.

SEMINAR AND WORKSHOP

- a) The Department organized a thesis writing seminar for all second year MBA/MOD students on 31st October, 2015. The areas of focus included holistic approach to thesis/dissertation design, developing “testable” research questions/hypothesis, selecting appropriate thesis methodology (model specification), statistical testing procedure, result analysis and interpretations and introduction to basic statistical software used in testing (Excel, SPSS, STRATA). The resource person was Dr. Rexford Abaidoo of the University of Maryland Eastern Shore (UMES).
- b) The Department from 27th – 28th February, 2016 organized a “Practical Session on Teambuilding” for MBA specialization in Management and Organizational Development. The session was facilitated by Mr. Augustine Opoku Antwi, a Development Planner and Organizational Development Consultant.

The session took place at the School of Business lecture room TF 01 and was attended by students and Faculty members of the Department. The following were the achievement of the session:

- i. Provided practical insights into implementing organizational development process
- ii. Enhanced awareness on skills required as an organizational development intervener;
- iii. Provided practical skills and hand-on experience in building teams

On the whole, the session deepened the understanding of the Management and Organizational Development students on the Master of Business Administration programme. The facilitator, a seasoned consultant in the field of OD (Organizational Development) brought his rich experience in the field to bear on the MOD students’ academic orientation.

STAFF DEVELOPMENT PROGRAMME

As part of the Department’s staff development programme, Mrs. Rosemary Boateng Coffie of the Department successfully defended her PhD thesis in Business Administration on 10th May, 2016 subject to graduation in June, 2016. This achievement has brought the Department’s total number of PhD holders to 6 (six) out of the staff strength of 7 (seven).

Furthermore, Dr. Henry Kofi Mensah, a lecturer at the Department is scheduled to participate in the 2016 session of the Training of Trainers Workshop on Qualitative and Quantitative Research Methods in Social Science as Laureate in Dakar, Senegal. He has also been admitted as a member of the African Academy of Management.

DEPARTMENT OF INFORMATION SYSTEMS AND DECISION SCIENCES

NEW PROGRAMMES

Three new postgraduate programmes scheduled to take off during the 2016/2017 academic year have been introduced as follows:

MBA in Procurement and Supply Chain Management;
MBA in Project Management; and
MSc. Management Information Systems

SEMINARS, WORKSHOPS AND FIELD TRIPS

The Department organized a field trip for its students to Guinness Ghana Breweries Limited on November 13, 2015. The Department also organized a seminar on the theme: “Modern Supply Chain Management Practices and the Future Opportunities for Young Professionals in the Area”. The Session took place at the Saarah-Mensah Auditorium of the KNUST School of Business and was facilitated by Mr. Andy Jones, the Supply Director of Guinness Ghana Breweries Limited. On the 8th of April, 2016, the Department organized an educational tour to Cargill Ghana, Tema and the Tema Ports Authority for its postgraduate students. These field trips and seminars have been very insightful and helpful to both the students and Staff.

AFFILIATIONS

The Head of Department visited the National Polytechnic, Bamenda, Cameroon, an affiliated institution, to invigilate their Level 300 students offering Logistics and Supply Chain Management Programme from the 7th to the 13th of March 2016. Other issues on the relationship were also discussed.

PUBLICATIONS

Details of these can be found in the Quality Assurance Bulletin in the year under review

CONFERENCES

For the 2015/2016 academic year, the following papers were presented/published by lecturers in the department.

- i. Dr. Jonathan Annan from the Department of Information Systems and Decision Sciences, attended the 6th Global Innovation and Knowledge Academy (GIKA) Annual conference organized by the Universitat de Valencia in Spain from Wednesday March 23 - ?? 2016. The Gika 2016 Conference included 268 papers from authors working in 62 countries. Two African countries viz, Ghana and Nigeria participated in the conference. The papers were exceptional accomplishment that represents the best in the field of Innovation and knowledge. One of the aims of the conference was to select high quality papers to publish in special issues of the Journal of Business Research, Psychology and Marketing. The best papers presented at the conference received a recommendation for publication in one of the special issues of the Journal of Business Research (JBR). In fact the JBR is the number one (1) ranked Business and Management Journal in the world. Dr. Annan's paper is titled “Enhancing the state benefits of radical product innovativeness in internationalizing small and medium sized enterprises: A multi-country empirical examination”. Since it was adjudged the best paper it was been

published in a special issue of the Journal of Business Research (Elsevier) 2016 and it is available at <http://dx.doi.org/10.1016/j.jbusres.2016.04.077>.

- ii. On the 29th of April, 2016, two manuscripts written by Dr. David Asamoah, a Senior lecturer and the Head of Department, entitled “Examination of Enterprise Resource Planning Implementation in a Sub-Saharan African Nation: A Panoptic Perspective” and “Examining the Relationships Between Supply Chain Integration, Information Sharing and Supply Chain Performance: A Replication Study” were accepted for presentation and publication at the 22nd Americas Conference on Information Systems to be held in San Diego, California from the 11th to the 14th of August, 2016.
- iii. Dr. Asamoah presented a paper in Americas Conference on Information Systems held in San Jose, Puerto Rico from August 13 – 15, 2015. The paper is titled “The Effect of Institutional Pressures on Ethical Behavior and Extent of Enterprise Resource Planning Implementation: Evidence from Organizations in a Sub-Saharan African Nation.

CENTRE FOR CULTURAL AND AFRICAN STUDIES

INTRODUCTION

The Centre for Cultural and African Studies was established in 1974 by the Kwame Nkrumah University of Science and Technology, KNUST. The Centre has as its core mandate to provide cultural education in African ways of life to compliment any knowledge skills available to students through the mediums of Music, Dance, Drama, language and the related art in traditional society.

The establishment of the Centre in the University was therefore very strategic and of regional importance.

The Centre now has Musical Instrument Technology Workshop which used to produce musical instruments; which unfortunately was gutted down by fire and it is yet to be fixed. There is the Piano Tuning and Repair Workshop and also the Performance in music, dance and drama as well as African Culture Ethics and Customs.

STAFF STRENGTH

The Centre has staff strength of six (6) made up of five (5) Research Fellows and one senior lecturer. The teaching staff is supported by competent technical and administrative and ancillary staff.

The Centre has the following Senior Members on its staff

- | | | |
|-------------------------------|---|------------------------|
| 1. Vesta E. Adu-Gyamfi (Mrs.) | - | Director/Snr. Lecturer |
| 2. Very Rev. S. Kojo Enninful | - | Research Fellow |
| 3. Anthony A. Aidoo | - | Research Fellow |
| 4. Rev. Martin O. Adi-Dako | - | Lecturer |
| 5. Hesper K. Adesua | - | Research Fellow |
| 6. Henry Asare-Baah | - | Research Fellow |

VISION STATEMENT

It is envisioned to be a Centre of excellence in Teaching, Learning and Research on Music, Dance, Drama and Cultural and African Studies, in addition to providing skills and perfection

in the production of quality cultural items, to satisfy the growing needs of local and foreign students, as well as individuals and corporate entities, for the purpose of understanding and appreciating the social and cultural milieu of Africa.

MISSION OF THE CENTRE

To train and equip local and foreign students in theory of African Performance Arts and Cultural Values to levels of proficiency and scholarship attainable in the University.

Functions of the Centre

The Centre performs the following functions:

- a. Academic Centre for Cultural and African Studies
- b. Research, Resource and Consultancy Centre for African Cultural and Heritage Studies
- c. Production Centre for Cultural Items and Stage Performance
- d. Musical Notation and Education
- e. Private tuition for individuals, lecturers, international students, schools and children's groups in Dancing, Drumming, Piano, Sound Engineering and Music
- f. Special package on music, dance, poetry and drum appellation

ACADEMIC PROGRAMMES

The Centre will be offering the following undergraduate programmes:

- B.A Theatre Arts (Dance/Drama)
- BA Music/B. Mus
- BA Cultural an African Studies

COLLABORATIONS AND CO-ORDINATING ACTIVITIES

- a. Kumasi Metro Brass Bands Association (KUBBAS)
- b. Agya Koo Nimo and Adadem
- c. Film Producers Association of Ghana (FIPAG)
- d. Cultural Centre Folkloric Group
- e. Association of Ashanti Choral Groups
- f. Springverve Drama Group
- g. Penn State University, Pennsylvania, USA

The Centre continues its data collection, seminars and workshops on its project "Facilitating the Development and Growth of the Culture & Arts Sector under EU-ECOWAS Economic Partnership Agreement" and has been visiting all partners countries, Nigeria, The Gambia and Sierra-Leone. Centre for Cultural and African Studies of KNUST, Ghana is the lead Partner for the project which includes Sierra Leone, Arterial Network, Liberia Chapter, Plateforme Culturelle du Burkina Faso, National Centre for Arts & Culture, Gambia and the Gambia Ministry of Culture as Associate partners. It has also initiated work on a film project – "The Epic Movies on the Exile of King Prempeh I.

RESEARCH/PUBLICATIONS

The staff is involved in research activities in various spheres. The strength of CeCASt lies in its multi and inter-disciplinary and holistic approach to the development of culture and African Studies and more so with research and publications, to project the image of the Centre, College and University as a whole, a group of scholars from multi and inter-

disciplinary background have come together to form a consortium of researchers to bring their rich experiences on board.

PUBLISHED ARTICLES IN REFEREED JOURNALS/CONFERENCES/WORKSHOPS

Details of these can be found in the Quality Assurance Bulletin in the year under review

CHALLENGES

The Centre continues to face great challenges. The Musical Instrument Technology Workshop (MITW) is still not fixed after it was gutted down by fire and lack of transport to haul over instruments around and to help run the place is yet to be realised.

The space is under so much pressure not only to accommodate thousand of students who access our courses, but also to serve as training areas for those interested in the theatre, dance-drumming programmes.

THE WAY FORWARD

Centre for Cultural and African Studies is to re-introduce six-week Proficiency Certificate courses in Performing Arts, and eventually upgrade it to a Diploma, and undergraduate programme. Furthermore, a comprehensive research and documentation of indigenous aspects of African Performing Arts and customary practices would be undertaken.

The Consortium of Researchers established in the Centre is working assiduously to establish a Journal for the publication of the research works and findings and other relevant information on the Arts, Culture, Science and Technology. The consortium is constituted of people with inter multi-disciplinary backgrounds to embark on aggressive, research, publication and promotion of knowledge in culture, indigenous knowledge system, science and technology, traditional legal systems, the humanities etc.

The Consortium consists of the following members:

- | | |
|--|------------|
| 1. Mrs. Vesta E. Adu-Gyamfi, CeCAST | - Director |
| 2. Rev. J.E.T. Adjaottor-Kuwornu, Department of Religious Studies | - Chairman |
| 3. Very. Rev. Dr. N.I. Samwini, Department of Religious Studies | - Member |
| 4. Nana (Dr.) S.E. Edusa, International Centre for Innovative Learning | - Member |
| 5. Dr. (Mrs.) Renee A.S. Morhe, Head, Department of Private Law | - Member |
| 6. Dr. Lydia A. Nkansah, Faculty of Law | - Member |
| 7. Dr. Kwabena Asubonteng, Department of IRAI | - Member |
| 8. Dr. J. Osei-Bobie, Department of IRAI | - Member |
| 9. Dr. Peter Arthur, Department of English | - Member |
| 10. Very. Rev. S. Kojo Enninful, CeCAST | - Member |
| 12. Dr. Samuel Nortey, Department of Industrial Art | - Member |
| 13. Mr. Edward Appiah, Department of Communication Design | - Member |
| 14. Dr. Eric Appau, Department of Industrial Art | - Member |
| 15. Mr. Enerst F. Amparbin, CeCAST | - Member |
| 15. Mr. Mawuli Amedofu, CeCAST | - Member |
| 16. Ms. Joann Pieteron, CeCAST | - Member |
| 17. Mr. H.K. Adesua, CeCAST | - Member |
| 18. Mr. Anthony A. Aidoo | - Member |
| 20. Rev. Martin O. Adi-Dako, CeCAST | - Member |
| 21. Mr. Paul Nasaa, CeCAST | - Member |
| 22. Dr. A.E. Asmah, Department of IRAI | - Member |
| 23. Dr. Vincentia Okpatah, Department of IRAI | - Member |

COLLEGE OF SCIENCE

INTRODUCTION

The College of Science is the third largest College in the University, with an overall student population of 5258, comprising 4758 undergraduates and 500 postgraduates, and a staff strength of 301. The College has provided quality training, research, and extension services in the basic and applied sciences, over the years, for national industrial and economic development. It continues to pursue this mandate in earnest, with the goal of becoming an established centre of excellence for the advancement of knowledge in the sciences, nationally and internationally.

The College is made up of eight departments; these are:

Department of Biochemistry & Biotechnology

Department of Chemistry

Department of Computer Science

Department of Food Science & Technology

Department of Mathematics

Department of Optometry and Visual Science

Department of Physics

Department of Theoretical & Applied Biology

ACADEMIC PROGRAMMES

The College currently runs twelve undergraduate programmes, and multiple postgraduate programmes at the Master's and doctorate levels, details of which are provided by the respective Departments. The College also provides service courses in Chemistry, Computer Science, Mathematics, Biology etc. to several other departments in the University.

To increase access to its programmes, the College offers some selected programmes by distance learning. These include postgraduate programmes in Environmental Science, Information Technology, Food Science & Technology, Forensic Science, Industrial Mathematics, and a top-up programme in Optometry & Visual Science, as well as undergraduate programmes, in Statistics, Information Technology, among others. It is envisaged that more programmes will be introduced onto the distance learning platform in the near future.

STRUCTURE OF COLLEGE

The College operates under a two-tier academic and administrative structure, headed by the Provost, who is assisted in the day to day administration by Senior Administrative support staff, and Heads of Department.

COLLEGE ADMINISTRATION

Prof. K. Obiri-Danso

Mrs. Margaret Dzisi

Mr. F. O. Boateng

Mrs. Hagar Atta-Obeng

Mr. Maxwell Agyemang –Yeboah

Provost

College Registrar

Ag. College Finance Officer

Ag. College Librarian

Senior Assistant Registrar

STAFF RECRUITMENT AND PROMOTIONS

The College was limited in its recruitment of new staff due to the general restriction on recruitment. During the period, ten (10) lecturers were recruited. The College will, however, continue its drive to identify and recruit high calibre staff for all its programmes.

Twenty-four Senior Members were promoted: One Associate Professor to Full Professor; Four Senior Lecturers to Associate Professors, and Nineteen Lecturers to Senior Lecturers. Three supporting staff were also promoted.

ACTIVITIES

The College and Departments witnessed some significant developments and activities during the period under review. The following are highlights of activities for the period:

College Seminar Series and Poster Presentations

The College Seminar Series and Poster Presentations was initiated last academic year to help strengthen the research capacity of members of staff, and to foster close collaboration between Departments in the College and Research institutions in Ghana and beyond, to advance knowledge in science to solve societal problems.

During the period under review, the College organized the second public seminar on 30th September 2015, with Dr. Marian Quain, a Senior Research Scientist and Leader of the Biotechnology Programme at Crops Research Institute, CSIR, as the Guest Speaker. She delivered a talk on the topic “Genetic Engineering: A Relevant Technology for Developing Countries with Ghana in the Picture”. The seminar attracted members of the university community and the general public.

Similar seminars held on the 28th of October 2015 and 24th February 2016, respectively, provided the platform for eight Senior Members pursuing PhDs in various specialized areas, to present their PhD research findings.

The College, in collaboration with the Students’ Association, SCISA, also put up a science exhibition on the 24th of February 2016 to climax the seminar presentation, and to mark the Association’s Week celebrations.

Commissioning of Optometry Eye Clinic

To provide quality eye care service to the university community, as well as the neighboring communities, an eye clinic has been set up at the College and is being operated by the Department of Optometry and Visual Science. The Clinic was officially commissioned by the Vice-Chancellor on the 21st of April 2016.

New Academic Programmes

In response to growing demands and changing trends, the College continues to review its academic programmes and introduce new programmes. In this respect, plans are far advanced to bring on board MPhil and PhD degrees in Biotechnology.

Award of Diploma Certificates in Environmental Health to School of Hygiene, Korle-Bu

Under a collaboration between KNUST and the Ministry of Health, which mandates the University to mentor all health training institutions in the country and award them degrees,

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the College of Science played a key role in the administration of examinations and the award of Diploma Certificates in Environmental Health to students of the School of Hygiene, Korle-Bu, Accra, in June this year. A total of eighty-three (83) students graduated.

KNUST Excellence Awards for Best Senior Member (Academic)

Prof. Samuel K. Amponsah of the Department of Mathematics, College of Science was honoured by the University at an Awards ceremony held on 4 July 2015, at the Great Hall, KNUST. He received the KNUST Excellence Award for the Overall Best Senior Member (Academic), in recognition of his excellent teaching and dedication to work.

DONATIONS

Through the initiative of the Dean of Students, Dr. K. Owusu-Daaku, the College received a consignment of books from Ramapo College of New Jersey, in the United States, to stock the College Library. The books covered disciplines in both the basic and applied sciences.

DEPARTMENT OF BIOCHEMISTRY AND BIOTECHNOLOGY

INTRODUCTION

The Department of Biochemistry and Biotechnology trains men and women for employment in academia and research in health, agriculture, biotechnology, pharmaceutical, and quality assurance units.

Over the past fifteen to twenty years the Department introduced undergraduate and graduate degree programs in Food Science and Technology which she nurtured to a full Department status in August 2014.

During the 2015/2016 academic year the Department engaged in several activities including research, teaching, and outreach programs in order to enhance student training, staff upgrading, and address some national problems within her domain. To achieve these, the Department embarked on introduction of new programs, initiated and strengthened collaborations with other institutions, and engaged in outreach and community projects. The activities carried out in 2015/2016 academic year are provided in the narrative below. In this report, activities on research, collaborations, workshops, special initiatives and outreach programs are provided.

STUDENT NUMBERS

The Department currently runs seven programs and has 421 students. Names of the programs and student numbers are listed below.

Undergraduate Biochemistry

First Year:	141
Second Year:	49
Third Year:	58
Fourth Year:	73
Total	321

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Postgraduates

MSc. Biotechnology	14
MPhil Biochemistry	20
MSc. Forensic	11
MPhil Forensic	9
MSc Human Nutrition and Dietetics	8
MPhil Human Nutrition and Dietetics	30
PhD Biochemistry	8
TOTAL	100

STAFF STRENGTH

Staff strength is 28 made up of one (1) Full Professor, six (6) Senior Lecturers, six (6) Lecturers, one (1) Assistant Lecturer and one (1) Technical Instructor including a member recruited in January 2016 to strengthen the Human Nutrition and Dietetics programme. The rest are one (1) Administrative Assistant, one (1) Clerical Assistant, eight (8) Technical Staff, two (2) Cleaners and one (1) Grounds man.

ACADEMIC PROGRAMMES

The undergraduate Biochemistry program continues to attract many students with background in High School biological sciences, chemistry, physics or mathematics. The Department has developed new initiatives for restructuring her programs to incorporate the following specialty areas by 2016/2017 academic year.

1. BSc Clinical Biochemistry
2. BSc Molecular Biology and Biotechnology
3. BSc Bioindustrial Technology
4. BSc Nutritional Sciences

These programs are of particular interest to the Department as they would permit linkage of theory to practice and fill a highly needed gap in the economy of Ghana. With regard to Bioindustrial Technology, plans are underway to develop and acquire machinery for commercial production of starch, enzymes, and industrial alcohol to give students hands-on training in biomanufacturing. The Department has ample research experience in manufacture of these industrial products.

Graduate training in Biochemistry encompasses MPhil and PhD biochemistry.

FORENSIC SCIENCE

The new graduate program in Forensic Science initiated in August 2014 with 12 students continues to attract men and women with background in biochemistry, chemistry, molecular biology, as well as individuals with working experience in investigative work, customs, drug control, etc. To strengthen the practical training, students are engaged in various programs with the Police Forensic Laboratory, The Ghana Standards Authority, and the E-Crime Bureau. This year, the Department initiated the MSc Forensic Science programme in the Institute of Distance Learning

BIOTECHNOLOGY

This academic year saw an increase in students opting for graduate Biotechnology. Two new programs on demand, MPhil Biotechnology and PhD Biotechnology are being considered for initiation in 2016/2017.

HUMAN NUTRITION AND DIETETICS

MPhil Human Nutrition and Dietetics program which started in 2012 is in its fourth year. Fourteen students have since graduated. A six-month attachment programme gives students experience in the National Diabetic Centre, the Burns ward, the Medical and Renal wards, the Out-patient Department and the Diet Kitchen at Korle Bu Teaching Hospital and Komfo Anokye Teaching Hospital. Additionally the one-year internship program offers students the acquired practical experience in dietetics for consideration for membership with the Allied Health Professionals Council following a licensure examination. The MSc Human Nutrition and Dietetics program was started in August 2015 in the Institute of Distance Learning.

SPECIAL INITIATIVES

The Department continues to run the KNUST Wellness Center which offers dietary counselling in collaboration with an exercise physiologist. The Department has started a mobile Wellness Programme with employees of the Banking Institutions on KNUST campus in March 2016 which has so far received good patronage.

The Human Nutrition Dietetics program has support to evaluate Effectiveness of Malnutrition eLearning Programme with funding from Nutrition Embedding Evaluation program (NEEP) with Dr. Reginald Annan as the coordinator.

THE CLEFT LIP/PALATE PROJECT

The Department collaborates with Jeff Murray Lab in University of Iowa, U.S.A. in a cleft Lip/Palate genotyping study in Ghana with Dr. P. Twumasi and Dr. FKN Arthur of the Department of Biochemistry and Biotechnology and Professor Peter Donkoh of the School of Medical Sciences as coordinators.

OUTREACH AND COMMUNITY IMPACT

In March, 2015, the Department initiated a health screening project involving KNUST campus workers, coordinated by Mrs. F.O. Mensah. The project began with workers of the Printing Press and Maintenance Department by research team from Biochemistry Department.

Challenges faced include the withdrawal of license to work in medical laboratory institutes following the separation

CAPACITY STRENGTHENING

Certificate Course in Human Nutrition and Dietetics

The Department has for the past four years organized a Short Course in Human Nutrition and Dietetics for health professionals under the leadership of Dr. Reginald Annan. The course is aimed at building capacity and competencies among health professionals for the prevention and treatment of under-nutrition and diet-related chronic diseases. This year, the course will be attended by over 60 health professionals from the District hospitals in Ashanti Region, with strong support from the Regional Health Directorate, Ghana Health Service.

WORKSHOP

The Department organized the first Neuroscience workshop in Ghana from 14-17 December 2015. It was attended by experts on the Center for Genomics research (CRG) in Spain. The workshop attracted 30 participants from universities in Ghana, Ethiopia, Cameroun, and Nigeria.

RESEARCH ACTIVITIES

Microbial enzyme Technology

Professor Mrs. V.P. Dzogbefia coordinates research in microbial sources of amylolytic enzymes.

Maize Improvement Program

The Department has embarked on studies into genetic profiling of maize in the genetic resource repository in Ibadan as well as characterization of Ghana maize varieties for genetic diversity coordinated by Dr. Antonia Tetteh. The project is aimed at identifying genotypes and alleles which can be used for improvement in maize yield and drought tolerance, as well as disease resistance. Similar project on genetic profiling of the antioxidant-rich medicinal plant *Hibiscus sabdariffa* in West Africa is also coordinated by Dr. Antonia Tetteh. Under a collaboration with the Biotechnology Center of the Crops Research Institute of the CSIR, Fumesua, the biotechnology program carried out a project on establishment of effective regeneration system for maize varieties in Ghana coordinated by Dr. Antonia Tetteh and Dr. Marian Quain.

Cancer Research

Research projects in anticancer components of medicinal plants, specifically, leukaemia, breast and prostate cancer is coordinated by Dr. FKN Arthur, Dr. C. Frempong, Dr. Christopher Larbie and Dr. F.C. Mills-Robertson in collaboration with the Noguchi Memorial Institute of Medical Research and University of Ghana, Legon.

Biofuel Ethanol

Dr. H.D. Zakpaa is actively engaged in research in production of ethanol from many cellulosic waste materials.

CHALLENGES

The prohibition of Biochemistry graduates from practicing as clinical Biochemists in Medical Laboratory establishment has introduced a new challenge for employment of biochemistry graduates. The Department has therefore, under the leadership of Dr. Christopher Larbie supported the initiative of Medical Sciences Society of Ghana and plans are underway to incorporate biochemistry graduates into the Society for job security.

Research Funding

Many of the research projects in the Department do not have funding, however work has progressed through the personal funds of the researchers with some support from KNUST Research and Conference Grant

Inadequate Laboratory Supplies

The Department is constantly faced with poor lab conditions with regard to equipment and consumables. There is urgent need to upgrade her labs to state-of-the-art status in order to permit better research initiatives which have the capacity to attract grants and bring solution to some national problems.

AWARDS

One MPhil Biochemistry graduate (2015), Mr. Dominic Amuzu won a fellowship to enroll in a PhD in the West African Centre for Cell Biology of Infectious Pathogens (WACCBIP)

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supported by the Wellcome Trust Developing Excellence in Leadership Training and Science (DELTAS) programme.

CONCLUSION

In the current year, the Department has made significant strides in the area of research, teaching and outreach. With support from the university it is hoped that more funding opportunities would be made available to upgrade her labs and expand her programmes.

DEPARTMENT OF CHEMISTRY

INTRODUCTION

The Department of Chemistry at KNUST is one of the most prestigious standalone Chemistry Departments in Ghana. The Department offers a 4 (four) year BSc. degree programme in chemistry in addition to MSc./MPhil. and PhD programmes. Currently, there 531 undergraduates (387 males and 144 females) and about 30 graduate students.

Below is statistics on the general performance of students in the Department in the past 3 years:

Undergraduate Students output by class

Classification	Current year (2014/15)	Past two years(2013/14)	Past three years (2012,13)
1 st Class	6	3	4
2 nd Class Upper	34	45	45
2 nd Class Lower	51	31	45
3 rd Class	-	-	-
Pass	3	-	-
Total	94	79	

Graduate Students output in terms of graduation

Classification	Current year (2014/15)	Past two years (2013/14)	Past three years (2012,13)
Male	4	19	
Females	10	4	
Total	14	23	17

The Department acknowledges the centrality of chemistry as a science and trains its students to take advantage of the myriad areas that chemistry can contribute to make the society better.

The Department has in place fairly furnished laboratories with equipment such as photometers, Gas Chromatograph (GC), Gas Chromatograph-Mass Spectrometer (GC-MS), Ion Chromatograph and Liquid Chromatograph-Mass Spectrometer (LC-MS) among others.

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As part of its desire to encourage and motivate students to be innovative and enterprising, it has instituted the chemical enterprise development initiative (CHEDI) programme through which students are trained to develop new products. CHEDI has become the brand name for the products of the department and features prominently at any exhibitions the department participates in.

N/B: The Department for the past two years has been collaborating with the Royal Society of Chemistry in organizing training in GC-MS skills for scientists in the West African Sub-region.

STAFFING

Academic Staff strength at the Department currently stands at twenty-one (21) made up of two Full Professors with one (1) on post retirement contract and the other on Part – Time, three (3) Associate Professors – one (1) on post retirement contract, eight (8) Senior Lecturers – one (1) being Head of Department and another on post retirement contract as well as eight (8) Lecturers with one (1) on study leave and another on part - time. These are supported by six technical staff and four administrative and ancillary staff.

DEPARTMENT SEMINARS

The Department is involved in the organisation of weekly seminars. The seminars are given by either invited speakers, staff of the department or by postgraduate students. The seminar series forms part of the training for the students. It offers postgraduate students the opportunity to either carry out research on issues of relevance to their programmes or give progress report on their research work. It also offers an opportunity for all the students in the department to be educated on some new trends in chemistry, science and technology as a whole or in enterprise, business or related issues.

RESEARCH AND GRADUATE TRAINING

Over the years, members of staff in the department have been actively engaged in research in different areas of chemistry. These include computational chemistry, polymer chemistry, catalysis, biofuel development, organo-metallic and bio-inorganic chemistry, natural products chemistry, pesticide chemistry, environmental chemistry, monitoring of heavy metals in the environment, monitoring and remediation of persistent organic pollutant and polycyclic aromatic hydrocarbons, green chemistry, petroleum chemistry etc. Since the beginning of the 2015/2016 academic year, some members of staff have been invited to make presentations at some international conferences/workshops.

VISITS AND VISITORS

In the year under review, the department hosted a number of academic scholars including the following:

Prof. Evans a Adei and Dr. Tia visited the Cardiff University Wales for a Royal Society-DFID Consortium Meeting in 2015

They also visited the University of Botswana for a Royal Society-DFID Research Meeting in January, 2016.

- i. **Dr. Godfred Darko and Dr. Marian A. Nkansah** hosted Prof. Matt Dodd, a Professor of Chemistry in the School of Environment and Sustainability of Royal Roads University, British Columbia, Canada from November-December, 2015.

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- ii. **Dr. Godfred Darko and Dr. Marian A. Nkansah** hosted Prof. Jesper Leth Bak and Prof. Anne Mette Lyyke from the Aarhus University, Denmark in April, 2016.

FUNDS/GRANTS

In the year under review, the Department has received a number of new grants in addition to old grants still running.

- i. **Dr. Godfred Darko**
Xenobiotics and heavy metals in Ghana (SHEATHE) Project. Seven million Danish Krone project funded by DANIDA
- ii. **Prof. J. A. M. Awudza**
2015 – 2021: Played a key role in arranging for support from the Royal Society of Chemistry (RSC), UK, through the Pan-African Chemistry Network (PACN) to organize a training workshop on practical applications and use of Gas Chromatograph-Mass Spectrometry (GC-MS) for chemical analyses for scientists from West African S Sub-region in 2015. Many staff from KNUST benefitted from this training programme. Based on the huge success of the first training programme, the RSC with support from Glaxo SmithKline (GSK) will be supporting the organisation of an international GC-MS training workshop in the Chemistry Department for the next five years with an amount of £21,000.00 per year. The next training programme comes off from 06 to 10 June 2016. The Chemistry Department has also now been accredited to run such training programmes.
- 2015 – 2019:** Royal Society-DFID Capacity Building Initiative: £1.25 million to implement a project on graduate training and 'Developing Materials for Applications in Solar Cells'. This is being done within a consortium comprising of UK partner, Prof. Paul O'Brien, CBE, FRS, of the University of Manchester, Prof. Johannes Awudza of Department of Chemistry, KNUST, Ghana, Prof. Neerish Revaprasadu of the University of Zululand, South Africa, and Prof. Peter Ndifon of the University of Yaounde, Cameroon.
- iii. **Prof. Evans Adei**
-Royal Society Leverhulme Grant with University College London: £150, 000.00 (ends in October, 2016)
-Royal Society—DFID Programme Grants (Consortium) £1,243,000.00: 2015-2020
- iv. **Dr. Lawrence S. Borquaye**
-Royal Society of Chemistry Travel Grant 2015 for an oral presentation at the 38th Annual International Conference of the Chemical Society of Nigeria (CSN) and 5th Congress of the Federation of African Societies of Chemistry (FASC), Abuja – Nigeria
-International Foundation for Science Collaborative Research Grant 2015 (15,000 USD)
Research title: Biodiversity Conservation through Bioprospecting for Novel Antiplasmodial Compounds from Africa's Rich Flora
Principal Investigator
-Pilot Research Grant from Building Stronger Universities II (BSU II) (10,000 USD)
Project: Identifying Native Lignocellulose Fermenting Fungi: The Ghanaian Example
Principal Investigator

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-Pilot Research Grant from Building Stronger Universities II (BSU II) (10,000 USD)
Project: Chemical Pollution Status of the Owabi Reservoir
Co-investigator

V. Dr. Nathaniel Owusu Boadi

An amount of ten thousand dollars (**USD 10,000**) awarded for the pilot project titled 'Chemical Pollution Status of the Owabi Reservoir in the Ashanti Region' on 22nd October, 2015 under BSU II – WP1: Climate Smart Agriculture and Agricultural Waste Management. N/B: The Department is grateful to colleagues for their handwork and congratulates all those who received grants during the year in review.

AWARDS/ACHIEVEMENTS

- i. **Prof. Adimado**
 - Was awarded 'Distinguished friend of council (W.A.E.C)' presented to in recognition of his outstanding contribution to the achievement of the objects of W.A.E.C. the first senior member of the KNUST to be conferred with such an award.
 - He was also accepted as a Fellow of the Ghana Academy of Arts and Sciences (GAAS)
- ii. **Dr. Evans Adei** was promoted to the rank of Associate Professor with effect from 2013
- iii. **Dr. J.A.M Awudza** was promoted to the rank of Associate Professor with effect from 2013
- iv. **Dr. Ray B. Voegorlo** was promoted to the rank of Associate Professor with effect from 2013
- v. **Dr. N.K. Asare Donkor** was promoted to the rank of Senior Lecturer
- vi. **Mr. J. Apau** was promoted to the rank of Senior Lecturer
- vii. **Dr. E.S. Agorku** returned from study leave with a PhD Chemistry degree.
- viii. **Dr. L.S. Borquaye** was part of the team that established the KNUST Central Laboratory
- ix. **Dr. Marian Asantewah Nkansah** was selected as one (1) of the fifteen (15) first cohort of young scientists below the age of forty (40) to be accepted as Affiliates of the Africa Academy of Science (AAS).

COLLABORATIONS

Matt Dodd, a Professor of Chemistry in the School of Environment and Sustainability of Royal Roads University, British Columbia, Canada, visited the Department for two weeks for a research on metal speciation and bioaccessibility in Kumasi. He brought with him a couple of portable instruments including a Niton XL3t XRF analyzer for in situ analysis of metals in soil samples (contact person: Dr. Godfred Darko).

- i. Jesper Leth Bak and Anne Mette Lyyke on SHEATHE Project (contact person: Dr. Godfred Darko).
- ii. Department of Chemistry, KNUST-School of Chemistry, University of Manchester (Contact: Dr. JAM Awudza)
- iii. Department of Chemistry, KNUST- University College, London (Contacts: Dr. Evans Adei & Dr. Richard Tia)
- iv. Department of Chemistry, KNUST - Laboratory of Toxicology, Graduate School of Veterinary Medicine, Hokkaido University (Contact: Dr Osei Akoto)
- v. Department of Chemistry, KNUST-Department of Chemistry, University of Bergen Petroleum Chemistry Project (Contact: Dr. Marian A. Nkansah and Dr. J.A.M Awudza).

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- vi. Dr Vera Thoss, Department of Chemistry, Bangor University. Bangor, (contact person: Dr. Godfred Darko).
- vii. Dr. Osei Akoto is the project leader on the collaborative research between

Laboratory of Toxicology Graduate School of Veterinary Medicine, Hokkaido University and Department of Chemistry KNUST:- April 2010 – March 2018. The Department of Chemistry, KNUST, Ghana and the Laboratory of Toxicology, Hokkaido University, Japan are involved in a collaborative research in Environmental Chemistry and Toxicology. Based on this two Ghanaian students (Nesta Bortey-Sam and Jemima Marfo) are currently undertaking their PhD. in the Laboratory of Toxicology, Graduate School of Veterinary Medicine, Hokkaido University.

Mr. Nesta Bortey-Sam is currently working on polycyclic aromatic hydrocarbon (PAHs) metabolites in domestic animals and human urine from Kumasi. Similarly, Jemima Marfo's research is based on the levels of neonicotinoid in some Japanese suspected to be exposed to the pollutant, and the possible medical implications.

Again, from this collaboration, a Japanese student, Go Otani recently obtained a MSc. degree from the Hokkaido University. His study was based on the levels and health effects of heavy metals in various environmental samples (soil, food animals, foodstuffs, drinking water) from Obuasi, Ghana and the possible effects of the mining activities in the region.

Again three senior members; Dr. Osei Akoto Dr.E. E. Kwaansa-Ansah, Dr. Godfred Darko and one PhD. Students (Mr Elvis Baidoo) from the department of chemistry have also benefited from this collaboration when they were sponsored to attend international toxicology conference which took place in S. Africa on the 3rd of September 2015.

MOUs

- i. Mr. Osei Akoto initiated the Academic exchange agreement between the college of science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana and Graduate school of Veterinary medicine, Hokkaido University, Sapporo, Japan. May 2013 – May 2018.
- ii. The Department is in the process of signing an MoU with the Department of Chemistry of the University of Bergen-Norway.

Workshops/Training

The Department of Chemistry of KNUST in collaboration with the Pan African Chemistry Network (PACN) of the Royal Society of Chemistry (RSC) organized the first Gas Chromatograph – Mass Spectrometer (GC-MS) training workshop for the West African Sub-Region from the 16th – 20th March, 2015. Another workshop has been planned for June 2016. This workshop will be held annually.

EXCHANGE PROGRAMMES

The Department has been host to a number of German students on the IAESTE (International Association for the Exchange of Students for Technical Experience) programme since 2006. IAESTE has recognized the contribution of the department for this programme and has awarded her with a certificate.

SERVICE TO COMMUNITY/APPOINTMENTS AND OTHERS

Members of staff in the department continue to offer a variety of services to community at local, national and international levels.

Prof. A. A. Adimado

UNIVERSITY

- a. Sept 2013 to Jan 2015: Chairman of committee on IDL – The Way Forward
- b. July 2013 to 2015: Chairman of Taskforce for MTech programme
- c. July 2011 to date: Chairman, Quality Assurance Unit within Institute of Distant Learning, KNUST.
- d. July 2011: Chairman, Committee to select Award Winners at 45th and 46th Congregations of the KNUST
- e. Feb 2012: Chairman, Committee of Enquiry to Investigate the Operations of the University Printing Press.

NATIONAL AND INTERNATIONAL COMMUNITY

- a. July 2015 to date: Chairman of Technical Committee to assess the preparedness of the ten (10)
- b. Polytechnics for conversion into Technical Universities.
- c. March 2015: Chairman of a three (3) Member Committee to investigate crisis at Wa Polytechnic
- d. July 2009 to Dec 2014 Appointed Chairman, Ho Polytechnic Governing Council (Appointed by His Excellency the President).
- f. Jan 2011: Chairman, Interview Panel to appoint Principals for the Ada, Atabubu, Foso and Offinso Colleges of Education
- h. May 2011: Chairman, Interview Panel to appoint Principals for the Akrokerri, SDA Asokore, Akropong Presbyterian and Jasikan Colleges of Education
- j. July 2011: NCTE Representative on the Governing Council of Offinso College of Education
- k. July – Sept 2011: Chairman, Committee appointed by NCTE to draw up Conditions of Service for the Colleges of Education in Ghana.
- l. April 2010: Appointed Member of Committee to harmonize COTVET and to NABPTEX Activities by Minister of Education.
- m. 1995 to date: External Examiner and Assessor to a number of Universities and Research.

A. Prof. J. H. Ephraim

- Prof. Ephraim is a fellow of the Ghana Academy of Arts and Sciences.
- He is the first vice chancellor of the Catholic University college of Ghana (CUCG)
- He also serves on the Editorial Board of a number of local and international journals.

B. Prof. J. A. M. Awudza

- (i) Serves as a resource person for ICS-UNIDO on next generation biofuels development in Ghana and the West African Sub-region.
- (ii) Fellow of the Energy Centre, College of Engineering, KNUST, and member of the Management Board of the Centre. In that capacity, he supports biofuels-based industries in Ghana.

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- (iii) Chairman of the Safety Committee of KNUST.
- (iv) Member, Board of Trustees, Centre for the Development of People, a national non-governmental organization.
- (v) Representative of the Royal Society of Chemistry in Ghana.
- (vi) Chairman of the LOC of the PACN, GC-MS Training Workshop
- (vii) Member of the International Advisory Committee for PACN Conference on Materials Chemistry. Chairman of the Local Organising Committee (LOC) for the PACN Conference on Materials Chemistry
- (viii) Participated in the PACN Local Advisory Board Meeting in Nairobi, Kenya as a representative from Ghana on 19 November 2015. I also participated in the PACN Congress on Health Care and Safety from 17 to 19 November 2015 held at the University of Nairobi, Kenya.
- (ix) As part of the implementation of our consortium project on Development of Solar Cell Materials, all the leaders of the consortium, organised a capacity building workshop for students and collaborators at the University of Zululand in November 2015. We all served as facilitators in that training programme. In addition, he visited University of Zululand again in March 2016 as a Zululand to discuss our research collaborations.

Dr. S. Osafo Acquaaah is the President of the Ghana Chemical Society. He also serves in the following capacities:

- (i) National Representative: Federation of African Societies of Chemistry (FASC).
- (ii) Member: Pan African Chemistry Network (PACN)
- (iii) Member of Council: Ghana Book Publishers Association
- (iv) Member of the University Centre for HIV/AIDS studies.
- (v) Reviewer for the Journal of the Ghana Chemical Society
- (vi) Science Coordinator: Institute of Science and Technology for Africa (ISTA), KNUST
- (vii) Resource Person: Cocoa Research Institute of Ghana and Building and Road Research Institute of CSIR-Ghana.

C. Mr. N.K. Asare-Donkor is the Vice President of the Ghana Chemical Society and a resource person for the WAEC.

D. Mr. E. E. Kwaansa-Ansah

- i. Hall Master. University Hall-KNUST
- ii. A resource person for WAEC.
- iii. Serves as member of the working group: Integrated assessment of water sustainability, infrastructure inequity and health in small scale gold mining communities (ASGM) in Ghana.
- iv. Fellow of University of Michigan African Presidential Scholars Program
- v. Member of Ghana Chemical Society
- vi. Member of Ghana Science Association
- vii. Reviewer to the Science of the total environment and other journals.

E. Mr. Apau is a resource person for WAEC.

F. Dr. J.K. Mensah is a resource person for WAEC

G. Mr. Nathaniel Owusu Boadi

College of Science

- i. Resource person for WAEC and also serves as reviewer to the Journal of Food Chemistry. He was the Secretary to the LOC of the just ended RSC-PACN GC-MS Training Workshop.
- ii. President of Ghana Science Association, Kumasi Branch from October 1, 2015 to September 30, 2017.

H. Dr. Marian Asantewah Nkansah

- i. NCTE Representative on Governing Board. SDA College of Education. Agona Ashanti (Jan. 2016-date)
- ii. Member, Council of Convocation. KNUST, Kumasi (Jan. 2016-date)
- iii. Has been appointed as a fellow of the Ghana Young Academy (GhYA).
- iv. She was nominated by the Ghana Academy of Science (GAAS) to represent Ghana at the Academy of Science of South Africa's conference (ASSAf) for Young Scientists in October, 2014.
- v. She is a reviewer for the *Journal of Science and Technology* (JUST) and the *Fresenius Environmental Bulletin*, Polar Scientific Publications, Angerstr. 12, 85354, Freising-Germany.
- vi. Member: International Federation of University women (IFUW)
- vii. International Union of Pure and Applied Chemists: Sponsored Affiliate
- viii. Member of the United Nations online volunteering network
- ix. Member of LOC, PACN Training Workshop
- x. Member, Royal Society of chemistry

I. Dr. Godfred Darko

- i. Appointed Head of the Department of Chemistry, KNUST for a second term
- ii. Member, Ghana Young Academy (GhYA) of the Ghana Academy of Arts and Sciences (GAAS)
- iii. Editor: Environmental Monitoring and Assessment (Springer).
- iv. Editor: Heliyon (Elsevier's open access journal that publishes across scientific disciplines)
- v. Editor: Journal of Food Technology and Nutrition Sciences
- vi. Advisor: Mendeley (Elsevier's free academic referencing tool)
- vii. External Assessor: University of Cape Coast, Cape Coast
- viii. External Examiner: University of Cape Coast, Cape Coast
- ix. External examiner: University of Ghana, Legon, Accra

K Dr. Mrs. Mercy Badu

- i. A reviewer of three International Journals, Editorial member of College of Science Newsletter, WAEC resource person and Ghana Science Association, Chemistry Department Representative.
- ii. Instrumental Access Reviewer, Seeding Labs 2016 Instrumental Access program.

J. Dr. N.K Asare Donkor

He is a reviewer to the following journals:

- i. Journal of Molecular Modelling
- ii. Journal of Science and Technology
- iii. Peak Journal of Public Health Management
- iv. Journal of Public Health Management

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- v. International Research Journal of Public and Environmental Health
- vi. International Journal of Environmental Science and Technology
- vii. International Journal of Applied Microbiology and Biotechnology Research

K. Dr. Akwasi Acheampong

- i. Resource person for WAEC
- ii. UTAG Secretary, KNUST:2015-date
- iii. Member, Council of Convocation, KNUST:Jan. 2016-date

L. Dr. Lawrence S. Borquaye :

- (i) Serves as an attaché at the KNUST Central laboratory.
- (ii) Is a resource person for WAEC
- (iii) Assistant Laboratory Manager. Central Laboratory -Kwame Nkrumah University of Science and Technology, Kumasi

N/B: The Department offers laboratory services to a number of individual and institutional clients, e.g. Chemical Engineering Department of Kumasi Polytechnic, World Vision, Food and Drugs Board, Guinness Ghana Ltd. Coca Cola Company Ltd and individuals.

PROJECTIONS

New programmes under consideration include;

- Oil and gas Chemistry
- Petroleum Chemistry and Technology
- Cosmetic Science (Cosmetology)
- Forensic Science / Chemistry and Toxicology
- Pesticide Chemistry
- Medicinal Chemistry
- Glass Technology / Chemistry
- Chemistry and Enterprise

PUBLICATIONS/CONFERENCES

Nineteen (19) Academic members of staff of the department have eighty-seven (87) publications to their credit while a member has to his credit two (2) presentations made and those details can be found in the University's Quality Assurance Bulletin for the relevant years.

DEPARTMENT OF COMPUTER SCIENCE

INTRODUCTION

The Department started off in 1977 with 1-year certificate course in Data Processing, which was later changed to a 2-year Diploma programme. A few years later, the Department introduced a 3-year degree programme in Computer Science. The Department was the first Department in the country to start a degree programme in Computer Science and this has been recognized by the government through the Ministry of Communication. As such, late 2007, the Department was presented with an award during the Information Communication and Technology Award night.

College of Science

Our World is immersed in intense technological, financial and political changes, which are re-ordering the rules governing business competition. Information Technology (IT) managers must have the capacity to assimilate new technological changes and transfer strategic processes in Organizations in order to succeed.

In today's rapidly changing World, maintaining global competitiveness requires the talents of well-rounded, holistic individuals with technical knowledge and business acumen to address challenging issues. The Computer Science Department is unique in developing the skills in Information Technology.

Presently the Department of Computer Science performs two main functions, namely academic and the provision of computing services. In addition, faculty members are involved in various research activities and software development.

The programmes currently at the Department are BSc Computer Science, BSc Information Technology (in Distance Learning mode), MSc/MPhil in Computer Science and MSc/MPhil in Information Technology.

Since the establishment of the Department over two decades ago, the Department tops the list of graduates produced since 1962 by the College of Science with a total number of over 4000 graduates in Computer.

ACTIVITIES

Teaching

The Department currently runs a 4-year degree programme in Computer Science in both the regular and the parallel modes with emphasis on systems development, networking and computer programming. The programme prepares students adequately for careers as system programmers, software engineers, system analysts, system designers and application programmers. The tuition given to students is such that they can also set up their own computer businesses after completion. In addition to these, the Department offers service lectures in computer appreciation and computer programming to students in other departments of the University. The undergraduate student population in the Department is over 600 with the breakdown as follows.

The Department, through the office of the Provost of College of Science during the year under consideration has acquired one hundred (100) new state of the art computers to increase the total number of Computers to over two hundred (200) to improve practical work. There are three well equipped computer laboratories and these are networked.

There has been a sharp increase in the number of postgraduate students graduating. This is as a result of increase in the research activities by students and members of staff.

Also, a good number of our PhD students are in the final stages of the research works and a couple of them are likely to graduate in November 2016.

The number of teaching staff has not seen any change for over two years now, however, by the start of the 2016/2017 academic year the number will go up by two with one new appointment and the return of Mr Michael Bosu who was granted study leave about four years ago to pursue PhD abroad. Mr Bosu is awaiting for his dissertation defense and will return to the service of the Department once he is done with that. During the year under

College of Science

consideration three members of teaching staff have put in their applications for promotions and it is the hope of the Department that by the end of this year or next year the Department would have at least two Associate Professors for the first time in the history of the Department and also an increase in the number of Senior Lecturers.

ACADEMIC STAFF

The department has thirteen (13) academic members of staff made up of two (2) Senior Lecturers – one of them as Head of Department, and eleven (11) Lecturers with three (3) of them on post retirement contract appointment.

RESEARCH

Current research being undertaken in the Department is in the area of software engineering. Research is also being undertaken in the area of computer aided learning with special emphasis in the use of computers in instruction at the primary and the secondary levels of the education system of the nation.

There has been a tremendous increase in research work during the 2015/2016 academic year and this has resulted in high number of published works mostly in international journals.

SERVICE TO COMMUNITY

The Department continues to organize computer appreciation programmes for members of staff of the University and other people from outside the University. This programme normally takes place during the long vacation. The students of the Department also embark on Computer Appreciation programmes every year to educate students in first and second cycle institutions on Information and Communication.

Members of staff continue to serve the community in the following areas:

- a. As Consultants to the **National Accreditation Board** in assessing Computer Science programmes and its related areas for accreditation and also in Academic Auditing of tertiary institutions in the country
- b. As External Examiners/moderators to sister universities: University of Ghana, University of Education-Kumasi Campus, University of Cape Coast, Regent University College of Science and Technology, All Nations University College, Catholic University College of Ghana, Advance Institute of Technology (AIT), University for Development Studies, Valley View University, Christian Services University College, Christ Apostolic University College, Central University College, DataLink Institute, Bluecrest College, Garden City University College, Fountainhead Christian College, Kumasi Polytechnic, etc.
- c. As External Assessors for promotion to a number of sister universities, University Colleges and the Polytechnics.
- d. As Examiners to West African Examination Council (WAEC)
- e. As referees to a good number of Local and international journals
- f. IT Consultant and IT Advisor to a number of sister tertiary institutions in the country.
- g. Motivational speakers in a number of institutions
- h. Serves on a number of Committees within the University
- i. As subject Experts to Africa Virtual University (AVU)

APPRECIATION

- (i) The Department for quite some time now continues to receive assistance from the following Institutions to enhance teaching and learning activities in the Department: SSNIT, Guinness Ghana Limited, Ghana Immigration Service, VALCO, most of the Banks, Kofi Annan Peace Keeping Centre, GenKey Africa, SG-SSB, SIC BSystems, Ghana Ports and Harbours Authority, Ghana Telecom, SSNIT, Tema Oil Refinery, VALCO, VRA, Meltwater Entrepreneurial School of Technology, STL, SAMBUS, etc.
- (ii) The Department is also very grateful to Dr Kwabena Riverson of CSIR who used to be the External Examiner for the good number of MSc and MPhil students he assessed and graduated over the years.
- (iii) The International Business Machines (IBM) has approved an amount of two hundred and fifty thousand dollars (\$250,000.00) through the initiative of Dr M. Asante to set up a state of the art simulation laboratory for our postgraduate students to strengthen research activities in the Department.
- (iv) The Department is also very grateful to Prof W. Oblitey of Indiana University of Pennsylvania who has been donating books to members of staff to enhance our teaching.

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

INTRODUCTION

The Department of Food Science and Technology continues to provide scientific and technological training to students and professionals in the food and beverage industry. The Department offers programmes such as BSc, MSc, MPhil and PhD Food Science and Technology. We also offer an MSc Food Quality Management on Distance Learning platform. Our graduates continue to work in the food and beverage industries for local and international companies, as entrepreneurs, or pursuing further studies.

STUDENT STATISTICS

The student population is two hundred and sixty-three (263) and the breakdown is as follows:

Programme	Year	Number Enrol
BSc	One (1)	49
	Two (2)	25
	Three (3)	31
	Four (4)	34
	Total	139
MSc	Regular	14
	IDL	84
	Total	98
MPhil		8
PhD		18
Total		263

STAFF STATISTICS

The current staff strength stands at seventeen (17): two (2) Professors, one (1) Associate Professor, three (3) Senior Lecturers, one (1) Senior Research Fellow, six (6) Lecturers, (3) Technical staff and one (1) Administrative staff. The Department currently has (2) visiting Professors, Kolawole Olumuyiwa Falade, from University of Ibadan, Nigeria and Benjamin Kofi Simpson from McGill University, Canada.

PROMOTION

Mr. E. Y. A. Amankwah had his promotion from lecturer to senior lecturer stature in the year under review.

RECRUITMENT/TRANSFERS

Dr. Yaa Asantewaa Kafui Klu joined the teaching staff while Abigail H. Ntiamoah and Akley E. Mighty joined as technical staff to augment our fast growing and rapid service demand in our laboratories by clients.

GRADUATE STUDIES

With the vision to produce high calibre Food Science and Technology professionals, the Department runs high standard research and teaching programmes at the MSc, MPhil and PhD levels. These programmes offer excellent scientific and research training in Food Science and Technology. During the period under review, six (6) postgraduate students (comprising 1 MPhil Food Science and Technology, 3 MSc Food Science and Technology and 2 MSc Food Quality Management) defended their theses whilst 13 MSc Food Quality Management, 4 MSc Food Science and Technology, 2 MPhil Food Science and Technology and 1 PhD Food Science and Technology students have submitted their theses awaiting defence.

STUDENT ACTIVITIES

The Department of Food Science and Technology has through the DANIDA Roots and Tuber Project exhibited products at the opening ceremony of the “if you love me...” exhibition organized at the Loco Shed of Kumasi Railway on 15th April, 2016. The team partnered with Captain’s Kitchen which is led by a postgraduate student of the Sculpture Department working on Food Art. Students took part in the Trade and Technology Fair organized by the Students’ Representative Council (SRC) of KNUST from 13th to 15th April, 2016.

RESEARCH ACTIVITIES IN THE DEPARTMENT

The Department continues in active research in various areas of endeavours resulting in a number of publications in both national and international journals. These research areas include, value addition to root and tubers, inclusion of High Quality Cassava Flour in bread making, investigating the potential food applications of ackee, hydrocolloids and polysaccharide studies on okra, neglected underutilized legumes, food toxicological studies, value addition to rice and rice bran products, traditional foods, palm weevil larva, etc.

AWARDS

Students of the Department won awards at the 5th One-day Research Seminar and Poster Presentations held on 13th April, 2016 by Ghana Science Association (GSA) Kumasi-Branch at BRRI-CSIR-Fumesua. The first and third award in the poster presentation category was taken by Mr Matthew Achaglinkame and Ms. Anita Owusu respectively. Ms. Maame Akua Manful won the second award in the oral presentation category. We say *Ayekoo*.

College of Science

Dr. Jacob K. Agbenorhevi was awarded the Netherlands Fellowship Programme (NFP) Scholarship Award for the International course Lost Harvest and Wasted Food 2015 at the Centre for Development Innovations - Wageningen University, 14-25 September 2015. Finally, the Department has instituted an award scheme to reward students who excel in the programme at the end of each academic year.

RESEARCH GRANT/AWARDS

Dr. Jacob Agbenorhevi has won a research grant of Gh<10,000.00 from the KNUST Research Fund.

Dr. Herman Lutterodt and colleagues won a research grant of US \$10,000 from Building Stronger Universities (BSU) II project WP2 entrepreneurship and job creation to support the research *Improving shelf life of processed cereal based foods by cereal processing company*. Dr. Lutterodt and colleagues also won a research grant from Aspire Food Group worth US \$5,000 to support the research *Improving consumption of palm weevil larva (akokono) through development of nutritious products*.

Dr. Agbenorhevi's PhD Student, Mr. Fidelis M.K. Kpodo has also been awarded a fellowship from the Robert S. McNamara Fellowships Program (RSM), from the World Bank to support the research on: "*Characterization of polysaccharide extract from different okra genotypes for useful applications in food systems*" at the University of Huddersfield, UK, from July to December 2016, under Dr. Vassilis Kontogiorgos as Advisor. The RSM fellowship award is worth US \$25,000.

Ms Mavis Owureku-Asare, a PhD student in the Department won an award worth \$19,961 from the Norman E. Borlaug Leadership Enhancement in Agriculture Program (LEAP) to support her research at Purdue University, USA.

Roseline Esi Ahene, a PhD student in the Department won a six month research award to India as part of her study in the year under review.

PROJECTS

Current research projects run in the Department include *Improving Quality, Nutrition and Health: Impacts of inclusion of HQCF in Bread formulations in West African (Ghana and Nigeria)* sponsored by IFAD and administered by IITA and McGill University, *Strengthening root and tuber value chains in Ghana* sponsored by DANIDA, *Improving consumption of palm weevil larva (akokono) through development of nutritious products* sponsored by Aspire Food Group, *Improving shelf life of processed cereal based foods by cereal processing company* sponsored by DANIDA and USAID *Feed the Future's Peanut and Mycotoxin Innovation Lab (PMIL)*.

DEPARTMENTAL SEMINAR

The Department held the 3rd part of the Graduate Skills Development Course on 25th-26th February, 2016. The following topics were covered by the respective lead facilitators:

- * Guide to writing CV/Resume and Application for jobs: Dr. J.K. Agbenorhevi
- * Risk Analysis using the @Risk Analyser software: Mr. I.W. Ofosu
- * Guide to writing thesis- Standard Format: Dr. F. Alemawor
- * Proposal writing for Grants/Funding your research: Mr. J. Barimah & Dr. F.D. Wireko-Manu
- *

- * Publication- publishing your research (some of the useful tips or guidelines for research publication): Dr. G. Darko.

CONFERENCES AND CAPACITY BUILDING

Conferences and workshops organised by the department in the year under review include: the one-day 1st National Food Fraud Conference, 5-day workshop and conference on Food Scape and 10-day Training-of-Trainers Course on “Everything you need to know about Sweetpotato”.

PUBLICATIONS

During the year under review, a total of 37 published articles in peer reviewed journals and conference papers arose out of the research activities by academic members and students. These can be found in the University’s Quality Assurance Bulletin Vol. 12.

COLLABORATION

Partnership with Food Manufacturing Companies such as Maslenda Fruit Processing, Premium foods Limited, Quarma Foods, Promasidor, Niche Cocoa, Cocoa Processing Company, Food Research and Crop Research Institutes - CSIR, International Potato Center amongst others in order to equip students with hands-on experience in basic industrial processes. Partnering Traditional processing communities around KNUST in improving their standards of operation like the Angloga Gari Processing Communities.

LABORATORIES

GENERAL FOOD ANALYSIS LABORATORY

Presently, the Laboratory is equipped with instrument that can run the following analyses; texture, physicochemical, functional and pasting properties, oil quality parameters, and phytochemical and anti-nutrients. In the year under review, the laboratory received about 224 samples from students outside of the Department and private entrepreneurs. As the department seeks to expand in diverse ways, we are also hopeful to expand the number of services we render as a laboratory to include micronutrient analysis, rheological properties, particle size distribution, colorimetry, etc.

In order to meet our obligations as a Department dedicated to excellence in students training and research as well as service to the community, the Department applied for a loan from the University to equip current laboratories. Equipment to be procured and supplied were designated into three major categories namely General Laboratory, Food Composition Analysis and Product Development.

MYCOTOXIN (AFLATOXIN) LABORATORY

The Mycotoxin Laboratory continues to run both analytical and consultancy works for food processing industries, researchers and the general public on cereals and grains. The laboratory was selected under the USAID Feed the Future Innovative Labs for the Peanut and Mycotoxin Innovation Lab (PMIL)” – Ghana Value Chain from October 1, 2014 – July 30, 2017 with researchers and collaborators from Ghana and the USA. The laboratory is responsible for sampling, analyzing and interpreting aflatoxin results for peanuts treated under different conditions from Northern and Southern Ghana. The laboratory received consumables and test kits to the tune of Forty Thousand US Dollars (40,000 USD)

FOOD PROCESSING UNIT

Food Processing unit has been set up with hammer mills, flour mixer, chipper, commercial oven, and solar dryer which are currently in use. The solar drier has been fenced and handed over to the Department by the Development Office.

INCOME GENERATION

In the year under review, revenue was generated from the Food Analysis and Quarma Foods.

DONATION

Miss. Jolene Mateko Nyako, an alumnus of the Department donated books and journals worth £4000 to the Department which have subsequently been forwarded to the College of Science library. The donation was supported, by her Lecturers Dr. Ihab Tewfik and Dr. Sally Parsonage and PhD Students led by Miss Louise Usher at the University of Westminster, UK. Maslenda Fruit Processing, Quarma Foods, Ernie Catering Services also donated towards the First National Food Fraud Conference.

VISITORS

Three international students Elisabeth Koch of Martin-Luther University, Angela Susanna Schmidt of Technische Universität München and Eva Schmorl of Rheinische Friedrich-Wilhelms-Universität Bonn had their IASTE-Ghana exchange program and internship in the Department.

The Department hosted the third quarterly meeting of the *International Institute of Tropical Agriculture (IITA)*-McGill Cassava Project. In attendance were representatives from the main collaborating institutions; McGill University, Canada, IITA, Nigeria, and the implementing partners; KNUST Kumasi, Ghana and three Nigerian Agricultural Universities (Umudike, Makurdi and Abeokuta).

The Department welcomed three delegates from ISA Lille, France to deliberate on a double degree program between the two institutions.

COMMUNITY SERVICE AND IMPACT

In the year under review, the Department organised Food Hygiene and Safety short courses for food vendors in and around KNUST, Obuasi Municipality and staff of Ellbells Catering and Logistics Company Limited, Tarkwa. Workers at the Anglo Gari Processing Factories were trained on Good Manufacturing Practices (GMPs). Obuasi Miners Wives Association were trained on production of assorted drinks. The Project, KNUST-CRI Improved Yam Storage for Food Security and Income under the sponsorship of AUSAID Development Research Awards (ADRA) organized community training on diversified yam-based food products. Eighteen (18) communities in 4 regions of Ghana namely Northern, Ashanti, Eastern and Brong Ahafo were participants in the training.

The Department of Food Science and Technology together with Ghana Street Foods Project, a project managed by the College of Agriculture and Natural Resources, with funding from DANIDA, researched into ways of improving the safety of street vended foods.

Communication generally brought academia and the various sub metros together within workshop. A couple of sub metros were covered in Kumasi metropolis but one major workshop was organized in Tamale. This workshop brought street food vendors, the metro health officials

and environmental health and sanitation officers together. The workshops were covered by on various television and radio news programs.

CONCLUSION

The 2015/2016 Academic Year has been very successful and we would like to express our sincere gratitude to all those who supported the Department in various ways to excel in research, teaching and service.

DEPARTMENT OF MATHEMATICS

INTRODUCTION

The Department of Mathematics of this university, as a leading centre of excellence of Mathematics in Ghana, is vigorously pursuing a dynamic agenda of providing world-class research with dedication to teaching as well as an up-to-date comprehensive training at both undergraduate and graduate levels.

Mathematics plays a crucial role in our efforts to understand the nature of the physical universe and in the continuing development of our technological society. A degree in Mathematics provides an excellent base on which to build a career in virtually any high technological field and provides a particularly strong foundation for advance study in Science, Engineering and Finance. Though the department is small in terms of numerical strength, it is able to offer a spectrum of courses in Mathematics, Actuarial Science and Statistics and their applications.

PROGRAMMES

Undergraduate Level

Undergraduate programmes have been restructured to provide a strong educational foundation in Mathematics, Actuarial Science and Statistics. Students upon graduation can therefore readily provide specialized skills at the middle level of business as well as in non-profit making organizations.

Currently, undergraduate programmes offered in the Department are BSc. in Mathematics, BSc. in Actuarial Science and BSc. in Statistics.

The Mathematics Department currently boasts of 1430 undergraduate students.

The table below shows the number of students in the various undergraduate programmes:

PROGRAMME	YEAR ONE	YEAR TWO	YEAR THREE	YEAR FOUR	TOTAL
BSc. Mathematics	103	104	90	115	412
BSc. Actuarial Science	94	121	161	197	573
BSc. Statistics	216	75	70	84	445
TOTAL	413	300	321	396	1430

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The BSc. Actuarial and Statistics programmes will produce the 8th and 2nd batches of graduates respectively in June this year.

This academic year (2015/2016), about one hundred and fifteen (115) students will graduate with BSc. Degree in Mathematics; one hundred and ninety-seven (197) students with BSc. Degree in Actuarial Science and eighty-four (84) students with BSc. Degree in Statistics.

Graduate Level

The Department offers the following graduate programmes; Mphil Mathematics, Mphil Actuarial Science, Mphil Mathematics as well as PhD in Pure Mathematics, Applied Mathematics and Mathematical Statistics.

The Mathematics Department currently boasts of 102 graduate students

The table below shows the number of students in the various graduate programmes:

PROGRAMME	YEAR ONE	YEAR TWO	TOTAL
Mphil Statistics	2	16	18
Mphil Pure Mathematics	5	9	14
Mphil Applied Mathematics	13	14	27
Mphil Actuarial Science	3	12	15
TOTAL			
PhD Applied Mathematics (All Year Groups)	24	24	
PhD Mathematical Statistics (All Year Groups)	2	2	
PhD Pure Mathematics (All Year Groups)	2	2	
TOTAL			102

Fifty-two (52) students are expected to graduate with Master's Degree in Mathematics (distance learners included) or PhD in Mathematical Sciences.

ACADEMIC STAFF

The Department has highly qualified and experienced academic staff. The staff strength is twenty-six (26) comprising two (2) Associate Professors, fifteen (15) Senior Lecturers, Seven (7) Lecturers, and two (2) are on study leave. Almost all the lecturers in the department participate in programmes that generate original research papers.

STAFF DEVELOPMENT

Dr. S. K. Appiah who pursued further studies abroad has joined the Department after successfully completing his PhD programme in Statistics.

PHD PROGRAMME

The Department has in place a PhD programme for staff with MSc/Mphil degrees. Second degree holders are encouraged to consider, as a matter of urgency, to undertake PhDs. Staff are encouraged to establish international links with institutions and individuals.

SERVICE TO COMMUNITY

Support for Seminars, Conferences and Workshops (national and international)

The Department encourages staff to attend seminars, conferences and workshops which are relevant to their career development to enhance their capacity of teaching and learning, and also get involved in community/national as well as internationally related programmes.

RESEARCH SUPPORT

Staff members are also supported to undertake research work necessary for the development of expertise in the field of mathematics. To this end, staff are encouraged to work in teams, thus, joint publications are encouraged.

RESEARCH

Tremendous research is continuously being undertaken by staff in the areas of Pure and Applied Mathematics, Actuarial Science, Finance, and Statistics, some of which have resulted in numerous published papers.

Research interests of academic staff currently include Algebra, Complex Analysis, Functional Analysis, Topological Dynamics, Actuarial Modelling, Financial Mathematics, Numerical Analysis, Heuristics Mathematical Physics, Optimization and Control Theory as well as Mathematical Modelling using differential equations, difference equations, wavelets, statistical and stochastic approaches.

ACTIVITIES

Teaching

Our modern world has (been transformed by the achievements in pure and applied disciplines grounded in mathematics and technology. The Department of Mathematics has an extensive commitment to mathematics at all levels, from the preparation of future lecturers/teachers to equipping students with relevant expertise for the corporate world, and to grooming students for research. The Department offers courses in mathematics to its allied sciences like engineering, social sciences, and to almost all programmes run in the University. Courses are conducted in an activity-based mode of instruction in well-equipped classrooms and computer laboratories.

COLLABORATIONS WITH EXTERNAL BODIES

The Department has collaboration with AIMS-GHANA where some of our staff teach Mathematics and supervise Master's students. International collaboration include active research and exchange links with Eastern Connecticut State University, USA, Stellenbosch University, South Africa, North Carolina State University, and Leicester University, UK.

CONFERENCES

Members of staff attended various national and international conferences in the year under review.

BENEFACTORS AWARD

Prudential Insurance Company Ghana has instituted an annual award for the top five (5) BSc. Actuarial Science Students. Each awardee shall receive a cash prize of 500 US dollars (\$ 500) as well as financial support in the form of books and examination fee (if any) for two academic years.

College of Science

HONOURS

A PhD student in the department, Perpetual Saah Andam secured the *first position* in oral presentation at the 5th One Day Research Seminar and Poster Presentations organized by GSA Kumasi Branch on the theme “*Science and Technology: Key to our National Development* “ and held on April 13, 2016 at the Artisan Training Centre, CSIR – BRRI, Fumesua.

WAY FORWARD

The Department in the foreseeable future, seeks to introduce PhD and Mphil in Biostatistics, and a BSc. Financial Mathematics programme.

DEPARTMENT OF OPTOMETRY AND VISUAL SCIENCE

The Department of Optometry and Visual Science is one of the five Departments in the College of Science. The Department runs a 6-year Doctor of Optometry programme.

STUDENT POPULATION

There are currently 204 students in the department.

STAFF

The department has ten (10) academic staff made up of two (2) Senior Lecturers with one of them being head, four (4) Lecturers, one (1) Assistant Lecturer on study leave and three (3) Technical Instructors and a total of four (4) support staff made up of a Senior Administrative Assistant, a Senior Technician, an Assistant Technician and a Head Cleaner/Messenger.

ACTIVITIES

Teaching

The Department offers courses and electives of sufficient depth that ensures that the department is placed at the cutting edge of Optometric education in the country. These include the right mix of lecture courses, practicals, seminars, externship and internship and also operating students clinics all geared towards excellence and confidence building that is very necessary for future professional work.

The goal of the Department continues to be the training of students to eventually pass out as primary healthcare practitioners of the eye and visual system who provide eye and vision care which includes refraction, dispensing, detection/diagnosis of disease in the eye, management and or referral. The training emphasizes that, even though they are usually the first contact for people with eye problems, they are part of a team and need to work with other health professionals including ophthalmologists, ophthalmic nurses and opticians to give the patient comprehensive eye and vision care.

COLLABORATION

The Department collaborates with several eye clinics all over the country for the clinical training of the students. Students visit some of these clinics during the semester and others for attachment during the vacation. OD 6 students spend 12 weeks of a semester in an external clinical setting. Listed below are the eye clinics and hospitals used in the collaboration;

- St. Dominic’s Hospital, Akwatia

College of Science

- Koforidua Central Regional Hospital, Koforidua
- Tamale Regional Hospital, Tamale
- Westphalian Hospital, Oyoko
- Emmanuel Eye Centre, Accra
- Tema General Hospital, Accra
- Sunyani Regional Hospital, Sunyani
- Kumasi South Hospital, Kumasi,
- Komfo Anokye Teaching Hospital, Kumasi,
- Asamang SDA Hospital,
- VRA Hospital, Akosombo.

TURNKEY PROJECT

Under the Turnkey Project, one of the laboratories in the Department was selected among a few others in the College to be refurbished and stocked with state of the art modern equipment. The commissioning of this project was done in November 2010. This laboratory has gone a long way to greatly enhance the teaching, learning and quality activities of the Department.

OPTOMETRY EYE CLINIC

With current progress being made, it is expected that 2015/2016 academic year the department will be operating its new clinic. It will be opened to general public on April 21, 2016 and accessed by the University community. The Clinic is located in the College of Science Complex Building (Basement).

INCOME GENERATION ACTIVITIES

The Optometry Eye Clinic, which also doubles up as a teaching clinic will generate income for the Department, it will be running at the College of Science Complex premises. This clinic will be well equipped and continue to enhance the services the Department offers to the community.

RESEARCH AREAS

Senior members of the Department are involved in various researches in the following areas:

- Visual status of school children
- Environmental vision in the workplace
- Nutrition and Vision
- Link between visual status and academic performance
- Refractive error development and etiology of myopia
- Accommodative and vergence dysfunctions in poorly performing and inattentive basic school children
- Accommodative and vergence dysfunctions amongst KNUST students
- Randomized, double-masked trial of atropine vrs. cyclopentolate – phenylphrine combination in cycloplegic refraction
- Trend in refractive error changes after cataract extraction
- Patient satisfaction with cataract extraction and refractive error correction after cataract extraction
- Refractive error in tertiary students
- Prevention of cataract – potentials of some herbal preparations
- Prevalence and causes of blindness and low vision in rural communities
- Ocular morbidity amongst young people in the rural community

SERVICE TO THE COMMUNITY

Staff and students of the Department have been continually involved in outreach programmes to institutions, schools, churches, children's' homes, market places and other gatherings to perform vision screening and eye examinations, and this is usually in deprived communities in Ghana on a regular basis. Faculties on such occasions give talks on Primary Eye Care. One of such volunteer outreach programmes was conducted at Nkoranman Senior High School, Seikwa from **24th to 25th March, 2015** during the School Silver Jubilee Celebration. Over 500 individuals were screened.

The Department took part in a Humanitarian Vision Screening Exercise for Children in an Italian Ship at the Tema Harbour from the **5th to 10th of March 2014**. This is a very important humanitarian action that the Italian Navy through the Cavour Aircraft and its fleet with the Fondazione Francesca and other organization are implementing along the ports of the African continent.

Members continue to serve on the Academic Board and various subcommittees in the University.

STAFF DEVELOPMENT

Two staff members are currently taking graduate studies, PhD Programme in Vision Science at the School of Optometry and Vision Science, University of Waterloo, Ontario, Canada and the other Master of Science and PhD programme in Vision Science at Ohio State University. Also, the staff continuously take advantage of the Continuing Professional Education (CPE) programmes organized by the Ghana Optometric Association (GOA) to develop themselves and their career.

MEMORANDUM OF UNDERSTANDING BETWEEN KNUST AND ICEE: ASHANTI VISION CENTRE

An MOU was signed between the International Centre for Eye care Education (ICEE) and KNUST in **April 2010** for the establishment of the Ashanti Vision Centre. The project for which the MOU was signed is a collaboration between KNUST, ICEE and the Ministry of Health through the Ayeduase community. The Ashanti Vision Centre situated in Ayeduase was established and commissioned in **May 2010**. Apart from making eye care available and affordable, this centre affords our students yet another opportunity to practice and continually enhance their skills and confidence. We as a department are excited about the opportunity. The project is valued at about **40,000.00 USD**.

PUBLICATIONS/CONFERENCE PRESENTATIONS

The department in all has forty-five (45) publications, nineteen (19) papers presented conferences and seven (7) published abstract by Dr. D. B. Kumah, Dr. A. O. Amedo, Dr. A. Abdul-Kabir, Dr. N. Y. Koomson, Dr. C. Afari, Dr. A. A. Sadik and Dr. E. Kobla-Acquah.

CHALLENGES

Being a clinically-based programme, there is a limit to the number of students that the Department can admit at a time. The present source of funding of the University programmes which is solely from the Academic Facility User Fee (AFUF) paid by students, creates a

serious funding gap between income and expenditure of the Department. There is the need for more funds to enhance the work especially in the clinical areas in the department.

We continue to face challenges in finding lecturers for the department and counting on graduates who are currently studying outside the country to join us soon.

CONCLUSION

With continued improvement in the equipment and staff situation, the Department expects to be able to increase its student intake in the coming years.

The current progress being made, it is expected that 2015/2016 academic year the department will be operating its new clinic which will be opened to the general public and accessed by the University community.

DEPARTMENT OF PHYSICS

INTRODUCTION

The Department of Physics came into being in 1961. It has over the years succeeded in realising its sole mission of producing high calibre and competent physicists who do not only contribute immensely to the development of the country but also fit very well into the global physics community. The Physics programme at KNUST is unique in the sense that it is a professional course whereby physics is the main or major programme throughout the four (4) years duration.

In 1999/2000, the Department of Physics restructured the undergraduate Physics programme with the objective of laying more emphasis on the applications of the subject to reflect the needs of society, thus making the trained graduates more marketable on the job market. In the first and second years of the restructured programme, the students take the same core courses in physics and the prescribed service courses/electives. In the third year however, the students take the same core courses but are given the opportunity to choose their areas of specializations geared toward career orientation in one of the following:

- Physics with Biomedical Physics
- Physics with Electronics
- Physics with Geophysics
- Physics with Materials Science
- Physics with Computing
- Physics with Applied Mathematics

In the fourth (final) year, the students take the core courses in physics in addition to courses in their areas of specialization. At the end, the students satisfy all the requirements for the award of the BSc (Physics) degree. They are thus awarded the BSc (Physics) degree after successfully completing the programme.

The restructuring was in line with the Department's objective of reacting to the changing trends in socio-economic developments both at the national and global levels

APPLIED PHYSICS NATURE OF THE PROGRAMME

The Physics programme that is being run at the Department of Physics is made up of General and Applied Physics. The first two (2) years of the programme are devoted to basic physics which prepare the students to use the concepts acquired in the applied physics in the third and fourth (final) years. Indeed, the areas of specialization are applied physics areas where more emphasis is given in terms of the courses that the students take.

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Currently, for the BSc (Physics) programme as it stands, the applied physics areas are not well highlighted because the programme is a compact one. In order to highlight more of the applied physics areas, the Department has decided that the undergraduate Physics degree should be awarded in line with the respective applied physics areas so that the students can be admitted straight into these various applied areas.

Since 2015, the degrees are awarded in the following areas:

- BSc Physics (Biomedical Physics)
- BSc Physics (Geophysics)
- BSc Physics (Electronics)
- BSc Physics (Materials Science)
- BSc Physics (Computing)
- BSc Physics (Applied Mathematics)

A student graduating with any of these degrees means that he/she has done all the core courses in Physics and service courses/electives in addition to courses in the area of specialization. So primarily, the person is a physicist but has some in-depth knowledge of the area of specialization.

ACADEMIC STAFF

The department has a total of twenty-three (23) Academic Staff made up of four (4) Professors, one (1) Associate Professor/Head, six (6) Senior Lecturers and twelve (12) Lecturers. Also in support of the Academic Staff are twelve (12) Non-Teaching Staff in the department.

DEGREE PROGRAMMES IN THE DEPARTMENT OF PHYSICS

The following degree programmes are offered in the Department of Physics:

BSc (Physics)

BSc (Meteorology and Climate Science)

MPhil (Materials Science)

MPhil (Solid State Physics)

MPhil (Nuclear Physics) including specialization in Medical Physics

MPhil (Geophysics) with specialization in

- Oil and Gas Exploration
- Groundwater and Mineral Exploration
- Environmental geophysics
- Seismology and Earthquake Studies

MPhil (Meteorology and Climate Science)

PhD in any of the above areas

Student Numbers for 2015/2016 academic year: The total student number is 471

BSc (Physics)

First Year - 89

Second Year - 71

Third Year - 84

Fourth Year - 90

Total = 334

BSc (Meteorology and Climate Science)

First year - 34

Second Year - 30

Third Year - 41

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Fourth Year	-	32
Total	=	137

Postgraduate Students

MPhil I

Geophysics	-	9
Solid State Physics	-	3
Meteorology & Climate Science	-	3
Total	=	15

MPhil II

Geophysics	-	11
Solid State Physics	-	2
Meteorology & Climate Science	-	2
Total	=	15
PhD	-	8

RESEARCH ACTIVITIES IN THE DEPARTMENT

Senior Members (teaching staff) of the Department have been engaged in research activities in the following areas:

i. Geophysics Research Group

- Use of Seismics and Petrophysics in the Evaluation of the Hydrocarbon Potential of some Ghanaian Sedimentary Basins
- Determination of a Seismic Hazard Map for Southern Ghana
- Enhancing Sustainable Development of the Lake Bosomtwi Basin using Geophysical Techniques (Electrical Resistivity Tomography (ERT), Ground Penetrating Radar (GPR), Seismics, EM & Magnetism)
- Global Environmental Change Research – A case study of the Lake Bosomtwi Crater Area
- Monitoring Soil and Groundwater Contamination/Pollution using geophysical Methods
- Fractures Detection in Subsurface Investigations using Resistivity, EM, GPR, Seismic Techniques and Radon Mapping
- Groundwater and Mineral Exploration
- Site Investigation/geotechnical studies using Geophysical Methods
- Pavement investigation of major roads in the Kumasi metropolis using the ground penetrating radar (GPR)
- Detection of underground utility cables/pipelines using geophysical methods
- Petrophysical characterization of rocks from some Ghanaian Formations
- Geological and Structural Interpretation of the main Gold Belt of Ghana using airborne magnetic and radiometric data
- Use of integrated geophysical methods in determining the depth extent of the Jasper Deposit within the Buem Formation of Ghana
- Use of seismic broadband digital array network to study the crustal structure of West Africa

ii. Materials Science and Technology Group

- a. Zeolite Science and Technology
 - Synthesis of zeolites from chemical reagents, agricultural wastes and from bauxites
 - Characterizations of zeolites and other minerals

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- Application of zeolites in: arsenic removal from industrial waste waters, ammonia removal from industrial and municipal waste waters, desalination of sea water, crude oil refining, removal of other heavy metals, and anti-microbial zeolites production for disinfection of drinking water
- b. Ceramic Materials
 - Production of advanced ceramic materials for medical use (orthopaedic joint replacement, prosthesis, bone implants, etc.)
 - Production of advanced ceramic materials for automotive catalytic converters
- iii. **Solid State Physics and Electronics Research Group**
 - The growth of thin films for photovoltaic applications
 - Ferroelectric materials medical, sensor and memory applications
 - Properties of ferroelectric materials
 - Traffic lights design and fabrication
 - GSM electronic voting system design and fabrication
 - Microbial fuel cells design and fabrication
 - Mini-hydropower from waste water
 - Photovoltaics and fuel cells (PEM)
- iv. **Meteorology, Climate Science, Atmospheric Physics, Satellite Remote Sensing and Environmental Physics**
 - Trends in precipitation and temperature in climate change over sub-saharan Africa. A case study of Ghana
 - Retrieval studies of atmospheric compositions (trace gases and aerosol particles) i.e. remote sensing of trace gases
 - Impact of night time NO_x (NO₂ and NO₃) on ozone depletion and total global ozone budget, diurnal variability of NO_x
 - Measurement and monitoring of meteorological parameters (rainfall, relative humidity, minimum and maximum temperature, heat flux, etc.) for long term trend analysis.
 - Impact of human activities on the biogeochemical cycle
 - Understanding how anthropogenic perturbations have altered the Earth climate system leading to global warming (i.e. variability in the Earth's climate system and prediction (modeling) of the expected changes.
 - Air quality (pollution) study from retrieved vertical column of tropospheric O₃, NO₂ and aerosol particles from DOAS over Accra – Tema industrial area, Ghana.

RESEARCH COLLABORATIONS/RESEARCH GRANT

1. The DACCWA Project

The Department of Physics is collaborating with the Karlsruhe Institute of Technology (KIT), Germany, and some other European Universities on research on the Dynamics-Aerosol-Chemistry-Cloud Interactions in West Africa (known as the DACCWA project). The project is being funded by the European Union (EU) within the 7th Framework Programme (FP7). The programme is supporting scientists in the meteorology and climate science and the geophysics groups of the Department to carry out research to facilitate a better understanding of the climate dynamics in West Africa to enhance prediction work. Two (2) PhD students of

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the Meteorology and Climate Science programme are fully funded within the project at a cost of about **•28,000.00**. These students already hold MPhil in Meteorology and Climate Science from the Department of Physics.

The Department of Physics and University of Paderborn Project

The Department of Physics is also collaborating with the University of Paderborn, Germany on the production of renewable energy systems. Funding for the Department in this respect is **•120,000.00**. The Project is being supported by the Germany Ministry of Economic Cooperation and Development and the German Academic Exchange Service (DAAD).

TWAS Research Grant to Prof. K. Singh

The Third World Academy of Sciences (TWAS) for the advancement of science in developing countries has awarded a research grant amounting to **USD 16,065.00** to Prof. K. Singh of the Department of Physics in support of his project entitled “**Experimental growth and characterization of CdS/ZnS like binary compound based nanostructures**”. An additional amount of **USD 1,358.00** is also allocated for publications in open access journals.

SPECIAL INITIATIVES/INNOVATIONS

a. Traffic Lights Design, Fabrication and Installation

As part of its Community Impact Projects, the Department of Physics is engaged in the design, construction and fabrication of solar-powered traffic lights for installation on the KNUST Campus in the first instance, and later to be extended to the neighbouring communities including. Two (2) of such traffic lights have been installed at the Agric Junction-Ayiduase Road and the Faculty Cross Roads. Others places have been earmarked for installation.

The University Of Cape Coast (U.C.C) has also contracted the Department of Physics to provide traffic lights on its Campus in Cape Coast. The Department has successfully executed the contract and provided the traffic lights.

b. Building a Mini-Hydro-Power System from Wastewater on KNUST Campus

Mini-hydro power is a type of hydroelectric power that typically produces up to 100 kW of electricity using the natural flow of water. The Department of Physics is engaged in research to design, construct and install a mini-hydro-power system to generate electricity from running wastewater. The electrical power generated from such systems can be used to power facilities in rural communities such as clinics, schools, homes, etc. Two (2) places have been identified as potential sources of running wastewater on the KNUST campus that will be used as a test-start; they are: the waste treatment plant behind Brunei Hostel and the bridge on the Faculty road. The research team has started building a mini-turbine using bicycle tires, spokes and a chain. It is expected to generate at least 5 kW power at each location, that can be used to provide power to an isolated home or small community. **The project has a good potential for use in the rural areas.**

c. Production of Microbial Fuel Cells (MFCs)

Power generation by cheap and relatively abundant source of microbes has been going on for some time now. This form of renewable energy is gaining grounds in the world of energy technology. Microbial fuel cell (MFC) technology signifies a new source for the generation

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of electricity from microbes found in wastewater. Researchers of the Department of Physics are engaged in this innovative research to produce microbial fuel cells (MFCs) for electrical power generation.

DEPARTMENT OF THEORETICAL AND APPLIED BIOLOGY

INTRODUCTION

The Department of Theoretical and Applied Biology is one of nine currently in the College of Science. This department leads the field in fundamental biological research and innovative, multi-disciplinary science as Ghana's best Biological Science department. It runs a 4-year Bachelor of Science (BSc) degree programme in Biological Sciences, Environmental Science and a 2-year Master of Science (MSc) programme in Environmental Science. In addition there are graduate research programmes leading to the Master of Philosophy (MPhil) and Doctor of Philosophy (PhD) degrees in major disciplines in Biological Sciences. Currently, in the 2015/2016 academic year the student population stands at 1163 students; 992 undergraduates, 156 MSc/MPhil and 15 PhD.

The number of academic staff currently at post is 22:

Professors	-	2
Associate Professors	-	2
Senior Lecturers	-	11
Lecturers	-	7

ACTIVITIES

Teaching

The Department offers teaching in a number of Biological Science courses designed to equip its students with the requisite knowledge and practical skills in Biological disciplines including Microbiology, Parasitology, Entomology, Ecology, Mycology, Plant Pathology, Physiology (Plant and Animal), Genetics, Molecular Biology, Insect Ecology and Pest Control and Environmental Physiology. The Department also offers service courses to the Departments of Biochemistry and Biotechnology, Food Science, Mathematics, Optometry and Visual Science, the School of Medical Sciences and the Faculty of Renewable and Natural Resources (FRNR), Agriculture. Laboratory Services are also provided for students from various departments.

New Programmes and Courses

The Department has successfully mounted its MSc Environmental Science programme on the distance learning mode. It has been well patronised and the fourth batch would be graduating in the 2014/2015 academic year. New courses are being introduced as part of a general review of courses and programme structure in line with changes in the job market. The BSc Microbiology programme is expected to begin in 2016/2017 academic year.

Post-graduate Studies

The Department's 2-year MSc programme in Environmental Science consists of taught courses in the first year and a research project in the second year. Initial assistance for its establishment came from the Department for International Development (DFID) through the British Council. The focus is to equip students with the knowledge and skills that would enable them contribute to the resolution of critical environmental issues. Additional assistance which

came from the United Nations University Institute for Natural Resources in Africa (UNU/INRA) resulted in the introduction of new courses which are Principles of Environmental Management and Environmental Policy Analysis. These have made the programme more appealing.

Under-graduate Studies

The Department has undertaken an extensive review of the courses offered in its BSc. degree programmes to make the BSc. programmes more applied and attractive. These are expected to attract more students both local and foreign and to bring in more funds. The number of foreign students has been growing significantly in the last two years especially into our Environmental Science programme.

Research Initiatives/Innovation

Staff and students' research continue in the following areas:-

- Development and production of activated carbon from agricultural wastes as a means of minimising and recycling wastes. The products are unique and have versatile applications in industry and research, as well as having the capacity to detoxify the environment.
- Biodegradation of hydrocarbon contaminated water using fixed bed reactor system.
- Biogas production from household waste.
- Composting of household waste.
- Biosand filtration for treatment of drinking water.
- Phytoremediation of contaminated mine sites.
- Floral inventory of conservation concerned plant species in the Ashanti Region.
- Fermentation Studies
- Fungal infection of Crop Plants
- Aquatic Ecotoxicology
- Biological control of Pests
- Filarial diseases, Malaria, Schistosomiasis, Tissue and Intestinal Parasitic Infections
- Microbial Infections
- Distribution and Survival of Indicator and Pathogenic organisms in rivers and streams and drinking water from various sources
- The status and change of some vegetation types in Ghana
- Bioremediation and Phytoremediation
- Ecological Sanitation, Monitoring of Underground and Surface Water Quality
- Medicinal Plants and Pharmaceutical Microbiology
- Climate Change and Food Security
- Climate and Environmental Assessment
- Waste Management and Pollution Studies

MAJOR RESEARCH CURRENTLY ON-GOING/PLANNED COLLABORATIONS

Collaborative research is on-going between the Department, the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) and the Bernhard Nocht Institute for Tropical Medicine, Hamburg, Germany and Noguchi Memorial Institute for Medical Research. Research are mainly in the areas of Filaria infections, Malaria and Buruli Ulcer with the training of research students at the Master's and Doctoral levels.

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SAWAFO Street Food Project with Funds from DANIDA

This is collaboration between KNUST and the University of Copenhagen, Denmark, which is aimed at safeguarding Public Health in respect of street foods. Prof. R. C. Abaidoo, leader of the group is exploring better ways of ensuring the safety of street sold foods in Ghana.

DANIDA Funded Project/Environment and Climate

Prof. K. Obiri-Danso chairs a DANIDA Funded Platform on Environment and Climate that is geared towards improving the overall capacity of KNUST Staff in Environment and Climate Research.

DANIDA Funded ADMER

This is funding from DANIDA to Prof K. Obiri-Danso to support Mrs Linda Aurelia Ofori and Ms Akosua Karikari who are currently pursuing the PhD degrees programmes on a “sandwich-model” on Antibiotic Drug use Monitoring and Evaluation of Resistance (ADMER).

INTERNATIONAL AFFILIATIONS/LINKS

The Department continues to benefit from the College of Science’s linkage with RAMAPO COLLEGE of New Jersey, with staff attachment.

Canada-Africa Research Exchange Grants (CAREG)

Canadian–African Academic Partnership: Promoting applied knowledge and management of Bio-Phytoremediation as new biotechnology tool in alleviating environmental stress on a West African mine tailings. This research exchange fosters a partnership between Dr. Ebenezer J. D. Belford and Prof. Sharon Regan of the Department of Biology, Queens University, Kingston, Canada.

World Health Organization (WHO) Funded Project on Malaria

Prof. K. Obiri-Danso and Dr. Jonathan Hogarh, have a USD 44, 375.00 funding from WHO to investigate Environmental Health Risks and Benefits of mosquito coils for malaria control in Ghana.

DANIDA Funded Project on Water Management

Prof. K. Obiri-Danso and Dr. B. Fei-Baffoe have a DANIDA Fellowship Fund to investigate “The Potential of Municipal Solid Waste for Biofuel Production in Ghana.”

COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY

Senior Academic Staff of the Department (Senior Members) continue to serve as External Examiners to other sister Universities and as assessors to various national institutions. They also serve on various national and international committees. Furthermore, academic members of the Department serve as reviewers for both local and international peer reviewed journals.

Students of the Department have been involved in health education campaigns in various communities in a number of districts in the Ashanti Region. Such campaigns have touched on HIV/AIDS, water-borne diseases, buruli ulcer, malaria, etc. The students have stressed on how to avoid/prevent contraction of these diseases. In some communities the students organised and led the people in tree-planting activities. These activities have been supported

by the District Assemblies, District Health Authorities, Planned Parenthood Association of Ghana (PPAG) and others.

KNUSTBOTANIC GARDEN

Under the management of the Department of Theoretical and Applied Biology, the KNUST Botanic Garden, has continued to function as a resource site for conservation of species and providing services for purpose of teaching and research.

The Garden with an area of 12.9 ha is the third largest in Ghana and is also listed among the 2500 botanic gardens and arboreta in 148 countries around the world. It is a member of the West African Botanic Gardens Network (WABGNET) which is the West African regional grouping of African Botanic Gardens Network (ABGN), a continental grouping of the global network, the Botanic Gardens Conservation International (BGCI).

It is floristically rich containing tropical palms, timber species, climbers and medicinal plants as well as collections of exotic plants. The current level of diversity and development of plant species has led to the habitation of the garden by several species of animals including birds, mammals, reptiles and insects. A recent survey identified as many as 32 different species of birds within the boundaries of the Garden.

To a limited extent the garden serves the University Community and the general public as an area for retreat and socializing. Most of our students meet in the recreational areas in groups for social and religious activities. It provides a cool and refreshing environment conducive for meditation, relaxation and sightseeing.

The garden has six toilets and urinals, with male and female sections and a washroom.

The effective functioning of the Botanic Garden has been constrained by uncontrolled activities in the garden. Intruders unlawfully enter the Garden usually through unauthorized routes and harvest wood, tap palm wine, and hunt animals posing some danger to users of the garden. It is essential that additional security services be provided and that the Garden is completely fenced.

Protecting the KNUST Botanic Garden for biodiversity conservation is important to keep it in line with the objectives of the International Agenda for Botanic Gardens in Conservation. The KNUST Botanic Garden cannot be replaced hence every effort should be made to ensure conservation of its species, development of its resources and protection of the area, for it to maintain an international status.

CHALLENGES

With the increasing number of students for service courses from other departments, available lecture room space is scarce. There is a need for an auditorium with a large sitting capacity accommodating about 500. There is also the need for more microscopes to facilitate the conduct of practical classes in some courses and for research. Currently, the number of usable microscopes in the Department is woefully inadequate. With the TURN KEY project initiative the number of microscopes in the labs improved marginally. So, there is a profound need for more because of the large number of students. Also, lack of a vehicle has hampered fieldwork, educational trips and study visits of students. These are urgent needs of the Department.

CONCLUSION

It is expected that the number of staff would increase as new courses are introduced and new programmes developed at the undergraduate and graduate levels. Currently the student to staff ratio is about 55:1. Further, international collaborative links are being sought both in the South-South and North-South level to enhance research-training programmes in the Department. Our well-structured courses and beautiful scenery in the department would definitely make any visitor's stay worthy.

INSTITUTE OF DISTANCE LEARNING

INTRODUCTION

ADVENT OF DISTANCE LEARNING

The Institute of Distance Learning (IDL) was established to back the University's Strategic Plan, PLAN 2K14, which aims at enrolling fifty thousand (50,000) students by the year 2015. As part of that plan, the Institute was to absorb about 40 – 50% of the projected 50,000 students through the Distance Learning mode.

The aims of the Institute, among others, is to provide greater access to different categories of people who desire to have University education, but otherwise are unable to gain access through the regular mode.

It is also to serve as a viable complement to the conventional lecture room session conducted within the confines of the walls of KNUST. In this regard, IDL is expected to take quality and demand-driven education and training provided by KNUST to the doorsteps of students throughout Ghana and beyond. This encapsulates the Vision of IDL of: ***“Increasing access to relevant and flexible tertiary and continuing education and training anytime, anywhere through the Distance Learning Mode using multimedia.”***

With this colossal, but defined vision in mind, the Institute was established as the Faculty of Distance Learning (FDL) in 2005 under the then Faculty of Science to mount both on-going and new programmes of study from all faculties of the University in the distance learning mode. In 2007, the FDL was detached from the College of Science and christened the Institute of Distance Learning, with much more leverage and partial autonomy.

In line with its vision, the Institute has adopted measures within the last ten years aimed at increasing its area of operation, programmes and its student population. The effort has since yielded some positive results included in this report.

Having recently been elevated to the status of a College, an Acting Director and Deputy Director have been appointed.

Policy Document

The Institute of Distance Learning has recently drawn a comprehensive policy document to guide activities at the Institute.

Directorship and Headship Positions

The following persons hold administrative positions within the Institute:

- | | | | |
|----|-------------------------|---|----------------------------------|
| 1. | Prof. Isaac K. Dontwi | - | Director |
| 2. | Prof. Joshua Ayarkwa | - | Deputy Director |
| 3. | Dr. Collins K. Osei | - | Senior Research Fellow |
| 4. | Mr. Ebenezer T. Otiaku | - | Senior Assistant Registrar |
| 5. | Mr. Anthony Adjapong | - | Assistant Registrar |
| 6. | Mr. George E. Asamoah | - | Accountant |
| 7. | Mr. Seth K. Nkrumah | - | Zonal Coordinator, Southern Zone |
| 8. | Mrs. Joy S. A. Amankwah | - | Zonal Coordinator, Southern Zone |

Institute of Distance Learning

- | | | | |
|-----|-----------------------------|---|----------------------------------|
| 9. | Mrs. Theodora Oduro | - | Zonal Coordinator, Midland Zone |
| 10. | Mr. Emmanuel Opintan-Baah | - | Zonal Coordinator, Western Zone |
| 11. | Mr. Mukasa Yin-Anaab Zoogah | - | Zonal Coordinator, Northern Zone |
| 12. | Mr. Christopher Addo | - | Manager, E-Learning Centre |

STAFF STRENGTH

The Institute is manned by KNUST staff and National Service Personnel. The permanent University staff comprise twelve (12) Senior Members, made up of two (2) Professors; the Director and Deputy Director respectively, one (1) Senior Research Fellow, one (1) Senior Assistant Registrar, two (2) Assistant Registrars, an Accountant and five (5) Zonal Coordinators. In addition, there are fourteen (14) senior staff and five (5) junior staff.

The Institute's facilitators are KNUST faculty members in the respective course areas as well as people with the requisite backgrounds and qualifications at the centres, who are recruited to facilitate in the various courses.

Learning Centres

From a humble beginning of two Learning Centres in Accra and Kumasi in 2005, the Institute currently provides facilitated face-to-face sessions at eleven (11) learning Centres. The other centres are – Ho, Koforidua, Takoradi, Tarkwa, Sunyani, Tamale, Tema, Cape Coast, Akosombo, Bolgatanga and Wa Centres.

The Accra and Kumasi centres have the largest number of students, with Tamale and Takoradi with the next highest numbers.

The Director's office runs the Kumasi Centre and coordinates the activities of all the other centres. The other centres are manned by non KNUST staff appointed by the Institute mainly from the Polytechnics in the respective cities. IDL has grouped these centres into zones which are supervised by Zonal Coordinators who are permanent KNUST staff. With the exception of the Southern Zone, which due to its size has two Zonal Coordinators, the rest are manned by a coordinator each.

STUDENT POPULATION

In 2005, IDL recorded a student population of 2,575 during the 2009/2010 academic year which served as a good starting point for the Institute. The total student numbers for undergraduate and postgraduate programmes for the 2015/16 Academic year was 3,900 and 4,018 respectively, totaling up to 7,918 students.

PROGRAMMES

The Institute currently runs a total of seventeen (17) undergraduate and twenty (20) postgraduate programmes. Seven (7) new postgraduate programmes have been introduced. Student enrolments in these programmes are presented in tables 1 and 2.

NEW PROGRAMMES

The following constitute new programmes, most of which are slated for the 2016/17 Academic year:

1. MSc/MPhil Security and Justice Administration
2. MSc/MPhil Packaging Technology and Management
3. MSc/MPhil Insurance and Funds Management
4. MSc/MPhil Energy and Sustainable Management
5. MSc/MPhil Microfinance and Rural Banking
6. MSc/MPhil Development Taxation and Economic Planning

Table 1: Undergraduate programmes (Top-Up)

At the undergraduate level, the Institute runs two year Top-Up programmes for Diploma and HND holders.

Undergraduate Programmes (Top-Up)	2015/2016 Academic Year
BSc Business Administration	1722
BSc Agricultural Engineering	35
BSc Chemical Engineering	18
BSc Computer Engineering	92
BSc Construction Technology Management (CTM)	455
BSc Quantity Surveying and Construction Economics (QSCE)	428
BSc Geomatic Engineering	56
BSc Information Technology	83
BSc Telecommunications Engineering	11
BSc Mechanical Engineering	599
BSc Petroleum Engineering	32
BSc Actuarial Science	74
BSc Actuarial Science (Top-Up)	62
BSc Statistics	102
BA Sociology	59
BSc Social Work	3
Dip. Architectural Technology	69
Total	3,900

Postgraduate Programmes	2015/2016 Academic Year
PhD in Education	15
PhD in Health, Behaviour and Society	10
PhD in International Development Studies	12
PhD in Law	8
PhD in Management	10
PhD in Medicine	15
PhD in Nursing	10
PhD in Public Health	12
PhD in Social Sciences	10
PhD in Theology	5
PhD in Women's and Gender Studies	10
PhD in Youth Studies	10
PhD in Health, Behaviour and Society (Joint with UCL)	10
PhD in International Development Studies (Joint with UCL)	12
PhD in Law (Joint with UCL)	8
PhD in Management (Joint with UCL)	10
PhD in Medicine (Joint with UCL)	15
PhD in Nursing (Joint with UCL)	10
PhD in Public Health (Joint with UCL)	12
PhD in Social Sciences (Joint with UCL)	10
PhD in Theology (Joint with UCL)	5
PhD in Women's and Gender Studies (Joint with UCL)	10
PhD in Youth Studies (Joint with UCL)	10

CEMBA	1288
CEMPA	260
MSc/MPhil Logistics & Supply Chain Mgt.	354
MSc Information Technology	291
MPhil Post Harvest Technology	127
MSc/MPhil Business Consulting & Enterprise Risk Management	130
MSc Development Management	204
MSc/MPhil Educational Innovation & Leadership Science	114
MSc/MPhil Health Informatics	103
MSc Environmental Science	171
MSc Food Quality Management	96
MSc Industrial Mathematics	153
MSc Economics	260
MPhil Political Science	13
MSc Accounting	85
MSc Applied Statistics	34
MSc Human Nutrition and Dietetics	12
MSc Forensic Science	8
Master of Public Administration	27
MSc/MPhil Industrial Finance and Investment	288
Total	4,018

COLLEGES WITH PROGRAMMES ON OFFER

The Institute currently runs programmes of all the Colleges in the University (Table 3).

Table 3: Colleges/Departments with Programmes on Offer

College	Programmes	
	Postgraduate	Undergraduate
Agriculture and Natural Resources		M.Sc. Post-Harvest Technology (Horticulture)
Humanities and Social Sciences	a. BA. Sociology and Social Work b. BSc. Business Administration	MA Sociology MSc. Economics MPhil/MSc Political Science
Art and Built Environment	a. BSc. Quantity Surveying & Construction Economics	MSc Project Management
	b. BSc. Construction Technology and Management	
Engineering	a. BSc. Computer Engineering	
	b. BSc. Electrical/Electronic Engineering	
	c. BSc. Telecommunication Engineering	
	d. BSc. Agricultural Engineering	
	e. BSc. Geomatic Engineering	
	f. BSc. Petroleum Engineering	
	g. BSc. Mechanical Engineering	
	h. BSc. Chemical Engineering	
Science	BSc. Actuarial Science	MPhil/M.Sc. Industrial Mathematics
	BSc. Computer Science	M.Sc. Environmental Science
	BSc. Statistic	M.Sc./MPhil Health Informatics M.Sc./M.Phil. Information Technology
	MSc. Forensic Science	MSc. Food Quality Mgt.

PIPELINE PROGRAMMES

Preparations are underway for the under listed programmes to start within the next year or two, depending on how early the Departments concerned are able to get the Course Materials for the courses under their respective programmes ready.

Table 4: IDL Pipeline Programmes

College/Department	Programme(s)	
	Undergraduate	Postgraduate
Humanities and Social Sciences Department of Publishing Studies	Proficiency Certificate Programme in - Print Production - Book Selling - Visual Conceptualization - Mass Communication	(i) Postgraduate Diploma in Publishing Studies (1 Year) (ii) Masters in Publishing Studies (2 years)
Health Science	B.Sc. Emergency Nursing (Top-Up)	

Physical Infrastructure Development

IDL has seen the light of the following project within the 2015/16 Academic year:

Accra Campus

IDL has completed its KNUST-IDL Accra city building, comprising classrooms and offices at Kwabenya.

KNUST Campus

- IDL Conference Center: (a) 40-seater syndicate room
(b) 50-seater telepresence room
(c) 120-seater conference room (availability of WiFi and Generator)
- E-learning Studio: State of the Art recording studios for lectures
- 100-seater Computer Room
- IDL Guest House with nine (9) executive rooms and 1 physically challenged room

Takoradi-Kansaworodo building comprising classrooms, offices, laboratories, etc.

Tamale City Campus building made up of classrooms, offices, etc.

Moree/Akatakyiwa: Executive Conference Centre. All these projects are at various stages of completion.

DEPARTMENTS

Centre for Distance and Continuing Education

The Centre for Distance and Continuing Education (CDCE) is one of the two Departments under the Institute of Distance Learning (IDL). CDCE's activities for the year 2010/11 covered two main areas; the Proficiency Certificate in Architectural Draughtsmanship (PCAD) Programme and Course Material Restructuring and Production for Distance Learning students.

Further, the Centre had started the running of Access programmes for HND holders with deficiencies as well as products of Ministry of Health Training Institutions. Plans are far advanced to roll out same for other candidates as well as for candidates willing to enroll in our affiliate institutions.

Centre for E-learning Technologies (CELT)

The CELT is one of the two Departments under the Institute of Distance Learning (IDL). KVCIT activities for the year 2010/11 covered the following areas;

1. Moderating the IDL's Learning Management System (E-Learning Platform), and the virtual classroom for distance learning students and facilitators;
2. Certificated computer literacy programme;
3. Certified AUTOCAD Program for Architectural Draughtsmanship students from CDCE and elsewhere.

INTERNATIONAL PROGRAMMES OFFICE

INTRODUCTION

The International Programmes Office (IPO) was set up to handle collaborations between KNUST and other national and international universities and institutions around the world. The office has since been working with all stakeholders (Colleges, Departments and Faculties) by engaging them in a number of activities that strengthen already existing collaborations as well as initiate new ones.

As part of the Annual report on activities that goes on at the International Programmes Office (IPO), the office has facilitated several events during the period under review.

STAFFING

The office is made up of:

- | | |
|---------------------------------------|-----------------|
| 1. Dean | - Senior Member |
| 2. Senior Assistant Registrar | - Senior member |
| 3. Principal Administrative Assistant | - Senior staff |
| 4. Cleaner | - Junior staff |
| 5. National Service Personnel | |

Ms. Grace Appiah, the Senior Administrative Assistant was promoted to the rank of Principal Administrative Assistant in January, 2016.

Mr. Boakye Mensah, a driver, was transferred from the School of Graduate Studies to the International Programmes Office from February 16 to July 31, 2015. He was subsequently offered three months renewable post retirement contract to serve the office and this ended on 29th February, 2016.

Mr. Ebenezer Kumi, the messenger/cleaner was transferred to College of Health Sciences and has been replaced by a Clearner, Ms. Emelia Agyekum.

2.0 AGREEMENT AND MEMORANDUM OF UNDERSTANDING SIGNED:

During the 2015/2016 academic year, KNUST and a number of universities in Asia, Europe, Northern and Southern America and Africa signed academic collaboration agreements as well as Memoranda of Understanding. These institutions and organizations were:

- a. MOU SIGNED in 2015/2016
 1. Hochschule Darmstadt University of Applied Sciences, Germany – 20th June, 2015
 2. Ecole Supérieure D'ingénieurs En Génie Electrique (ESIGELEC), France – 13th June, 2015
 3. University of SKOVDE, Sweden, 11th September, 2015
 4. ISA Lille, France – 28th September, 2015
 5. Kenyatta University, Kenya – 4th September, 2015

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6. Virginia Polytechnic Institution & State University (Virginia Tech), USA – 9th September, 2015
 7. Madonna University, Nigeria – 20th November, 2015
 8. University of Ibadan, Nigeria – 31st December, 2015
 9. Grand Canyon University, Phoenix AZ, USA, – 25th December, 2015
 10. Rural Enterprises Programme (Ministry of Trade & Industry), Ghana – 12th October, 2015
 11. African Research Academies for Women, New York – 18th February, 2016
 12. State University of New York, Geneseo, USA, 30th January, 2016
 13. University of Nottingham, UK – 30th January, 2016
 14. Mississippi State University, USA, 21st April, 2016
 15. Indiana University of Pennsylvania – OIE USA, 21st April, 2016
 16. University of The Fraser Valley, Canada, 20th November, 2015
 17. University of Abomey-Calavi, Benin, 22nd September, 2015
 18. North Carolina Agricultural and Technical State University, USA, 27th July, 2016
 19. University of Rhode Island 31st March, 2015, USA
 20. Indira Gandhi National Tribal University, India, 30th May, 2016
- b. On –going MoUs yet to be signed in 2015
1. GNPC-Technip Engineering Services Ltd , Accra, Ghana
 2. University of Maryland Eastern shore, USA
 3. Michael Okpara University of Agriculture, Abia State, Nigeria
 4. University of Lagos, Nigeria
 5. University of Minnesota and Garden City University College, USA

INTERNATIONAL STAFF AND STUDENT EXCHANGES IN THE 2015/16 ACADEMIC YEAR

Ten (10) students were received at KNUST for a semester/year study during the first and second semesters of the 2015/2016 academic year. It must however be noted that there could have been other study abroad students and staff on the campus whose admissions and engagements might have been handled at the department and faculty levels without any recourse to the IPO.

International Staff Exchange - 2015/16

Table 1: Visiting Staff to KNUST

No	Name of institution	Country	Programme	No. of Lecturers	Period
1	University of Louisville	Kentucky	Public Health (Fulbright Fellowship)	1	1 year
2	Confucius Institute Headquarters (Shanxi University)	China	Chinese Language	1	1 year
3	Confucius Institute Headquarters (Harbin Finance University)	China	Chinese Language	1	1

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- Professor Muriel Harris, a specialist in Health Education and Promotion from University of Louisville in Kentucky was awarded a Fulbright fellowship/Scholarship to spend a year with KNUST School of Public Health, from September 2015 to June, 2016.
- Per the agreement on Provision of Chinese Language Teachers between the Confucius Institute Headquarters (HANBAN) and KNUST, Mr. Hu Ding from Shanxi University was posted to Department of Modern Languages in August, 2015 to replace Mr. Wu Jianxiong as a Chinese Language Volunteer for a period of one year.
- With a growing interest to KNUST students in the Chinese Language, Ms. Song Zhou's contract was renewed for a year to teach Chinese Language in the Department of Modern Languages from July, 2015 to July, 2016. However, her institution needed her services so was called back to China on 4th May, 2016.

Table 2: Visiting Staff to KNUST – CIRCLE 2016

No	Name of Project/ Institution	Country	Programme	No. of Lecturers	Period
1	Dept. for Int. Development (DFID), Association of Commonwealth Universities (ACU) and African Academy of Sciences (AAS).	Nigeria	CIRCLE Project	2	1 year

- Activities of the two Research Fellows hosted by KNUST in the 2014/2015 academic year ended in August, 2016. Currently KNUST is hosting the Cohort 2 of CIRCLE Visiting Research Fellows in the persons of Dr. Omosive Maduka and Dr. Ogheneruona Endurance Diemuodeke from University of Port Harcourt, Nigeria, under the Climate Impact Research and Leadership Enhancement in sub-Saharan Africa (CIRCLE) for a period of one year. They are to undertake their respective projects from January to 31st December, 2016.

Table 3: Visiting Staff to KNUST - RE4FOOD

No	Name of institution	Country	Project	No. of Visitors	Period
1	Practical Action Eastern	Nairobi, Kenya	EPSRC/DFID Renewable Energy for Food Processing (RE4FOOD)	1	12th to 15 th Oct. 2015
2	AfricaNewcastle University,	United Kingdom		2	
Total				3	

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- Following the on-going collaborations between KNUST Energy Center and the above-listed institutions the center in conjunction with IPO invited Prof. Anthony Paul Roskilly and Dr. Pankaj B. Pathare from Newcastle University, UK as well as Dr. Victor Esendi from Practical Action Eastern Africa, Kenya to participate in the workshop and project meetings on RE4Food at the center.

Table 4: Study Abroad Students to KNUST

No	Name of studen	Country	Programme/ Dept.	No. of Students	Duration
1	Danz Shenja Vasanthi Kumari Miss	Germany	B.A Social Work, Sociology and Social Work	1	2015/2016 academic year
2	Jane Lammers Miss	Germany	B.A Social Work, Sociology and Social Work	1	First Semester of 2015/2016 academic year
3	Bolognese François	French	B.A Inte-grated Rural Art and Industry	1	Second Semester of 2015/2016 academic year
4	Christian Stehr	Germany	Research/ Technology Consultancy Centre (TCC)	1	First Semester of 2015/2016 academic year
5	Mathias Müller	Germany	Building Services Engineering/ IAESTE – TCC	1	First Semester of 2015/2016 academic year
6	i Nina Koponen Miss ii Enni Ida Mari Repo Miss iii Eetu Matias Raatikainen Miss	Finland	Pharmacy, Dept. of Clinical & Social Pharmacy	3	Second Semester of 2015/2016 academic year
7	Johanna Lindinger-Presendorfer Miss	Austria	BSc Architecture	1	Second Semester of 2015/2016 academic year
8	Safiatou Nana Ms	Nigeria	Energy Center/ Engineering	1	March to August, 2016
	Total			10	

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- a. As part of an ongoing exchange programme with Darmstadt University of Applied Sciences, Germany, Miss Danz Shenja Vasanthi Kumar was accepted to join the third year students at the Department of Sociology and Social Work, Faculty of Social Sciences, CoHSS for the 2015/2016 academic year as an exchange student
- b. Miss Jane Lammers from HAWK University of Applied Science and Arts, Germany, also had a semester study abroad with Department of Sociology and Social Work, Faculty of Social Sciences, CoHSS for the 2015/2016 academic year
- c. Bolognese François a student from École Nationale Supérieure des Beaux-Arts de Paris University (ENSBA), France, was accepted as an exchange student for a semester by KNUST in the Department of Integrated Rural Art and Industry, Faculty of Art, College of Art and Built Environment, 2015/2016 academic year.
- d. Christian Stehr from Tu Berakademie Freiberg, Germany, spent three (3) months at the KNUST Technology Consultancy Centre (TCC) during the first semester of the 2015/2016 academic year for his master's thesis.
- e. Mathias Müller from Munich University of Applied Sciences, Germany, also had a three (3) months stay with the Building Services Engineering/IAESTE –TCC for part of his research documentation during the first semester of the 2015/2016 academic year for his master's thesis.
- f. As part of an ongoing exchange programme with the University of Eastern Finland, three (3) students had an exchange programme with the Department of Clinical & Social Pharmacy, College of Health Sciences for a period of three months for the second semester of the 2015/2016 academic year.
- g. KNUST accepted Johanna Lindinger-Pesendorfer an architecture student from Technical University of Vienna, Austria to undertake part of her master's thesis at the Department of Architecture, College of Art and Built Environment for a period of two weeks.
- h. KNUST Energy Center hosted Ms. Safiatou Nana, an MSc student in Energy Engineering, at the Pan African University-Institute of Water and Energy Sciences (PAWES) for a period of six (6) month for data collection and analysis on some Bio energy projects.

KNUST STAFF AND STUDENT EXCHANGES IN THE 2015/16 ACADEMIC YEAR

Table 1: KNUST Staff to Partner Institutions

No.	Name of institution	Country	Dept/Faculty/ College	No. of participants	Period
1	Ecole Supérieure d'Ingénieurs en Génie Electrique	France	Department of Electrical Engineering	1	11 th to 21 st January, 2016
2	Madonna University	Nigeria	College of Engineering	7	March, 2016
	Total				

International Programmes Office

a. Based on the agreement between KNUST and Ecole Supérieure d'Ingénieurs en Génie Electrique (ESIGELEC), France which provides opportunities for both students and faculty members of either institution to collaborate on educational programmes, Dr. Jerry John Kponyo, a lecturer from Department of Electrical Engineering was nominated to teach short courses in "Introduction to Business Intelligence" and "Introduction to a Business tool" in January, 2016 in France.

b. The KNUST has a long standing collaboration with Madonna University, Nigeria since 2011 and as part of the continuous exchanges; seven (7) faculty members from the College of Engineering were invited to visit their University for academic interactions with their staff and students.

Table 2: KNUST Students to Partner Institutions

No.	Name of institution	Country	Dept/Faculty/ College	No. of participants	Period
1	University of Sussex/ Keele University	United Kingdom	Business Administration/ Dept. of PoliticalStudies	2	25 th to 30 th July, 2016
2	Kenyatta University	Kenya	Faculty of Social Sciences	4	Sept., 2016
	Total			6	

➤ The University of Sussex in conjunction with Keele University, United Kingdom, has invited Miss Efua Abasewah Dougan, a third year BSc Business Administration (International Business Management) student as well as Miss Abigail Mensah a third year BA Political Studies student to participate in their World Student Environmental Network Summit as representatives from KNUST from 25th to 30th July, 2016.

➤ Kenyatta University has accepted to host four (4) students from KNUST to participate in the September 2016 Intra-Africa Student Exchange Programme (SAP) in Kenya. In view of the request, Amponsah, Rejoice Owusua (Miss), Author, Baidoo Jonathan, Dogbey, Emmanuel and Mohammed, Rabiatu Balaraba (Mrs.) from Faculty of Social Sciences have been nominated to represent KNUST.

SCHOLARSHIPS OFFERED WITH RESPECT TO MOUS SIGNED

In line with the implementation of the Memorandum of Understanding and Academic collaborations signed, partner institutions in Europe, China and South Korea offered the following scholarships to KNUST staff and students under their Government and University's scholarships for the 2014/2015 academic year:

SCHOLARSHIPS

Table 1: Scholarships offered to KNUST Students to study abroad

No.	Name of institution	Country	No of Scholarships	Programme	Period
1	Hanbat National University	South Korea	1	Masters	Sept. 2015 - Sept. 2018
2	France Universities	France	13	Masters	Sept., 2015 to Sept., 2019
	Total		14		

Hanbat National University, South Korea: : offered one (1) scholarship seat to a Teaching Assistant in the Department of Computer Engineering to pursue a Masters Degree Programme under the Chinese Government Scholarship from September, 2015 to September, 2018.

The French Embassy in collaboration with other France institutions offered seven (7) full or partial scholarships to thirteen students to pursue their master's degree in business, food science, engineering, physics, French/linguistics and economy. The scholarship details are: 2 French Embassy Scholarship, 1 Erasmus Mundus Scholarship (European Union), 1 Nelson Mandela Scholarship + Prodigy Finance and 3 School Scholarships.

Table 2: Scholarships offered to International Students to study at KNUST

No.	Name of Scholarship/ Institution	Country	No of Scholarships	Programme	Period
1	EU Intra-ACP Academic Mobility Scheme Programme	Cameroon and Ethiopia	2	PhD and Masters, School of Public Health	2 months
2	Commonwealth	Kenya	1	MSc. Geophysics	2 years
	Total		3		

Miss Dillys Mansoh Elad and Darasa Tamiru Desta are beneficiaries of the EU Intra-ACP Academic Mobility Scheme programme. They were granted 12 months each to undertake part of their PhD and Masters Degree programmes respectively at the University's School of Public Health, in the 2015/2016 Academic year.

The Association of Commonwealth Universities has awarded a Masters Degree Scholarship to Miss Ajra Mohammed Abdul Latif from Kenya, to pursue a Masters degree in MSc.

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Development Policy and Planning, in the Department of Planning, College of Art and Built Environment for two years.

COLLABORATING INSTITUTIONS THAT OFFERED INTERNSHIP TO KNUST STUDENTS

Bank of America

The Bank of America Merrill Lynch is about recruiting 10 to 15 students to undertake an internship programme in the United Kingdom for three months.

Technip Ghana Ltd

Technip Ghana Limited an oil drilling company in Accra in collaboration with the French Embassy and in line with the MOU signed with KNUST received four (4) final year students to undertake their National Service for the 2015/2016 academic year with the company.

ACTIVITIES

The Major activities undertaken by the office during the year under review included:

- Soliciting of contact numbers and email addresses of Teaching Assistants from the departments for possible scholarships for Masters Degree programmes.
- Facilitating Building Stronger Universities Initiatives (BSU) series of short courses and workshops for staff of academia “capacity building initiatives” including organization of workshops for staff and students.
- Facilitating the Chinese Government and Chinese Universities Scholarships to Staff and Teaching Assistants of the University.
- Facilitating the Bank of America Merrill Lynch Workshops for KNUST students
- Facilitating Commonwealth Scholarships nomination for KNUST
- Organizing field trips in collaboration with the Dean of Students office to section of southern and northern Ghana for Study Abroad Students to KNUST.
- Facilitating Matriculation Ceremonies for KNUST IDL International Students, Nigeria
- Hosting of the Climate Impact Research and Leadership Enhancement in sub-Saharan Africa (CIRCLE) project for the 2015/2016 academic year.
- Facilitating resident permits, visa and work permits for foreign and KNUST students and visiting scholars.
- Facilitating of invitation letters to institutions and individuals outside Ghana to participate in KNUST activities.

INTERNATIONAL PROGRAMMES STUDENTS GUEST HOUSE

The UMAT Guest Hostel was handed over to the International Programmes Office to house its numerous visitors from outside the University. The place was fully refurbished and renamed as International Programmes Students Guest House.

WORKSHOPS/INSTITUTION EXCHANGE PROGRAMMES

Maison Francaise

As part of the third Ghana-France Higher Education Conference and following the efforts of both countries to cooperate in the field of higher education, Maison Francaise, KNUST and the French Embassy inaugurated the Campus France Kumasi Office on Thursday 11th June, 2015.

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Building Stronger Universities (BSU)

To strengthen the institutional and human capacity of KNUST, the IPO in collaboration with the project had a series of ToT workshops on Problem Based Learning (PBL) and e-Learning for Task Force members, Lecturers and Teaching Assistants in the University.

To crown the work packages in the BSU, E-learning and Problem Based Learning, Prof. William Oduro, Dr. Albert Amoah Saah and Dr. Gabriel Asare Okyere attended an Exhibition at Tanzania in July, 2015.

National and Regional Conferences

The IPO in collaboration with Building Stronger Universities organized three “first” Conferences – two National and one Regional. The 1st National Conference on Shifting Pedagogical Stances towards National Development: The Impact of Problem Based Learning/ e-Learning from 23rd-24th September, 2015; and The “1st National Conference on Outreach on Impacting the Community for Sustainable Development” from 30th to 31st March, 2016 at the IDL Conference Centre, KNUST, Kumasi. The 1st Regional Conference on PBL and e-Learning was also held from 30th November to 2nd December, 2015 at the same venue. The overall objective of the conference was to strengthen Universities in developing countries to increasingly play a role in the economic, social and political development of the societies in which they are located.

Ramapo College of New Jersey, USA

Based on a long standing collaboration between the Department of Nursing, Faculty of Allied Health Sciences, CoHS and Ramapo College of New Jersey, three (3) faculty members and fifteen (15) students from Ramapo College visited KNUST for an exchange programme from 15th to 30th May, 2016. Whilst on campus, they had teaching and practical experiences with the Public Health and Social Sciences Faculties. In addition, a series of programmes were held to educate them about KNUST.

North Eastern University, Boston

Three (3) graduate and sixteen (16) undergraduate students led by Ms. Vanessa D. Johnson (Program Director) from North Eastern University in Boston visited our campus from 23rd to 29th May, 2016 on an exchange programme. A series of workshops were held which included KNUST History and purpose, students’ affairs at KNUST and lecture on Math, Science and Technology in Ghana.

Savannah State University, USA

A group of eleven (11) educators from Savannah State University (SSU) and Savannah Chatham County Public School System (SCCPSS) accompanied by two (2) students visited KNUST from Monday, 30th May to Saturday, 11th June, 2016 based on a Memorandum of Understanding signed in 2010. Whilst here, they attended series of workshops and lectures on Ghana’s history and culture, visited historic sites and also visited the Chancellor of the University; Otumfuor Osei Tutu II, Asantehene at the Manhyia Palace.

Southampton University, USA

Based on a Memorandum of Understanding signed between KNUST and Southampton University, USA which resulted in a joint project with Department of Materials Engineering,

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four (4) faculty members and eight (8) students from their university visited our campus from 11th to 9th July, 2016 on an academic and research exchanges.

Intra Africa Mobility Scheme

KNUST has initiated partnership with four (4) Universities on Erasmus (Intra Africa Mobility Scheme). The Federal University of Agriculture, Abeokuta-Nigeria, Jönköping International Business School, Sweden, University of Ibadan, Nigeria and University College of Northern Denmark. The institutions agreed to cooperate for the exchange of students and/or staff in the context of Erasmus + Programme. Three students from KNUST School of Business will leave in August, 2016 and another in January, 2017. We got •61,000.00 (Sixty-one Thousand Euros) with University of Northern Denmark.

INSTITUTIONAL AND ORGANIZATIONAL VISITS TO KNUST

The office received delegations from the under listed institutions. The purposes of most of the visits were to seek collaborations between KNUST and their Institutions.

NO.	COLLABORATING UNIVERSITY	COUNTRY
1.	University of Arusha	USA
2.	Indiana University of Pennsylvania	USA
3.	University of The Fraser Valley	USA
4.	State University of New York Geneseo	USA
5.	Ramapo College of New Jersey	USA
6.	North Eastern University, Boston	USA
7.	Savannah State University	USA
8.	Southampton University	USA
9.	High Commission of Canada	Canada
10.	McGill University	Canada
11.	University of Nottingham	UK
12.	University of Portsmouth	UK
13.	French Embassy	France
14.	Isa-Lille Catholic University	France
15.	Campus France Paris	France
16.	Ministry of Foreign Affairs ,Paris	France
17.	Ecole Supérieure D'ingénieurs En Génie Electrique (ESIGELEC)	France
18.	International Medical & Technological University	Germany
19.	Hochschule Darmstadt University of Applied Sciences	Germany
20.	Technical University of Denmark	Denmark
21.	University of Electronic Science and Technology of China	China
22.	University of Lagos	Nigeria
23.	University of Ibadan	Nigeria

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24.	Madonna University	Nigeria
25.	University of Abomey-Calavi	Benin
26.	Kenyatta University of Agriculture and Technology	Kenya
27.	Daystar University	Kenya
28.	Cuttington University	Liberia
29.	Campus France Ghana	Ghana
30.	University Toulouse	
31.	Figure Network	
32.	Southern University	
33.	University of Health	
34.	The State University of Zanzibar	
35.	Agape High School	

CHALLENGES

The International Programmes Office lacks a presentable means of transport vehicle to ensure efficient transportation of international staff and students to the office. The provision of a 15-seater bus will enhance the IPO's ability to offer better transportation service to its visitors. Again, the office needs a driver because the current driver is on retirement.

The frequent light outages in the University and Kumasi at large are inhibiting the free flow of work and preventing the office from meeting its timelines. This has drastically slow down the efficient and effective ways the IPO serves its numerous audiences. A sizeable generator is therefore needed for effective running of the block during power outages.

CONCLUSION

The International Programmes office is vigorously pursuing its mandate of fostering collaborations with institutions with similar focus both nationally and internationally. It is the hope of the office that staff in the Colleges would be more proactive towards requests from the IPO.

OFFICE OF GRANTS AND RESEARCH

INTRODUCTION

The Office of Grants and Research (OGR) continues to play a key role in the University as the central research administrative unit, providing support towards the conduct of research. The Office provides pre and post-award support to staff engaged in research projects, administers the University's research fund and promotes the dissemination of the University's research outputs.

STAFF

The following constitute the staff of the Office:

1. Prof. Peter Donkor – Director
2. Ms. Nadia Tagoe – Grants and Research Manager
3. Mrs. Florence A. Aboh –Principal Administrative Assistant/ Research Administrator

The Office is also supported by two (2) Project Administrators, one (1) Project Administrative Assistant, one (1) Finance Support person and one (1) Service Person.

ACTIVITIES OF THE OFFICE

Management of KNUST Research Fund

The University established the KNUST Research Fund (KReF) in 2015 and the Office of Grants and Research was tasked with the responsibility of administering the disbursement of the Fund. The Office has successfully managed the 1st round of the KReF and has already initiated the process for the 2nd round.

The purpose of the KReF is to stimulate research and build capacity of staff and departments in grant proposal writing. It also seeks to encourage interdisciplinary research among staff, and enhance collaboration and linkages among disciplines within the University as well as external partners for the socio-economic development of Ghana in particular and Africa in general. The KReF's main focus is to support applied, problem-solving and interdisciplinary research.

The 1st Call for Applications was published in August 2015. Seed grants of up to GHC10,000 for individual applicants, and larger grants exceeding GHC10,000 for multiple interdisciplinary applicants were offered. Staff of the University were invited through a competitive process to submit proposals for funding. The office received 31 applications in the first round. The breakdown of the applications is as follows:

College of Art and Built Environment	-	3 applications (all interdisciplinary)
College of Agriculture and Natural Resources-		4 applications (all seed)
College of Science	-	4 applications (1 interdisciplinary, 3 seed)
College of Health Sciences	-	13 applications (7 interdisciplinary, 6 seed)
College of Humanities and Social Science	-	3 applications (1 interdisciplinary, 2 seed)
College of Engineering	-	3 applications (all seed)
KNUST Hospital	-	1 application (seed)

Office of Grants and Research

Out of the proposal received, eight (8) applicants were successfully given awards as outlined below.

NO	PRINCIPAL INVESTIGATOR	DEPARTMENT	TITLE	GRANT TYPE	AMOUNT GHC
1	Dr. Ronald Adamtey	Planning, CABE	The impact of the District Assembly Common Fund allocation to people with Disability at the Metropolitan, Municipal and District Assembly level. A comparative study of five (5) Districts in Ghana (IDAC Fund-Disability)	Inter disciplinary	21,450.00
2	Prof. Eric Woode	Pharmacology, CHS	Development of a Gastroretentive Polyherbal Tablet that reduces multiple dosing for pain Management in the Elderly Assessing the impact of Climate Change on Small Scale Reservoir Irrigation Projects in the Sahelian Region of Ghana	Inter disciplinary	19,050.00
3	Dr. Wonder Kofi Mensah Abotsi	Pharmacology, CHS	Anticonvulsant, antidepressant and antipsychotic effects of the leaf extract of <i>psudrax subcordatum</i> (DC.) Bridson (family Rubiaceae) in animal models	Seed	10,000.00
4	Dr. Jacob K. Agbenorhevi	Food Science, CoS	Production and Training on Okra Genotypes for their Potential Food and Medicinal Qualities	Seed	10,000.00
5	Dr. Kwaku Amaning Adjei	Civil Engineering, CoE	Assessing the impact of Climate Change on Small Scale Reservoir Irrigation Projects in the Sahelian Region of Ghana	Seed	10,000.00

Office of Grants and Research

6	Dr. Daniel Boateng	Fisheries & Watershed Management, CANR	Preliminary studies on the breeding, hatchability and larval growth of the African River prawn, <i>Macrobrachium vollenhovenii</i>	Seed	10,000.00
7	Dr. Esmeranda Manful	Sociology, CoHSS	Victims of Sexual Abuse in Kumasi: Challenges and Coping Strategies	Seed	9,260.00
8	Dr. Arti Singh	KNUST Hospital	Mobile Health Technology for blood pressure control in Ghana	Seed	9,840.00

RESEARCH DISSEMINATION

Research Report:

The Office, with the support of the Vice-Chancellor and other units of the University, produced the maiden edition of the KNUST Research Report. The purpose is to inform the University community and the general public about the research output of staff, thus facilitating uptake and contributing to the socio-economic development of Ghana. The Report also aims to catalyze research collaborations and funder interest. The Report was launched by the Vice-Chancellor at the University's Special Congregation in November 2015. It highlighted the visible impact of our research findings on the wider society, ongoing research projects across the University, and a summary of the staff publications. The report is available online at <http://archive.knust.edu.gh/downloads/61/611517.pdf>.

Quarterly Newsletter:

The OGR has published two editions of a quarterly newsletter to publicize research related activities across the University as well as those of the office. This newsletter is targeted at staff and students of the University and is available online at ogr.knust.edu.gh.

Collaboration with Focus FM:

To further enhance dissemination of the University's research activities, the Office has collaborated with Focus FM to present research information on radio through a programme dubbed "NyansapT" which is aired on Saturdays from 2:00 – 4:00pm. The programme features a researcher who presents his work and findings to the public, and interacts with listeners.

TRAINING AND OUTREACH TO COLLEGES AND DEPARTMENTS

The Office has held six (6) training workshops and seminars for staff of the University in the past year. Some of these training sessions were a result of requests from the departments and associations.

Office of Grants and Research

No.	Topic	Target Group
1	Grant Proposal Writing	Department of Sociology and Social Work
2	Grant Financial Management	All staff
3	Proposal Writing for Postgraduate Students	GRASAG, KNUST
4	Grant Proposal Writing in Business and Social Sciences	Business School
5	Grant Administration – The Role of OGR	College of Science
6	Securing Funding for Research	Faculty of Social Sciences
7	Introduction to Research Administration and Grant Accounting Software in Managing Grants	Researchers, Research/Project Administrators and Research Accounting Staff

COLLEGES GRANTS AND RESEARCH OFFICES

The OGR is currently working with the Colleges of Agriculture and Natural Resources (CANR) and Science (CoS) to establish their research offices. Both Colleges have allocated office space which are being prepared and equipped. The Building Stronger Universities (BSU) II Project has supported this initiative by procuring office equipment for four College Research Offices. The establishment of these offices is aimed at bringing research support services to the doorstep of the researchers.

Funder Registrations

The Office carried out new registrations and renewed existing ones with funding agencies to ensure that institutional registrations remained active. Records of all registrations are managed at the office and staff continue to access these for use during grant applications. The University has the following active registrations on funder systems.

System/Registration	Funding Agency
Data Universal Numbering System (DUNS)	USA National Institutes of Health (NIH)
Grants.gov	USA National Institutes of Health (NIH)
Sam.gov (formerly CCR)	USA National Institutes of Health (NIH)
eRA Commons	USA National Institutes of Health (NIH)
NSF Fastlane	National Science Foundation
eGrant System	Wellcome Trust
Joint Electronic Submission (Je-S) system	Research Councils UK
Potential Applicant Data Online Registration (PADOR)	European Commission
Participant Identification Code (PIC)	European Commission

SUPPORT FOR PROPOSAL DEVELOPMENT AND AWARD MANAGEMENT PROCESSES

In the year under review, the OGR witnessed a remarkable increase in staff interest in grant proposal writing. This was demonstrated by enquiries and requests for support in proposal development and award management processes. Research support services provided to staff included dissemination of funding opportunities, proposal advisory services, proposal development, proposal submission on behalf of applicants, processing of grant sub-contracts and provision of resources to support applications.

The Office circulated nine (9) editions of the Office's e-Alert on Funding Opportunity Announcements to researchers. These bulletins contained approximately 180 funding opportunities covering health, social sciences, engineering, planning, science and agriculture. The OGR website was also constantly updated with relevant funding opportunities throughout the year.

In addition, the Office worked with staff from across the University to submit 16 proposals to different funding agencies within the period. The applicants came from the Colleges of Agriculture and Natural Resources, Engineering, Health Sciences, and Humanities and Social Sciences. The funding agencies included European Union, National Institutes of Health, Wellcome Trust, DANIDA, Association of African Universities and IMMANA Fellowship.

The office also continues to provide project management support to grants in the university. These include the Building Stronger Universities (BSU) II Project funded by DANIDA, the Medical Education Partnership Initiative (MEPI) funded by the NIH, and the KReF awards.

COLLABORATION

The office continued to foster collaborations both for its own operations as well as for researchers. The Office therefore received and interacted with several teams from other institutions. These were:

- a) A two-member team from the University of Liverpool led by Professor Imelda Bates, to discuss collaboration opportunities between the two institutions.
- b) A five-member team from Kathmandu University (KU), Nepal, led by Dr. Sagar Raj Sharma to initiate collaborations in various areas including research administration between the two institutions. This was facilitated by Danish partners under the Building Stronger Universities II Project.
- c) A seven-member team from the Schools of Engineering and Environmental and Biological Sciences of the University of Rutgers, New Jersey, USA and the University of Liberia led by Prof. P. N. Balaguru, to familiarize themselves with the research management processes at KNUST and to explore opportunities for collaboration.
- d) Exchange visits with staff of Aalborg University to share knowledge on research administration structures and processes, supported by the BSU II project.

Office of Grants and Research

- e) A Senior Assistant Registrar (Human Resources) at the University of Mines and Technology, Tarkwa, to familiarize himself with the operations of the Office and to explore how UMAT could learn from the OGR.

STAFF TRAINING

The OGR organised training programmes for its staff and other Research Administrators and Accounting staff in the university to build capacity. These included 18 seminars, 3 workshops and a study visit to Aalborg University supported by the Building Stronger Universities (II) Project. Some of the topics treated at the seminars were Bio-sketch writing, Understanding the Science in Proposal Writing, EU Horizon 2020, Research–Research Administrator Relationship, Key Components of a Winning Research Proposal, Bill and Melinda Gates Foundation Opportunities, DANIDA Application Process and Techniques in Dissecting a Funding Opportunity Announcement.

OPPORTUNITIES

The OGR has the potential to expand and serve as a one-stop shop for researchers for all their research support needs. With the planned decentralized system, the central and College-based offices can service the needs of researchers throughout the life cycle of their research processes. In addition to the pre and post award services currently provided, the Office constantly receives request to help address concerns of Researchers in other areas including Ethics, Research Uptake and Intellectual Property among others.

CHALLENGES

The staffing situation continues to pose a challenge to the effective support services that the office desires to offer. The OGR requires additional Research Administrators (RAs) to be based in the Colleges to work directly with researchers at that level. This will also enable the office to effectively handle, on a timely basis, the numerous requests for assistance that it receives from across the university.

OFFICE OF THE DEAN OF STUDENTS

INTRODUCTION

In 1997 the Office of the Dean of Students was established under Statute 45 of the University with the mandate to provide the necessary welfare support services for the students during their period of study at KNUST. Since its establishment, the Office has developed progressively under the Leadership of four Deans who have headed the outfit to date. The present Dean, Dr. Kofi Owusu-Daaku, assumed office on January 1, 2010. Under his leadership, the Office of the Dean of Students has continued to evolve and expand both in terms of human resource and infrastructure. In the year under review, the renovation of the Harper Building which houses the Office of the Dean of Students and other offices involved in students' work was completed and commissioned on the 13th May, 2016. The completion of this work attests to the viable team spirit of among all the staff and various units of under the Dean of Students.

The Office of the Dean of Students has become a central clearing house where both students and staff seek advice and action on issues affecting students; thus almost everything concerning students –their welfare conduct and their academics- are referred to the Office. The Office is in regular consultation with the Vice Chancellor's Office, the Registry, the Finance Office, all Colleges and ancillary academic units, the Health Directorate, the Security Services (internal and the local police), the Protestant and Catholic Chaplaincies as well as the Halls of Residence and the Private Hostels. Additionally, the Office provides a platform for regular interaction between Students' Leadership and a host of other student organizations on one hand, and the University on the other. It administratively oversees the three non-residential facilities on campus (now named as L.I. Andoh, Ulzen and Obese-Jecty buildings) and the Otumfuo Osei-Tutu Hostel. It provides financial supervision in the management of finances of the local Students' Representative Council (SRC), the local Graduate Students' Association of Ghana (GRASAG) and the local student-funded radio station Focus FM. Indeed, the Office of the Dean of Students has truly become functionally The *Students' Integration Centre* of KNUST.

Following the commissioning of the refurbished Office of the Dean of Students (named the Harper building), with a Harper Centre signage, the complex houses various units including the Counselling and Psychological Services Unit (CPSU), Protestant Chaplaincy, Student Affairs consisting of offices for records and documentation and students financial services. The Centre also houses the secretariat for the Master Card Foundation (MCF) Scholarship Program. All of these units work in concert to ensure academic and general well-being of students.

STAFFING

The current strength of staffing at the Office of the Dean of Students including places under the Office's financial management (non-residential facilities, Otumfuo Osei-Tutu II Hostel and Focus FM) is as follows:

a. Senior Members

i. Main Office

- | | | |
|----|-------------------------------------|--|
| 1. | Dr. Kofi Owusu-Daaku | Dean |
| 2. | Dr. (Sr.) Frances Emily Owusu-Ansah | Vice Dean/Head of Counselling Unit |
| 3. | Mrs. Christiana A. Appiagyei | Assistant Registrar (General Administration) |

Office of the Dean Students

ii.		Counselling Unit
4.	Mrs. Victoria De- Graft Adjei	Assistant Registrar/Coordinating Counsellor
5.	Mr. Joseph Asamoah-Gyawu	Assistant Registrar/Counsellor
6.	Mrs. Bernice Ofosuhene Peasah	Counsellor
7.	Miss Akua Afriyie Addae	Clinical Psychologist
8.	Mr. Samuel Yawson	Clinical Psychologist
b. Senior Staff		- 4
c. MCF Program Staff (full time)		- 6
d. Junior Staff		- 51
e. National Service Personnel		- 15

ORGANISATION

The Office is internally organized into several sections but also provides office spaces for a number of independent units yet with close working relationships with the Office. These are listed below:

Sections

- i. Central Office
- ii. Student Guidance and Counselling/Disability Support Services Unit
- iii. Students Affairs
- iv. Students Leadership Affairs (SRC & GRASSAG)
- v. Students Housing and Residence Life
- vi. Students Conduct and Discipline

Independent Units working closely with the Office

- a) Student Affairs of the Registry
- b) Students Financial Services of the Registry
- c) Protestant & Catholic Chaplaincies and Islamic Affairs
- d) Master Card Foundation Program
- e) Ghana Immigration Service

CENTRAL OFFICE ACTIVITIES

Highlights of the 2015/2016 academic year activities included the following service areas: The Dean is the Administrative head of the Office. He coordinates the activities of the various in house sections with the able assistance of the Vice Dean, the cohort of senior members and other staff. The Dean holds regular formal and informal meetings with these sections. Through the office, he dialogues regularly with the Vice Chancellor and works closely with other officers in the University including the College Provosts and other academic heads, the Dean of International Programmes, Protestant and Catholic Chaplains and the Librarian. He works with the various arms of the Registry and the Registrar, Finance Officer, Internal Auditor, Director of Works, Estate Officer and the Maintenance Engineer. He serves as the Chairman of the Office of the Dean of Students Board that meets at least once a semester. The Office through the technical acumen of staff of UITTS has helped actualize several visionary projects of the Vice chancellor including

Office of the Dean Students

- 1) Biometric verification of all students at the beginning of each semester; the spinoff of which is a biometric voting process of all student elections which has increasingly credibility and acceptability across board when compared with manual paper voting.
- 2) In the year under review, another very successful and peaceful biometric student elections were held. And for the first time, a formal and well attended student leadership handing over was successfully undertaken at the Great Hall and chaired by the Vice Chancellor to underpin a smooth transition of SRC & GRASSAG leaderships from the old to the new
- 3) The progressively paperless communication which has kept the KNUST environs pristine and has provided an effective way for students to communicate with each other and also for the administration to communicate with students.

The Office, working the Department of Security is helping to improve campus safety by the introduction of Student Car sticker IDs which are issued only when the driver produces valid vehicle documents and a valid driving license. Clamps have been bought to immobilize cars without stickers, those drivers involved in reckless driving or wrongful parking.

RELATIONSHIP WITH OUTSIDE BODIES

The Office is the first port of call for external agencies and persons wishing to interphase with students. The Office has either directly received such organizations and individuals who come directly or are referred to the office by the Vice Chancellor and other units of the University. Similarly these offices will re-direct such visitors to the Office of the Dean of Students. The Office has facilitates such encounters through the Student leadership in workshops symposia seminars, lectures. The Office therefore provides opportunities for students to develop and enhance their leadership skills by involving them in decision making process, supporting advocacy for students and providing and involving them in conflict resolution techniques. The Office achieves this goals by her own in house leadership for which is run four times in a year in collaboration with International Leadership Foundation. The Office runs a mandatory in-house work shop for new SRC and GRASAG leadership on topics such as time management auditing budgeting, branding. The Office has also established a network and facilitates such training programmes with multinational companies such as Unilever, British Council, Vodafone and a number of medium sized ones in collaboration with the KNUST Centre for Business Development. The Office facilitated different academic trips for Students to attend workshops and field trips outside campus.

STUDENTS GUIDANCE AND COUNSELLING/DISABILITY SUPPORT SERVICES UNIT

The Counselling and Psychological Services Unit (CPSU) which actually predates the office was established in 1993. The Unit has gone beyond its original scope of addressing the psycho-social and welfare needs of students to include services provided to other members of the University community; staff and their dependents as well as consultancy services beyond the University.

During the reporting academic year, 2015/2016, a total of 496 clients accessed the services of Counsellors and Clinical Psychologists in the Counselling and Psychological Services Unit. Out of this 261 were males and 235 were females. The clientele included students, staff and their dependents and those from the general public who were referred to the Centre for counselling, psychotherapy and psychological assessments. The table below shows the clientele and services provided.

Distribution of Service Areas

Academic	Financial	Social Behavioural	Housing	Medical/ Psychological	Total Number of Clients
141	113	128	17	66	Male = 261
					Female = 261

Again, of the total number of clients, **31** prospective applicants to tertiary institutions utilized the services of the centre in the filling of forms and selection of relevant programmes.

On-going formation and training of the Unit staff forms a core part of our service delivery and capacity building. To be effective health professionals, continuous personal development is important. Therefore, within the year, there has been several in-service training for the Counsellors and Psychologists with visible results in their clinical skills.

Similarly, in keeping with our commitment to the ongoing formation and professional development of the counsellors and psychologists, the staff attended its annual retreat at the Paradise Resort near Lake Bosomtwe from May 18th-21st, 2016.

The staff of the Unit attended a Joint Mental Health Conference on Mental Health in Africa: Prospects & Challenges in the University of Ghana, Accra from 15th -17th October, 2015 and presented two research papers from work done in the Unit. These papers are presently under review for publication.

A carefully nurtured team spirit among the staff of the Unit, clinical psychologists and counsellors, underlies the enthusiastic and selfless service that led to the successful referrals and case resolutions of the students served in the year under review.

The Unit continues to seek innovative ways of improving services rendered to its clientele through their own professional development activities such as the bi-weekly in-service training and the annual retreats for its counsellors and clinical psychologists. During these educational sessions, the staff is kept abreast with best practices and current trends in the field to enable them provide empirically validated treatment options for their clients.

The staff of the Unit also rendered other services to the university and the general public in the form of presentations (resource persons) on different subject areas for the SRC, Affiliations Office and other groups in the general public, both regional and national. This included the supervision of student interns from the Department of Social Work in the centre for the period of February, March and April, 2016 as part of their practicum in the programme. The centre also facilitated in the selection of beneficiaries of the SRC students' relief fund and the KBN.

The Counsellors and Clinical Psychologists at the Colleges and at the Unit continually seek innovative ways to educate the students on mental health issues. Within the year under review, they have presented papers on different issues to students on various topics including depression, anxiety, stress, substance abuse and other psychological conditions.

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It is recommended for consideration that in the coming academic year, students should be made aware of the Counselling and Psychological Services Unit in their admission letters to further improve visibility and accessibility of the psychological services available to students for timely interventions in some cases. Given the increasing student numbers and staff who access the services of the Unit, an additional two additional counsellors/psychologists would be a step in the right direction to ease the present client per therapist load and ensure a more effective service delivery.

Most importantly, it is further strongly recommended, for consideration, that given the volume of cases seen at the Unit and the need to continually improve staff competence, through in-service training and assessment competence training sessions, it is critical that the appointment of the Head of the Counselling and Psychological Services Unit becomes a full time position, devoid of other numerous responsibilities, to ensure the greater efficiency and effectiveness.

Hospital Liaison

The Counselling and Psychological Services Unit continued to liaise with the University Hospital by monitoring inpatient hospitalizations among the Student population. The Consultant Psychiatrist, Dr. Kwasi Frempong-Manso, a lecturer at SMS, who also consults at the KNUST Hospital, additionally provided mental health services at the students' clinic on Tuesdays and is on call for emergencies at the KNUST Hospital. This development has reduced stress on the staff of the Unit. This service has extended to staff and their dependents as envisaged by the Director of Health Services.

Trained volunteer student Peer Counsellors visited students, during hospitalization and reported to the Counsellors/Clinical Psychologists for follow-ups. Additionally these student counsellors have become front line sentries who report any sign of stress-related symptoms of their colleague students to the Unit

Disability Support Unit

The Office, over the years, has played an advocacy role for students with disability and have kept a national service person with such a challenge to work in the unit as liaison for the on-going work in the office. The Vice Dean of Students who also doubles up as the head of the Counselling Unit brings a lot of professional expertise and compassion on the subject of disability. Not only is she a lecturer at SMS but has been involved in the activities of the Centre for Disability Research (CEDRES) of SMS which runs both an undergraduate and postgraduate programmes in Disability Studies.

In the year under review, the significant activities with Students with Disability included the following: a) a medical examination was conducted for all students with disabilities; b) applications for disability bursary for members of the students with disability association who did not have it yet; c) and an election of new executives for the association. Some of the challenges reported and requests made included a request for a representative on the SRC board and a request for accommodation for some students with disability in the halls of residence. Their financial needs were noted with the SRC leadership for consideration on the KBN fund.

INTERNATIONAL STUDENTS AFFAIRS

The growing numbers of international student population requires that sufficient attention was given to their general conduct and welfare which can ultimately impact academic output.

Office of the Dean Students

In the reporting year, 2015/2016, the Vice Dean of Students, who has oversight responsibility for the affairs of International Students, repeated what was done last year - a special day of orientation for international students in areas deemed essential for International Students' smooth transition and adjustment into the University. The orientation focused immigration laws of Ghana, residence permit acquisition and renewal processes, visa acquisition, the laws of Ghana in relation to the International Students, cultural sensitivity and adaptation. The Vice Dean of Students who regulates the activities of the International Students Association assisted the Executive in their activities with relevant resources to enhance their smooth stay on campus.

The International Student Association (ISA), under the supervision of the Vice Dean of Students, organized several activities including games, educational trips, Mr/Miss ISA and end of year dinner and awards nights to acknowledge and encourage international students who excelled academically. More importantly, in this year, several academic tutorials were organized to address the academic challenges of students in various programs and these yielded visible results in the reduction of number of students with poor performance in their mid-semester results. It is the vision of the Vice Dean to make these academic tutorials one priority of the ISA.

STUDENTS LEADERSHIP AFFAIRS (SRC AND GRASSAG)

The Office works with the leadership of the central student body of SRC and GRASSAG as well as their wings to ensure their aspirations are effectively aligned with the philosophy of the University. The Office liaises between the SRC and the University Administration, give direction and offer advice to the Students' Leadership whenever necessary through the SRC and Graduate Students Association of Ghana (GRASAG). The Accounts Unit of the Office manages and would continue to manage the technical details of both SRC and GRASSAG accounts under the overall supervision of the Dean to ensure that programmes are properly budgeted for and that there is prudent use of monies. This is still "Vision in Progress" and each year see small baby steps of progress. The University's Internal Audit continues to assist the Office in auditing the accounts of recognized student bodies as their external auditors.

STUDENTS HOUSING AND RESIDENCE LIFE

This Unit of the Dean of Students Office is headed by the Acting Housing Officer appointed by the University. The students housing unit is responsible for coordinating activities of non-residential students' accommodation issues by dialoguing with hostel owners. The unit is also responsible for the management of the three Non-Residential Students Facilities. It also plays a pivotal role in the management of the Otumfuo Osei Tutu II Hostel, with the support of the SRC leadership. During the year under review, there was comprehensive maintenance of the entire hostel involving fumigation, carpentry, plumbing and electrical works during the Christmas break.

In order to keep the three Non-Residential Students' Facilities functional, similar major maintenance were carried out. The unit continued to work with private hostel owners to ensure the safety and welfare of non-residential students of the University. This was achieved through a series of meetings held with hostel operators and physical inspection of these hostels.

Office of the Dean Students

The Office of the Dean of Students liaised with hostels in and around campus to foster a common standard of operation in dealing with students. The Office, through its Housing Unit, in conjunction with the Ghana Tourism Authority, Ghana National Fire Service, Ghana Police Service, the Security Services Unit of KNUST and the Students Representative Council, undertook a three day inspection exercise on hostel facilities within and without KNUST from Tuesday 9th February to Thursday 11th 2016. The goal was to ensure students' safety and maintain some general and acceptable accommodation standards. This was also to ascertain information which would be relevant to recommending a list of approved hostels to guide students in their choice of finding suitable facility. The recommended list has since been published on the University website.

The team organized the visitations under the following standardized requirements:

- Location (proximity and accessibility)
- Certification from Ghana Tourism Authority which covers Fire Certificate, Police and Environmental Health Reports
- Designed Capacity (number of rooms)
- Boarding and Learning Facilities Provided at the Hostel (Bed and mattress for each student, Wardrobes in the bedrooms, Study tables and chairs in the bedrooms, Ceiling fans in the bedrooms, *en-suite* bathrooms and water closets)
- Catering and Recreational Facilities Provided at the Hostel (Common TV area, Private kitchenettes and common kitchens)
- Rental Charges per student for 2016/ 2017 Academic Year
- Management of the Hostel (Number of managers, porters and security men)
- Maintenance Schedule (per semester or annually)
- License Agreement

RECOMMENDATION TO MANAGEMENT OF THE HOSTEL

After visiting all the hostels, the Dean of students officially wrote to all the hostel managers to inform them of the observations and recommendations made. The observations could generally be summarized as follows:

- (i) Management of the hostel should improve security at the hostel by recruiting at least two security guards
- (ii) Log book must be opened for students to voluntarily log in and out for their local movement to Kumasi and its environs.
Any student traveling outside Kumasi would need to write for approval from the Dean of students through his/her Head of Department.

i. Students Conduct and Discipline

Students who breached the University's Regulations are investigated and the appropriate sanctions are taken against them. Unfortunately, despite the relevant orientation and counselling, some students fell foul to a number of offences that did not augur well for communal co-existence. The Office played key roles in helping to arbitrate and resolve a host of issues of students; in which restitution were made and issues resolved amicably between feuding students.

Much more serious cases were referred to an *ad hoc* standing Disciplinary Committee chaired by a Senior member with a lawyer from the Registry, the Deputy Chief of Security and an appointee of the SRC include as members with the mandate from the Vice Chancellor.

Office of the Dean Students

As in previous years, in the year 2015/2016, this standing Committee investigated issues of misconduct of Students reported to the Office of the Dean of Students and the KNUST Security Office. The Committee has since submitted different reports on cases investigated and sanctions have been meted out to those who were found culpable of violation of the regulations of the university. During the year under review, the Committee investigated various cases of assault, theft, defrauding under false pretences and fighting, just to mention a few

INDEPENDENT UNITS WORKING CLOSELY WITH THE OFFICE

The Offices of some of these independent Units were moved to the premises of the Office of the Dean of Students so to speak *“to provide one stop shop for the academic and psycho social needs of students”*.

a) Student Affairs of the Registry - Unit for documentation and records and welfare

The Office collaborates with this Unit in providing consular services for our international students. The office provides logistics to ensure that on the rare occasion that we lose a student, the funeral arrangements are catered for, working together with the Academic Department of the deceased. The Assistant registrar in charge of the Office sits on the DOS board.

b) Student Affairs of the Registry - Unit for Students Financial Services

The Office is in constant discussion with the Students Financial Support Services (SFSS) and the Student Affairs of the Registry at the committee levels to select needy students who required financial support from the University. In addition, the Office oversees the operations of the Ketewa Biara Nsua (KBN) fund that assists needy students. The Office is working around the clock to ensure that the current SRC executives interview and select beneficiaries for the fund before they hand over to the new Executive. This would reduce the tendency of winners of the SRC elections to use part of KBN as slush fund to pay back to people who sponsored them in the election. The Counselling Unit makes recommendation to both the Students Financial Services and the SRC for assistance on the basis of genuine need.

c) Protestant & Catholic Chaplaincies

The Protestant Chaplaincy has offices on the premises and together with the Catholic Chaplaincy collaborates with the office to respond to the spiritual needs of the students. To register any new Christian body, the protestant Chaplaincy assists the office in the screening process

There are two recognized Islamic Student Bodies – the main Ghana Muslim Student Association and the Ahmaddiya Muslim Students Association. Their activities are monitored through recognized senior members who advocate on their behalf.

d) Ghana Immigration Service

The Ghana Immigration Service has been provided an office space at the premises of the Dean of Students continues to smoothly facilitate the processing of residence permits for our International students and thereby curbing the annual systemic challenge of securing residence permit. This work is carried out with the Student Affairs of the Registry

e) Master Card Foundation Program

This is a 10 year program supported by the Foundation of the Canada-based credit card company Master Card. This program, for now, is coordinated from the Office in which the Dean has oversight responsibility on behalf of the Vice Chancellor. This generous grant is to cater for the comprehensive needs of scholars selected largely from rural deprived communities attending resource deficient schools.

The Program at KNUST began in February, 2014 with an initial set up of a Secretariat with clearly defined roles to oversee the affairs of the Program as distinguished from core University activities. The smooth partnership with the University has resulted in the successful recruitment of two cohorts of Scholars with a current full strength of 150; with a firm projection to recruit 150 additional scholars to bring the total to 300. The Secretariat continues to provide the needed administrative and students support and counselling services.

The Secretariat has so far developed a handbook for the Scholars to offer a clear direction in terms of leadership development, entrepreneurship, transition projections as well as welfare, conduct and discipline. For the year under review, the programmes along the stated themes have been undertaken to equip the scholars for the global environment. The latest was its flagship Summer Camp event which prepares the Scholars for family life, vacation internship, community project and impact. At the heart of the Scholars Program is its essential component of transformative leadership, go-back give-back and leading change.

Preparations have been rolled out for the successful recruitment of cohort three (3) by ending of July, 2016. After thorough individual interviews, home visits will follow that ascertain information obtained from candidates during the interview and further help in recruiting the best candidates for the award of scholarship. This year, a total of 150 will form the third cohort bringing the total number of Scholars to 300. The Program, so far, is proud of a retention rate of 100%.

The Master Card Foundation Scholars' Program was formally launched on 16th January 2016 by President and CEO of Master Card Foundation Reeta Roy under the chairmanship of the Chairman of Council Dr. Kwame Saarah Mensah to a fully-packed Great Hall audience made up the 50 cohort 1 and 100 cohort students, Provost Deans ,invited high schools, parents of Scholars.

After a tour of the Manhyia Palace, Reeta Roy and her team of two were received in a private audience by the Chancellor of the University His Majesty Otumfuo Osei-Tutu II on Sunday 17th January 2016 in the company of The Chairman of Council Dr. Kwame Saarah-Mensah and the Vice Chancellor Prof. William Otoo Ellis. The future of the program can only be bright

CONCLUSION

The year, under review, has been productive. All staff at the Office of the Dean of Students have put in maximum effort to excel in their work with students. The renovation works at the Office have been successfully completed and the building has been commissioned. The entire premise is beautifully transformed. We look forward to another productive year of continued service to students, staff, and their dependents.

UNIVERSITY LIBRARY SYSTEM

INTRODUCTION

The vision of the Kwame Nkrumah University of Science and Technology is to be globally recognised as the premier Centre of excellence in Africa for teaching in Science and Technology for development. To help attain this goal, the University Library, as an integral part of the university, provides access to quality academic and scholarly resources to the academic and research community of the university. For the 2015/2016 academic year, the University Library System, which comprises the main Prempeh II Library and the Six College Libraries namely: College of Art and Built Environment; College of Agriculture and Natural Resources; College of Engineering; College of Health Sciences; College of Humanities and Social Sciences and College of Science provided relevant, accurate, current and timely information in both print and electronic formats in support of the university's core business of teaching, learning, research and entrepreneurial development. The Library ensured maximum use of information resources by staff and students through training sessions and library orientation programmes, seminars, and workshops. Despite these positive developments, the Library continues to face various challenges which hamper development of new services for staff and students.

BOOK STOCK OF THE LIBRARY SYSTEM

The total number of books added to the stock of the Main Library for the year 2015/16 was 3175 compared to 3,065 volumes in the previous year. This shows an increase of 110 or 3.6%. Out of this number, 292 were purchased from local representatives of foreign publishers mainly from Europe and North America; while 416 were received as donations from external sources mainly from the United Nations and its specialised agencies such as FAO and WHO. Donation of the United Nations publications was facilitated by the United Nations Information Centre in Accra. Other sources of foreign donation included the African Union and Rotary Club International which gave the Library a total of 156 books. A comparatively high figure of 1096 volumes were received through local donations. Of this number, 846 assorted books representing 77.2% were received from the Procurement Office. These were books retrieved from the defunct KNUST Bookshop and facilitated by the General Administration of the University Registry. Other sources of local donation included the Ghana Statistical Service, the Council for Scientific and Industrial Research, Bank of Ghana. The School of Graduate Studies added 1151 graduate theses. The total book stock of the Main Library therefore stands at 153,151 as at 19th May, 2016.

COLLEGE LIBRARIES

There are six College and satellite libraries which together with the main Prempeh II Library make up the KNUST Library System. For the year under review, the College of Agriculture and Natural Resources added the most volumes of four hundred and twenty-five (425) to their stock. This was followed by the Colleges of Science and Humanities and Social Sciences which added three hundred and sixteen (316) volumes and two hundred and eighteen (218) volumes respectively. The College of Art and Built Environment added ninety-four (94) volumes whilst the College of Engineering Library added the least volumes of eighty-five (85). Hence the total book stock of the six College Libraries for the 2015/2016 academic year was seventy-eight thousand, five hundred and fifty-nine (78,559) as against seventy-one

University Library System

thousand, five hundred and twenty-nine (71,529) volumes for the previous academic year. The break-down of total book-stock for the colleges is as follows:

College of Humanities and Social and Social Sciences	19,246
College of Science	14,023
College of Health Sciences	12,752
College of Agriculture and Natural Resources	12,448
College of Art and Built Environment	11,037
College of Engineering	9,053
Total	78,559

This brought the total stock of the entire KNUST Library System as at 31st May, 2016 to two hundred and thirty-one thousand, seven hundred and ten (**231, 710**).

PRINT JOURNALS

During the year under review, a total of one hundred and ninety-four (194) print journals and other serial publications such as newsletters, reports and bulletins were received. Majority of the journals received were outstanding copies purchased under the Association of Commonwealth Universities' Low Cost Journal Scheme in 2011/2012 academic year. Other publications received as donations were obtained from the United Nations and its agencies mostly FAO, WHO, UNESCO and ILO as well as IFLA. The library continued with subscription to online journals through the Consortium of Academic and Research Libraries in Ghana (CARLIGH). Readers were therefore provided with the option of accessing full-text published journal articles in either print or electronic formats.

ELECTRONIC JOURNALS

The KNUST library system had access to over 35,000 electronic journals from 51 academic databases and more than 100 million full text documents, bibliographic information, abstracts, book reviews etc. These were obtained through the continued membership of the Consortium of Academic and Research Libraries in Ghana (CARLIGH) and facilitated by the International Network for the Availability of Scientific Publications (INASP) and the Electronic Information for Libraries (Eifl.Net.). These databases which cover a wide range of subjects relating to programmes offered by the University includes AGORA, HINARI, EBSCOHost, OARE, Emerald, Institute of Physics, Science Direct, JSTOR, Blackwell/Wiley, Sage and Royal Society of Chemistry and others. The most important addition to these databases in the course of the year was the Institute of Electrical and Electronic Engineers (IEEE) database.

Off Campus Access to Online Journals

Staff and students had off campus access to online journals subscribed to by the University Library using their user name and password. This has been made possible through subscription of Ezproxy a software which allows users access to databases from any remote location. The Figure below shows the usage level during the period under review.



Statistics accessed from Ezproxy and transaction logs from publishers indicate that there has been an increase in the usage of the databases for the year under review compared to the previous years. Science direct, Biomed, Plosone, Emerald, Ebscohost and Sage were the frequently used electronic resources. To optimize the use of these resources, the Electronic Information Department organised training programmes and workshops for Undergraduates, Post-graduates and Faculty on access and use of online databases, the Institutional Repository (KNUSTSpace), reference management software, NVivo, AtlasTi and Turnitin software. A total of 2613 users were trained during the period under review.

A total of five thousand nine hundred and sixty-one (5,961) users visited the Undergraduate Learning Commons while three thousand, nine hundred and five (3905) patrons visited the Faculty/Postgraduate Research Commons during the period under review. On average, 60 users visited the Undergraduate Learning Commons each day while 40 users visited the Faculty/Postgraduate Research Commons every day for literature search and other research support.

LOCAL NEWSPAPERS

The Serials Department of the Main Library continued with direct subscription to single copies of The Daily Graphic, Ghanaian Times and The Spectator. Other local newspapers on subscription were The Mirror, and Business & Financial Times. These were delivered by representatives of publishers. In addition to those on subscription, the Graphic Communications Group Limited delivered two complimentary copies of their newspapers namely The Daily Graphic, Mirror and Graphic Sports. The Pioneer was the only private newspaper subscribed to by the Library because of its local content.

University Library System

These local newspapers were indexed and entered into the database J-MAN to enable users to access relevant information for their research work. During the 2015/2016 academic year, a total of 12,307 indexed articles from local newspapers were documented in the J-MAN database for use by researchers.

In addition to academic related articles, the department indexed important advertisements, especially those emanating from KNUST and other cognate institutions in response to feedback from users. The database served as a reliable source of primary information on current and past events in Ghana and around the world for the University Community, notably, undergraduate and postgraduate students working on project works and theses. Patronage of the local newspaper database was more appreciable than the previous academic year.

BINDING OF NEWSPAPERS

A total of twenty-five (25) sets of bound newspapers out of the expected thirty (30) were received within the period under review from the University Printing Press. They comprised January to December, 2014 editions of the Ghanaian Times, Daily Graphic, The Pioneer, The Mirror, and The Spectator. Binding is an effective means of preserving newspapers for current users and posterity.

DEVELOPMENT INFORMATION CENTRE (DIC)

The Development Information Centre which is a Section within the Serials Department is a collaboration between the KNUST Library and the World Bank. This Centre was created to provide access to both print and electronic formats of World Bank publications in Developing Countries. The DIC provides access to much needed development-centered information about Developing Countries.

Over 10,000 research works dating back from 2005 (including translation and journal articles) were made accessible to the user community of KNUST for free use from the World Bank's Open Knowledge Repository (OKR) and Open Access Policy resources. During the 2015/2016, academic year, World Bank publications were accessed daily by users, especially by Economics and Business Administration students. Other notable users were Lecturers, Research Fellows, Research Assistants, Postgraduate and Final year undergraduate students who needed information for their project work and research publications.

During the year under review, the World Bank discontinued its Depository Library programme of sending print copies of materials (book and journals) following the creation of the Open Data Site. However, the library was allowed to retain and use all previously downloaded contents from the Bank's e-library in perpetuity, as well as any World Bank books, CDs and DVDs shipped to the library.

PROCESSED BOOKS

There were 1,310 books processed and distributed to the various sections/departments of the main Prempeh II Library by the Cataloguing Department compared to 4,182 books processed by the same department in the previous year. This showed a decrease of 2,872 books or 68.7% over the previous year's total. The breakdown was as follows:

Lending Department	-	268
Student's Reference	-	751
UN Publications	-	85
Ghana Collection	-	128

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Main Reference	-	77
World Bank Publications	-	1
Women's Collection	-	—
Total	-	1,310

Some books were accompanied by CD-ROMS which were labelled and sent to the Electronic Information Department for access by users

READERS SERVICES

During the year under review, a total of two thousand, seven hundred and fifty-eight (2,758) new users were registered by the Library. The figure fell below the number of new users of three thousand, two hundred and eighty-eight (3,288) registered in the 2014/2015 academic year. In percentage terms, there was a decline of 16.1% compared to the previous academic year. The decrease in the number of users registered could be attributed to the decentralisation of Fresh Students orientation to the College which did not give the Main Library enough room to sensitise the students on the importance of library registration.

A total of five thousand, two hundred and sixty (5,260) books were issued out to users during the year under review compared to nine thousand, one hundred and twenty-five (9,125) borrowed in the 2014/2015 academic year. This represents a decline of 42.4% over the previous academic year. The reason for the decline may be attributed to frequent breakdown of the Alexandria Software and power outages experienced in the University in particular and the country as a whole.

REFERENCE AND RESEARCH LIBRARY

The KNUST Reference and Research Services consist of the Undergraduate and Reference and Research Library. The Undergraduate Library is a reserved collection of multiple copies of core or prescribed textbooks, which may be consulted within the Library premises. The Reference and Research Library on the contrary, accommodates reference books in the programmes run by the University, in addition to reference tools such as general and specialised subject encyclopaedias and dictionaries, almanacs, handbooks, directories, yearbooks and university prospectus. Annexes to this department include the Ghana Collection, Theses Section, Women's Collection and the United Nations Publications.

A comparatively low figure of four hundred and ninety-three (493) processed books were received from the Cataloguing Department during the 2015/2016 academic year compared to three thousand two hundred and sixty-one (3,261) received from the same department in the previous academic year. In percentage terms, this represented a drop of 83.9%. The reason for this drop was due to the fact that during the period under review, only 292 new books were purchased.

A total of one thousand six hundred and fifty-five (1,655) books were consulted by users during the year. Out of this number, two hundred and fifty-one (251) were temporary reference books; seven hundred and thirty-three (733) materials were from the Ghana Collection while six hundred and forty-one (641) were theses. Moreover, during the 2015/2016 academic year, a total of twenty thousand, three hundred and eighty (20,380) users

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used the Reference and Research Library. This is the summation of the daily counting of the six sections throughout the operational period.

The break-down of the user statistics is as follows:

January-March	4365
April-June	6774
July-September	1239
October-December	8,002
Total	20,380

KNUST INSTITUTIONAL REPOSITORY

The KNUST Institutional Repository continued to collect, organize, preserve and provide online access to scholarly and academic works produced by the university's Faculty, staff and students. During the year under review, the Department was able to upload a total of two thousand, three hundred and thirty-eight (2,338) new records unto the KNUSTSpace as against one thousand, one hundred and twenty-two (1122) uploaded in the 2015/2016 academic year. The breakdown of the number of records archived unto the KNUSTSpace in the 2015/2016 was as follows:

Thesis	-	684
Conference Proceedings	-	233
Journal of Science and Technology (JUST)	-	371
Research Articles	-	642
KCCR	-	70
TOTAL	-	2338

This brings the total number of entries to eight thousand, four hundred and ninety-six (8496).

WORLD RANKING OF REPOSITORIES

KNUSTSpace was ranked 14th in Africa during the January 2016 Webometric ranking of World Universities. This was a great improvement compared to the last ranking (July 2015, edition) which did not feature KNUSTSpace at all among the first 100 repositories in Africa. Statistics from Google Analytics (August 2015 – May 2016) indicated that an average of 315 researchers visit the Repository a day. These were made up of researchers from Ghana, India, Indonesia, USA, Netherlands, UK, Nigeria, South Africa and Kenya which translated into a total of 4207 researchers visiting the KNUST repository per month.

RESEARCH COMMONS

The Research Commons was created two years ago to offer services to Faculty and Postgraduate students especially those offering PhD programmes. The objective was to provide researchers with an environment conducive for sharing knowledge and also engaging with each other on joint research. The Research Commons, hence facilitates effective use of available online academic databases subscribed to by the Library. The Research Commons was given a major face-lift during the period under review with support from the Building Stronger University (BSU) Project. The Project which was sponsored by DANIDA supported the Unit with 5 Desktop Computers, a Conference facility, Air Conditioners and Laptops worth GH¢ 189,880.00.

TECHNICAL SUPPORT

The Technical Support Unit continued to offer technical assistance to the Electronic Information Department of the KNUST Library. The Unit during the 2015/2016 academic year successfully completed the migration of the Alexandria Database unto the KOHA platform. Currently KOHA is being monitored to identify potential technical issues/challenges that might arise before full migration. During the period under review, the Unit received new equipment worth several thousands of cedis to boost its operations in order to support the network upgrade in the University Library. Also, the Technical Support Unit continued with the scanning of old theses already in the custody of the library to be uploaded unto the KNUSTspace.

STAFFING

During the period under review, the staff strength of the entire KNUST Library System stood at one hundred and twenty-four (124) as against the previous number of one hundred and fifty-two (152). Retirements and transfers, especially at the Junior Staff (Non-Technical) grade, accounted for this shortfall.

The break-down is as follows:

Senior Members	Twenty (20)
Senior Staff	Thirty-six (36)
Junior Staff (Technical)	Fifty-five (55)
Junior Staff (Non-Technical)	Thirteen (23)

The year under review also saw the appointment of Dr. Samuel Kotei Nikoi as the new University Librarian for KNUST following the retirement of Dr. Helena Asamoah-Hassan.

INCOME GENERATION

During the 2015/2016 academic year, a total of fifteen thousand, three hundred and sixty-seven cedis, forty-nine pesewas (GH¢ 15,367.49) was generated by the University Library as income from fines, photocopying services, printing and scanning services and the use of its premises for training programmes. The breakdown was as follows:

Fines	GH¢ 2,502.50
Photocopying Services	GH¢ 2,369.49
Use of Premises	GH¢ 10,000.00
Printing and Scanning services	GH¢ 495.50
Total	GH¢ 15,367.49

DONATIONS

The College of Agriculture and Natural Resources Library received a donation of four hundred and twenty-five (425) books from the International Organization of Chemical Sciences and Development, which was facilitated by Dr. Christopher Antwi, a Lecturer, at the Faculty of Agriculture.

The College of Science Library also received a total of three hundred and Sixteen (316) assorted books from the Ramapo College of the United States of America (USA). In addition, the Head of Department of Food Science forwarded forty-six books and back issues of journals to the Library. The Ghana School of Law donated two hundred and eighteen (218) textbooks to the Faculty of Law Library.

Professor Stephen Owusu Kwankye of the Regional Institute for Population Studies (RIPS), University of Ghana during the period under review donated copies of a book entitled

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“Population, Health and Development in Ghana” to the KNUST Library which were distributed to both the University Library and the College of Art and Built Environment Library. The donation was facilitated by Mr. K. Agyen-Gyasi, the College Librarian. The Legacy project under the Pan African movement, led by Mr Kwesi Pratt, also donated books authored by the late Osagyefo Dr. Kwame Nkrumah to the Prempeh II library.

NEW DEVELOPMENTS

The Main Library purchased ten new HP Computers and ten Uninterrupted Power Supply (UPS) distributed to the various departments including the Librarians Office to support the administrative functions of these Units. The major beneficiaries of these computers were the Reference and Research Department, Serials Department and the Technical Support Unit of the Library.

The College of Science Library acquired three additional Air-conditioners to augment the existing seven (7) already in the Library. This add up to ten the total number of Air-conditioners in the College Library and thus improved the conditions in the Library. Moreover, five (5) potted plants were acquired and placed in the library.

The College of Engineering Library contracted the Department of Building Technology, College of Art and Built Environment to construct 17 carrels, 30 books Cases/Shelves and two Journal Racks at the Reference section of the Library. It also acquired five (Floor Standing) and (2.0 HP) Air Conditioners to be installed at its Reading and Reference sections and also for the setting up of an Electronic Library. Moreover, the Library acquired 11 computers, a Projector, and a Furniture made up of a Desk and three Chairs for its Office Staff. Another, (1.5 HP) Air Conditioner was purchased and installed at the College Librarian’s Office.

The College of Art and Built Environment (CABE) Library purchased four new Air Conditioners two (2) Window (2.0 HP) type and two DAIKIN Split (2.0 HP) types during the period under review to replace the two existing ones which have broken down. Furthermore, the College Library began the setting up of an Electronic Library project for the Faculty of Art Library during the period under review. The proposed project which is expected to accommodate ten users at a time is located in the new Library Premises. Phases I, II and III have been successfully completed. This involved electrical works, the passing of cables and purchase of switches and a Server to cater for more Network points. The project is expected to be completed and commissioned by the end of July.

The Provost of the College of Humanities and Social Sciences (CoHSS) procured a copy each of three books authored by Dr. Richard Amoako Baah of the Department of History and Political Studies for the Faculty of Social Sciences Library.

The College of Agriculture and Natural Resources purchased an updated version (2009 to 2011) of the LanTEEAL (The Essential Electronic Agricultural Library), an offline Database in the Agriculture and Natural Resource Sciences for the College Library. This database is highly patronized by the Undergraduates, Postgraduate, Doctoral students as well as Lecturers.

OTHER SERVICES

Orientation/User Education

For the past three years running, library orientation has been decentralized to the Colleges. During the 2015/2016 academic year, the College Librarians, assisted by some staff of the Main Library, conducted Library orientation for the first year students. Reports received

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indicated that the exercise at the Colleges was well attended. However, the high attendance did not reflect in the number of first year students who registered at the Main Library, even though they were urged to do so. User education, especially on e-resource use and research information was organised for students at both the undergraduate and postgraduate level as well as the Faculty.

Information Retrieval Services

The information retrieval services continued to rank higher among the services provided by the Electronic Information Department (EID). Evidence shows that, students and some Faculty members highly patronized this service.

Document Delivery Service

This service is done through literature searches by staff on behalf of clients (students and faculty members) to support them in writing their theses and research publication, among others. Documents are delivered to clients through their emails or copied to pen-drives. The Department delivered 708 research articles in portable document file (pdf) to 113 users over the period.

Promotion and Marketing of E-Resources

Marketing and promotion of the library's resources are centred on access and use of online journals through training, word of mouth (one-on-one) and occasional reminders and updates sent to faculty members through the KNUST email system. The campus radio station (Focus FM) is also used as a platform for creating awareness and educating the University community on the value and relevance of electronic resources.

IDL perception study

During the period under review, the library carried out a perception study whose aim was to assess the information needs and service satisfaction level of IDL students. A report with recommendations has been submitted to the IDL board for their consideration. Amongst others, it is proposed that Learning Resource Centres be established in all IDL offices and also a Librarian with direct responsibility for IDL students appointed, similar to what pertains in the other six colleges.

CONFERENCES/SEMINARS/WORKSHOPS ATTENDED

Messrs K. Agyen-Gyasi, Richard Bruce Lamptey and Michael Sakyi Boateng as well as Mrs. Evelyn Mensah attended the Annual General Meeting and Conference of the Ghana Library Association held at the Trade Fair Centre, La Accra on 4th November, 2015.

Messrs K. Agyen-Gyasi and Michael Sakyi Boateng attended a Workshop on the Ethical Use of Information in Academic work and how to run an Academic Institution Libraries held at Balme Library from 23rd -24th July, 2015, University of Ghana.

Messrs K. Agyen-Gyasi and Edward Mensah Bortey attended a Workshop on Digitisation/ Fourth International Conference on African Digital Libraries and Archives (ICADLA)-4 held from 26-29th May at the Balme Library and the Institute of African Studies, University of Ghana.

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Mr. K. Agyen-Gyasi attended the Fourth International Conference on Infrastructural Development (ICIDA) held from 25-26th March 2015 at the Conference Hall of the Institute for Distance Learning, KNUST, Kumasi which was organized by the College of Art and Built Environment (CABE).

As part of the Building Stronger Universities (BSU) project sponsored by the government of Denmark, Messrs Bruce Lamptey, Victor Teye, Michael Thompson and Ms Anna Hassan went on a familiarization visit to Denmark.

CHALLENGES

The integration of the Information Literacy Skills (ILS) course into the University curriculum has suffered a major setback as a result of a decision by the Academic Board to discontinue the teaching of the course in some Colleges of the University. The main reason assigned was that, these colleges have exceeded their mandatory twenty-one (21) course credit. The main objective of teaching this course is to equip students with the necessary skills to become independent information seekers and lifelong learners. To this end, both staff and students stand to gain from the continuous development and delivery of the ILS training programme which has been running over the past three years in the university. It is hoped that the management of the University would take a fresh look at the ILS training programme and find alternative ways of embedding it into the curriculum of the university.

Populating the KNUST online digital repository is a challenging task. Researchers in the university find it difficult giving out their research papers to be uploaded. Also, although graduate students' are required per university regulations to send a soft copy of their theses to the EID for uploading unto the repository, majority of them either fail to comply with this directive or attach blank CD's to the hard copies of their theses.

There are frequent power outages on campus which is a major cause of computer breakdown at the EID. There is the need for a centralized uninterruptible power supply (UPS) connection at the department to remedy this situation. There is also the urgent need to overhaul the wiring system as well as the power switches and cables at the undergraduate learning commons immediately to ensure efficient service.

Another major challenge of the KNUST Library system is the procurement of books which is seriously constrained by the Procurement Law. Evidence from the year under review shows a huge shortfall in the number of books purchased by the library. For example, a request made by the CABE Library for the purchase of thirty 30 new books mainly for the Department of Land Economy is still pending before the Procurement Office in spite of the fact that adequate evidence had been provided to show the availability of funds.

The College Libraries generally have a problem of space to serve their Clients. Almost all the libraries apart from The Colleges of Agriculture and Natural Resources (CANR), Engineering and Science and Law faculty have a problem with adequate space for efficient service delivery. This seriously deprives students access to recommended textbooks needed to pursue their programmes and consequently affect the quality of service delivery rendered to these users.

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CONCLUSION

In the year under review, the KNUST Library System provided relevant and quality information services from both print and electronic sources to support the teaching, learning, research and entrepreneurship goals of the university. With the successful upgrading of equipment at the Technical Support Unit and assistance from the BSU project, our Research Commons has seen tremendous improvement in facilities made available to research staff. With the appointment of a substantive Librarian, it is expected that the KNUST University Library System is better placed to offer quality services to its numerous users in the University Community in the coming year. However, procurement issues, lack of reading space, and erratic power supply remain challenges which need urgent attention by the leadership of the University.

SPORTS DIRECTORATE

INTRODUCTION

In line with the general vision and mission statements of this noble University, it has always been the dream/objective of Sports Directorate to advance knowledge in sports and recreation for physical, social and mental development of individuals within the University community. The directorate is committed to attracting, developing and promoting sports among staff and students to help achieve the challenging goals, targets and directions of the University for an enabling environment for academic pursuit.

SPORTS PROGRAMMES

The continuing students arrived on campus for the commencement of 2015/2016 academic year in August, 2015. The Sports Directorate began its programme by attending the 107th GUSA General Meeting at UENR on the 16th to 20th September, 2015. The sports calendar for 2015/2016 was discussed into details during the first regular sports union meeting with all students leaders who are directly involved in sports. The meeting was very successful with all stakeholders coming up with a lot of meaningful ideas and suggestions to move KNUST sports forward.

The fresh students arrived in September, 2015 and whilst the Sports Directorate was preparing to welcome them with the Fresher's Games, it took the opportunity to organize KNUST Intra-Mural cross country competition on the 10th October, 2015. It was aimed at selecting athletes to represent KNUST at the GUSA level. Competitors who excelled were given student's mattresses and pillows from Latex Foam Company limited and some cash prizes depending on the order of position.

The Fresher's Games was done in October. The various hall sports chairperson did well by organizing the first years for almost all the disciplines notable of them were; Soccer, Handball, Field Hockey, Volleyball, Basketball and Athletics. Other disciplines such as table tennis, tennis and badminton were done outside Paa Joe Sports Stadium. Selection was done by University coaches during the Fresher's Games to replace the outgone athletes.

The above Directorate also organized KNUST-QUEENS HALL Tennis championship for students on the 30th October to 1st November, 2015. There was an Athletics Championship for both Track and Field for University athletes to be well conditioned and to stay active during the period. This took place on the 30th to 31st November and attracted new athletes who did not partake in the Fresher's Games. Attractive cash prizes were at stake.

Students who were initially shortlisted for training towards November 2015 cross-country at Winneba intensified their training for the competition. The athletes were fed for some weeks and eventually ten (10) men and ten (10) women were selected for the competition. KNUST placed fourth (4th) position among the eight (8) competing Universities.

Sports men and women throughout November before the end of First Semester Examination started training with their coaches towards the main GUSA Games. From the 20th of December to 4th January 2016, athletes whilst camping had intensive training and series of friendly matches in all the disciplines just to shape up the teams for the 24th Inter-University Games at Winneba. It yielded good results that after the games KNUST could boast of having

Sports Directorate

four (4) gold medals, seven (7) silver medals and twelve (12) bronze medals which was by far an improvement upon the previous GUSA games at U.C.C 2014, KNUST had the best and fastest sprinter of the athletics competition in the men's category in the person of Martin Owusu-Antwi who broke the existing record of 21.35sec in the 200m race and set a new GUSA record of 21.06sec in the same event. Adu Boaheng also did well in the Men's pole vault by vaulting a height of 3.45m to win gold for KNUST. It is also worthy to note that both K.N.U.S.T men's and women's hockey team did the University proud by winning gold medals to set this unprecedented record in the history of KNUST Hockey. The last time the ladies won gold dates back 1972.

OTHER ACTIVITIES

In addition to the above stated sports activities which took place during the academic year, there were other important events worth to be mentioned.

The Sports Directorate was able to organize the annual VC's Awards and Dinner for sports men and women who were dedicated to University sports. This has come to stay and it is a way of motivating students to get the best out of them and to say thank you to the final year students among them.

Students who are outstanding and exhibited exceptional performances in sports are also short listed for bursary in the form of cash to cushion or assist them in their academic pursuit. The academic year also saw a new phase of gymnasium section of Hale and Hearty Sports Centre. The addition of new and modern equipment has put the gym on a different level which is attracting users from far and near. The KNUST hockey team which registered and took part in the 2015/2016 Ashanti Regional Hockey league are already champions in waiting. It is left with one round of matches for all the teams to play on the 21st of May, 2016, but they are already winners of the above league.

The KNUST hockey team must be commended for a good work done for raising the University flag so high by winning every medal, trophy, championship and competition in the academic year (From knockout to GUSA and to Regional League).

A well-organized University Basketball team periodically engaged themselves in friendly matches and other competitive games even after 2016 GUSA games. The academic year also witnessed the picking, vetting and election of KNUST General Sports Secretary and his deputy. Boamah Fosu Ebenezer and Dorcas Owusu all from athletics (track and field) were chosen as General Sports Secretary and Deputy General Sports Secretary respectively.

The 2015/2016 academic calendar has come to an end for the students but for the performance of some outstanding sprinters, seven (7) of the male athletes have been shortlisted to train and compete in the upcoming All Africa University Games scheduled to take place in South Africa on the 26th of June to 2nd July 2016. In order to maintain their strength and form, some of the selected athletes from KNUST are already taking part in the National Athletics Championship and other athletics circuit.

The selected athletes would be assembled on the 23rd of May, to 24th of June for a very intensive training programme by the University athletics coaches.

As part of our social responsibilities on campus K.N.U.S.T Sports Directorate in its plans would also organize staff games for workers on campus from July 2016 to August 2016 to let them have fun and excitement through well-organized inter- Departmental Soccer Fiesta.

CHALLENGES AND RECOMMENDATIONS

The players and coaches of the surprised K.N.U.S.T Hockey team whose achievement in the Ashanti Regional Hockey League, Ashanti Regional Hockey Knockout and 2016 GUSA Games at Winneba have given the University positive recognition in the various print media in the country should be given participation allowance. This is to encourage them to continue such a wonderful performance in the next Hockey season.

CONCLUSION

The academic year was full of activities and students participation in the Sports Directorate's Programme was quite commendable. The Directorate is extending its warmest gratitude to all sports stakeholders and enthusiasts on campus for a good work done.

PRINCIPAL OFFICERS OF THE UNIVERSITY COUNCIL

Chancellor

Otumfuo Osei Tutu II, Asantehene

Chairman of Council

Dr. Kwame Saarah-Mensah

Vice-Chancellor

Professor W. O. Ellis

OTHER OFFICERS

Pro Vice-Chancellor

Professor S. N. Odai

Acting Registrar

Mr. Benjamin O. Andoh

ADMINISTRATION OF THE UNIVERSITY

VICE-CHANCELLOR

Professor W. O. Ellis

BSc, Kumasi, PhD, McGill

PRO VICE-CHANCELLOR

Professor S. N. Odai

BEng (Hohai) China, MSc, PhD (TUAT) Tokyo, MGhIE

ACTING REGISTRAR

Mr. Benjamin O. Andoh

BA, LLB Kumasi, MPhil Glasgow, Fdip (CIAMC) Barrister-at-Law

FINANCE OFFICER

Mr. Yaw Nimo-Baffour

ICA, Ghana, EMBA (Finance)

LIBRARIAN

Dr Samuel KoteiNikoi

BLS Lough.UK MA Ghana PhD Lough.UK PGCTHE Aberystwyth UK

DIRECTOR OF WORKS & PHYSICAL DEVELOPMENT

Mr. K. Kyeremeh

BSc (Bldg. Tech), MSc (Const. Mgt.), Kumasi, MGhIS

INTERNAL AUDITOR

Mr. Daniel Bart-Plange

ICA, Ghana, MBA (Finance)

DIRECTOR, UNIVERSITY HEALTH SERVICES

Dr. Osei Kwaku Wusu-Ansah

BSc MB ChB Kumasi FWACS

PROVOSTS OF COLLEGES

COLLEGE OF AGRICULTURE AND NATURAL RESOURCES

Professor Richard Akromah

BSc, Kumasi Pg Dip. IRRI Philippines MSc B'ham, PhD R'dg UK

COLLEGE OF ART AND BUILT ENVIRONMENT

Professor Edward E. Badu

BSc, Kumasi, MSc Lough, PhD, NIT Japan, MGIOC, MCIOB, MGhIS, MFIG

COLLEGE OF ENGINEERING

Professor S. I. K. Ampadu

BSc, Kumasi, MSc, PhD Tokyo, FGhIE

COLLEGE OF HEALTH SCIENCES

Professor E. T. Agbenyega

BSc, MB ChB, Kumasi, PhD *Manc.*

COLLEGE OF HUMANITIES AND SOCIAL SCIENCE

Professor Imoro Braimah

BSc, MSc (Plg) Kumasi Dr. rer Pol Kassel-Germany

COLLEGE OF SCIENCE

Professor K. Obiri-Danso

BSc, MPhil Kumasi PhD Lanc

DIRECTOR, INSTITUTE OF DISTANCE LEARNING

Professor I. K. Dontwi

MSc, Moldova, PhD Ukraine, Ed. Cert., Texas MSc, Ksi.

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