

# **COLLEGE OF AGRICULTURE AND NATURAL RESOURCES**

## **INTRODUCTION**

The College of Agriculture and Natural Resources was established under statute 33 in October 2004, as one of the six Colleges of the University, created under the collegiate system. Its mandate is to train, research and disseminate knowledge in sustainable agriculture, renewable natural resources management and rural development. The College is made up of the following Faculties and Research Centres:

## **FACULTIES**

Faculty of Agriculture

Faculty of Renewable Natural Resources

Faculty of Forest Resources Technology

## **RESEARCH CENTRES**

Bureau for Integrated Rural Development (BIRD)

Centre for Biodiversity Utilization and Development (CBUD)

KNUST Dairy/Beef Cattle Research Station, Boadi

Agriculture Research Station, Anwomaso

## **COLLEGE ADMINISTRATION**

The College administration is headed by a Provost who is assisted by Administrative and Academic staff. The College Registrar heads the Administrative Staff; the College Accountant heads the Finance and Accounts Staff and the College Librarian directs the delivery of library services to students and staff. The faculties are headed by Deans; and Directors and Heads of Departments head the Research Units and Academic Departments, respectively.

The coordination of the teaching, research, income generation, students' welfare and other matters which have been extensively reported by Faculties, Academic Departments and Research Units is carried out in the Provost's Office by the following staff:

## **STUDENT AND STATISTICS**

The College has a student population of approximately two thousand seven hundred and fifty four (2,754), with one hundred and six (116) teaching and research staff, and one hundred and fifty one (163) supporting staff.

## **ACTIVITIES**

### **PHYSICAL DEVELOPMENT**

Funds have been allocated for the construction of Parking Lot for the Faculty of Renewable Natural Resources to accommodate the numerous vehicles that enter the compound. A three-storey building has been completed with income from Internally Generated Funds and indirect support under the Alliance for Green Revolution in Africa (AGRA) project. The building currently serves as offices for the PhD postgraduate students who are under the sponsorship of the AGRA project as well as other College-based projects.

## **COLLABORATIONS/LINKAGES/PROJECTS**

### **(i) The Nuffic Funded Project on Institutionalization of Integrated Natural Resource Management (INRM)**

#### **Background**

The College of Agriculture and Natural Resources (CANR) since 2005 has been involved in the implementation of a Nuffic-funded Project on Institutionalization of Integrated Natural Resource Management (INRM)–NPT/GHA/278, under the Netherlands Programme for Institutional Strengthening of Post-Secondary Education and Training Capacity. NPT/GHA/278 (Phase 2) is an extension of NPT/GHA/088 (Phase 1). CANR is implementing this project in collaboration with 4 Dutch institutions namely; DHO-University of Amsterdam, Tropenbos International (TBI), International Centre for Development-oriented Research in Agriculture (ICRA) and Centre for Development Innovations (CDD)-Wageningen University. The funding support for the project was €1,600,000.00.

#### **Achievement**

As a result of the two short courses project the College runs for professionals in the areas of *Adaptive Management in Natural Resources* and *Governance in Natural Resource Management* and also the Trans-disciplinary Students' Platform Approach (TSPA), which is an annual research programme organized for Graduates of KNUST and universities in the Netherlands, through which the students solve problems related to sustainable development.

CANR through the project has been able to create awareness for a change in mind-sets of college members and staff regarding the use of holistic approach to problem solving, engage stakeholders (especially the employers of graduates) in the design of teaching and research programmes. Currently, two college staff under the project are pursuing PhD programmes in the Netherlands. In addition CANR through the project has over the reporting period developed long standing collaborative links with the Centre for Development Innovation (CDI) of the University of Wageningen in the Netherlands for design and delivery of short Courses. Two international and regional courses were run in Adaptive Management in Natural Resources Management and in Rural Entrepreneurship. Both courses fully funded by NUFFIC. The courses attract participants from several countries from Africa, Asia, Latin America and the Middle East. The programmes have substantially increased the visibility of CANR in particular and KNUST in general.

#### **Finatrade Model Farm**

The College of Agriculture and Natural Resources through the Faculty of Agriculture received a GH¢50,000 grant from the Board of Finatrade Foundation to pilot a model farm concept. The purpose was to develop a sustainable system of crop and livestock production on the KNUST Campus that would, among other things to provide hands-on training experience to students of agriculture, imbue them with entrepreneurial skills to make them self-employable, and also, generate some income to sustain the model farm concept. The grant was disbursed to the Departments within the Faculty of Agriculture upon the submission of a business proposal. The proposals were scrutinized and those found feasible were then approved for funding. During the reporting period, the Project has cumulatively supported Animal Science Department to raise over 2000 broilers and pigs; Crop and Soil Sciences to cultivate over four hectares of maize farm, yielding 51 maxi bags, and installed irrigation equipment that will permit off season

production of crops. In addition, the Department of Horticulture had been supported to start nurseries with 600 avocado seedlings, 500 mango seedlings, ornamental plants and turf grass and which has had the expected multiplier effects. This intervention has given opportunity has been offered to several KNUST agriculture students (especially Finatrade Scholars) to work on the various farms for a fee depending on the time spent on the farms. The farms have also served as farm practice stations for undergraduate students as part of requirements for the undergraduate degree.

### **West African Network of Organic Agriculture Research and Training (WANOART)**

The College/Faculty of Agriculture became a founding member of a consortium of five West African Universities and Coventry University, U.K., in the formation of this network aimed at building capacity in Organic Agriculture in the West African Region through a EU-ACP Edulink program grant of almost EUR 500,000. Other members are the University of Cape Coast, University of Agriculture, Abeokuta, Nigeria, University d'Abomey-Calavi, Benin and Njala University, Sierra Leone. The Faculty hosted the first WANOART training of trainers workshop in Organic Agriculture in West Africa in August 2012.

### **Agro-forestry Practices to Enhance Resource-Poor Livelihoods Project**

The Contribution Agreement between the Canadian International Development Agency (CIDA) and the University of Guelph for the “Agro-Forestry Practices for Resource-Poor Livelihoods Project” (S063440) was signed on August 25, 2006 under the auspices of CIDA's "University Partnerships in Cooperation and Development" (UPCD) funding mechanism. The CIDA contribution is \$3,000,000 and was scheduled to terminate on November 30, 2013.

The lead Canadian partner institution is the University of Guelph, Department of Environmental Biology. The lead Ghanaian partner institution is the Kwame Nkrumah University of Science & Technology (KNUST), Faculty of Renewable Natural Resources (FRNR) in Kumasi, Ghana. The project aims to enhance livelihoods in resource-poor communities by increasing environmental, social and economic capital, including improved gender equality, which will lead to increased income and improved food security. The project has been successfully executed and exit strategies put in place will ensure project impact delivery and sustainability.

### **BUILDING STRONGER UNIVERSITIES (BSU) INITIATIVE AT KNUST**

“Building Stronger Universities in Developing Countries” (BSU) is a partnership between research and higher education institutions in developing countries and the seven public universities in Denmark, collectively called, University Denmark. The overall objective of the BSU initiative is to strengthen universities in developing countries to increasingly play a role in economic, social and political development of the societies in which they are located. The initiative involved partner institutions from Ghana, Tanzania and Denmark. The development objective of the initiative is to enhance the capacity of partner institutions in Ghana and Tanzania to develop capacity through research, education and dissemination of research findings.

The initiative received core funding from DANIDA and is co-funded by the participating Danish universities.

The overall purpose of BSU in Developing countries is to strengthen universities and research institutions in developing countries through the formation of networks of excellence. As well as the long-term objective, the initiative has the immediate goal of strengthening the capacity of universities in developing countries to undertake research, education and dissemination of research results.

To achieve its objectives, BSU operates under four thematic areas/platforms namely:

- Growth and Employment Platform (GEP)
- Environment and Climate Platform (ECP)
- Platform on Human Health (PHH)
- Platform on Stability, Democracy and Rights (PSDR).

In Ghana however, the Platform on Stability, Democracy and Rights is not operational. At KNUST, the College of Agriculture and Natural Resources coordinated the two platforms of Growth and Employment, and Environment and Climate the GEP and ECP operated through the College of Agriculture and Natural Resources with some administrative support from IPO.

The development objective of the platform is to *‘Enhance capacity of the participating institutions to promote sustainable growth and employment through research, education and dissemination of research findings’*. Specifically, the GEP will pursue the following immediate objectives; each designated a specific work package:

- Growth and employment relevant PhD programmes,
- Increase number of academic staff with PhD qualifications in growth and employment relevant academic disciplines and topics
- Growth and employment relevant research activities and research collaboration strengthened
- Platform research results and finding effectively disseminated to stakeholders
- Platform activities effectively and efficiently governed/managed

BSU operates in Phases and under Phase I operated from 1<sup>st</sup> January 2012 to 31<sup>st</sup> July 2013. During this phase the work packages that were carried out included:

- Five PhD courses were developed and executed by a team of Danish and KNUST facilitators.
- On the average fifteen PhD candidates and staff registered and participated in each course.
- Two phases of a PhD supervision Trainer of Trainers’ Course were run to strengthen the capacity of KNUST staff to supervise PhD candidates.
- Four staff members were offered PhD scholarships after series of competitive interviews jointly organized by the Danish and KNUST Steering Committee members.
- A Trainer of Trainers Course in Fund Raising and Scientific Proposal Writing was organized in collaboration with the University of Ghana. Nine staff members From KNUST participated in the training.

- Seven proposals under the Research Collaborations Strengthening work package were funded. These proposals were jointly authored by KNUST and Danish Researchers.

In addition, KNUST benefited from scholarships for seven young faculty study towards attaining PhD degrees. The College is currently providing administrative and research management support to these PhD students.

### **VISITORS TO THE COLLEGE**

The COMPRO II Project team and Scientific Advisory Committee members from six African Countries and Belgium namely Ivana Osagie (NOTORE, Nigeria); Michael Hudson (One Acre Fund, Kenya); Dr. Martha Byanyima, (COMESA, Zambia), Dr. Martin Jemo (IITA, Nigeria), Dr. Paul Seward (FIPS, Kenya); Dr. Cargele Masso (IITA, Kenya); Stephen Tibejuku Byantwale (Ministry of Agriculture, Uganda); Dr. Ado Yusuf (Ahmadu Bello University, Nigeria) Yifru Abera (University of Addis Ababa, Ethiopia); Dr. Nancy Mungai (Egerton University, Kenya) Prof Seth Danso (University of Ghana, Legon); Dr Bernard Vanlauwe (IITA, Kenya); Ernest Osei Asibey (MoFA, Accra); Dr. Francis Nang'ayo, AATF, Kenya); Abed Kagundu (KEPHIS, Kenya); Dr James Watiti (CABI, Kenya); Dr Vasey Mwaga (BMGF, Seattle, USA); Dr Moses Thuita (IITA, Kenya); Idayat Mudashir (NAFDAC, Nigeria); Dr Rebbie Harawa (AGRA, Kenya), Dr Tarus (AATF, Kenya), Dr John Baptist Tumuhairwe (Makerere University, Uganda); Dr Emmanuel Alongnikou (ECOWAS, Togo); Dr Tesfaye Shimber Gessese (EIAR, Ethiopia); Linda Wangala (IITA, Kenya) and Anna Oruta (IITA, Kenya). The following also visited the College and discussed collaborations for research and training: Prof. Samuel Agyei Nsiah (IITA, Tamale); Prof. Thomas W. Kuyper (Wageningen University); Prof. Anders Permin (Technical University of Denmark) Edwin K. Kamar AGRA-Audit, Nairobi); Michael Opare-Darkwah (AGRA-Audit, Ghana); Felicia Ansah-Amprofi (PPRSD, MoFA); Prof. Bas Arts (Wageningen University, The Netherlands).

### **BENEFACTORS**

Forty-three (43) students of the College received academic scholarships from S. T. Nankani Scholarship, Poku Transport Endowment Fund, Finatrade Foundation, Educational Pathway International (E.P.I.), Kingdom Books Scholarship, Tertiary Education Scholarship Trust (TEST) and others. Alliance for the Green Revolution in Africa (AGRA); West Africa Agricultural Productivity Programme (WAPP), Australian AID, USAID, International Institute of Tropical Agriculture (IITA), and Danish Ministry of Foreign Affairs

## **FACULTY OF AGRICULTURE**

The Faculty of Agriculture has made tremendous progress in academic and infrastructural development during the year under review. We have seen a rise in postgraduate student admissions to all the programs in the Departments. In particular the MSc/MPhil programmes in the Departments of Crop and Soil Sciences and Horticulture have attracted a good number of foreign students from countries in our sub-region. Notably, we have admitted 10 students from the Gambia, 13 from Sierra Leone and 7 from Liberia. A total of 61 MSc/MPhil students were admitted to programmes under various sponsorships, including the World Bank project on Agricultural Productivity in the sub-Region (WAAPP), AfricaRice, and AGRA (Alliance for a Green Revolution in Africa).

The Faculty completed the postgraduate block during the year, from Internally Generated Funds, and can now provide study space for 44 students, two lecture halls and eight Faculty offices. The entire block has a fast wireless internet connectivity to enhance students' access to e-learning resources. The University also supported teaching and learning facilities by equipping and re-tooling our laboratories. We also received state-of-the-art greenhouse units from the University and the EDAIF (Export Development and Agricultural Investment Fund) of the Ministry of Food and Agriculture, for plant propagation and vegetable production at the Department of Horticulture.

We recorded a 10% increase in our undergraduate student numbers in the six programmes that are offered in the Faculty. The increases posed a major challenge with respect to lecture space, which forced us to break some core course classes into subunits and a stress on faculty members' teaching loads. The large graduating class has also meant a high cost in student project research with respect to laboratory consumables. The Faculty also purchased a 58-seater bus to enable us resume our second year-group's field visits to agricultural establishments in the country - an important component of all our agricultural training.

All the Departments have chalked successes in fostering collaborations with External Partners which are raking in large sums of funds to enhance teaching and research. The Faculty signed two Memoranda of Agreement with Akate Farms and Las Palmas Foods Centre for Public-Private Partnership (PPP) investment in our Poultry and Anwomaso Research Units, respectively. Akate Farms is desirous of revamping the poultry section with research support from our faculty in breeding and selecting a hardier layer stock through crosses between the local bristle-feathered and naked-neck birds. Las Palmas Foods will transform a 510-acre parcel of land for food production with technical support from the Departments of Horticulture and Crop Science. Finatrade Foundation continues to offer scholarships to five brilliant and needy students from the second year till completion of their programmes. In addition, the Foundation has sponsored a drip irrigation facility for a 4.5-acre plot to enable the Faculty undertake all-year-round vegetable production. Our teaching and research faculty have markedly improved performance in knowledge sharing through publications in peer-reviewed journals in their disciplines. Details of our achievements have been elaborated in the relevant sections of reports on each Department.

# **DEPARTMENT OF AGRICULTURAL ECONOMICS, AGRIBUSINESS & EXTENSION**

## **INTRODUCTION**

The Department of Agricultural Economics, Agribusiness and Extension (DAEAE) is one of the four Departments of Faculty of Agriculture of Kwame Nkrumah University of Science and Technology. The Department offers training in Agricultural Economics, Farm Management, Entrepreneurship, Agricultural Extension and Rural Sociology and other related areas to undergraduate students in the BSc Agriculture Programme. The BSc Agribusiness Management Programme of the Department is due for re-accreditation and may require a review. The Department also runs the very popular Agribusiness Management Programme with the highest number of Fee-paying students in the College.

## **STAFFING OF THE DEPARTMENT**

The Department continues to have inadequate number of academic staff. With the full stream of students under the newly introduced BSc. Agribusiness programme, academic staff in the Department is over-stretched. Also, during the year under review, Mr. J. K. Kussachin was appointed on part-time and Mr. Patrick Appiah was granted study leave to pursue PhD Degree in Agricultural Extension at the University of Cape Coast. The Department urgently needs lecturers in all the areas, especially Agribusiness Management, Agricultural Economics and Agricultural Extension. In order to continue to mount postgraduate programmes (MPhil. and PhD) in Agricultural Economics and new ones in Agricultural Extension and Agribusiness Management, there is an urgent need to continue to improve staff capacity through a combination of further (PhD) training and aggressive recruitment.

Currently the department has thirteen (13) academic members of staff made up of four (4) Senior Lecturers, one (1) Senior Research Fellow and eight (8) Lecturers one of which is one part time.

### **Non-teaching staff**

The Department has three non-academic staff comprising one Technician who is retiring in July, one Senior Administrative Assistant and one cleaner. The Department urgently requires three Technicians and a clerk (with HND or BSc. qualification) to handle field work, data entry and audio-visuals for teaching, research and outreach activities.

## **TEACHING**

The Department continued to play its role in training students of the Faculty of Agriculture in the 4-year composite BSc. Agriculture Degree programme and the Agribusiness Management Programme.

### **Undergraduate programme/courses**

The Department currently offers a total of 35 courses in Agricultural Economics, Farm management, Extension Education, Rural Sociology, Accounting, Statistics and Computer Science. Thirteen of these courses are compulsory courses for the first three years of the BSc. Agriculture Degree programme. Management and entrepreneurial skills are offered for all final year students of the Faculty of Agriculture, while many other courses are offered as service courses to students in the College of Science.

Except a few, all the courses in the 4-year BSc. Agribusiness Management programme are handled by academic staff in the Department.

### **Postgraduate programme/courses**

The Department's PhD and MSc. Programmes in Agricultural Economics continue to attract a large number of students from Ghana and abroad. Postgraduate programmes in Agricultural Extension (MSc, MPhil and PhD) are in preparation to start in the 2014/2015 academic year.

### **RESEARCH**

Activities within the Department's Outstation Research Unit in the Ejura-Sekyedumasi District in the Ashanti Region continued to focus mainly on:

- The generation of data on commodity prices, storage and transportation costs
- Identification of source and destination markets of agricultural produce carted from the District
- The role of food crop traders' association, especially with regards to storage and transportation of produce and price information.

However, the Outstation activities continue to face a number of challenges including lack of technical staff, inadequate supervision and lack of adequate funds in general and means of transportation in particular.

Senior members in the Department continued to collaborate with colleagues in other Departments to provide the necessary socio-economic input into research within and outside the Faculty.

During the year under review, the Department was contracted by the UN World Food Programme (Ghana office) to conduct a baseline survey in the Ashanti and Northern Regions of Ghana on the production, handling and marketing of maize, rice and cowpea under the Purchase for Progress (P4P) Programme. The Department continues to provide technical support to the IITA's *N2 Africa Project* which aims at putting biological nitrogen fixation to work for smallholder farmers in the three Northern Regions. The Department is supporting the monitoring and evaluation aspect of the project through socio-economic data entry, data cleaning and data management.

Current research issues being worked on by senior members of the Department either independently or in collaboration with others, and in varying stages of implementation, are as follows:

#### **Dr. S. C. Fialor**

- Resource-recovery-re-use in agricultural production
- Savings-income dynamics among rural households in Ghana
- Risk assessment and preference structure in the groundnut trade in Ghana
- Scenario analysis for crop insurance in Ghana



**Dr. Victor Owusu**

- Development Economics, Environmental Economics, Impact Evaluation of Poverty Reduction and Food Security Interventions in Ghana;
- Consumer preference for Improved Local Rice in Ghana;
- Impact of Adoption of Yam Storage Technologies on Household Food Security in Ghana;
- Impact of Agroforestry Management Technologies on Productivity of Cocoa Farmers in Ghana;
- Farm Labor Allocation and its Effects on Integrated Pest Management Adoption Rate in Ghana;
- Economic Viability of Cocoa Agroforestry Management Systems in Ghana;
- Soil Conservation, Shadow Wages and Labour Supply of Agricultural Households in Rural Ghana.

**Dr. G. K. Nurah**

- Factors Influencing Soyabean Producers Choice of Marketing Channels in Northern Region of Ghana;
- Economics of Scale and Cost Efficiency in Broiler Production in Ghana – A case Study of the Ashanti Region;
- Evaluation of Technical, Allocative and Economic Efficiency of Rice Producers: A Case Study of West Coast Region and Central River North and South of the Gambia;
- Supply Responsiveness of Tomato Farmers in Ashanti Region: A Farm Level Analysis;
- Assessing the Impact of Irrigation Management Transfer (IMT) on Irrigation Development in Ghana;
- Determining the Efficiency of Tomato Marketing in Ghana – A Case Study of the Upper East Region.

**Dr. Robert Aidoo**

- The economics of yam storage in Ghana and value addition to yam to extend the shelf life;
- Analysis of Root and tuber value chains in Ghana;
- Impact of mobile phone extension technology on cocoa farmers' income and productivity;
- Effect of differential access to resources between men and women on crop productivity;
- Factors determining preference for and consumption of different snail products in Ghana;
- Financial feasibility analysis of a cooperative warehousing scheme for maize and cowpea;
- Economics of commercial soyabean production in the Nanumba north District of Ghana;
- Adoption and profitability analysis of row planting and broadcasting methods of planting in maize production.

**Maxwell T. Asiamah**

- Assessing the Determinants of Technical Efficiency in Cabbage Production in the Accra Metropolitan Area.
- Assessing the factors Affecting the Quantity of Fertilizer used by Farmers in the Ejura Sekyedumase District of Ashanti Region of Ghana.

**J. Osei Mensah**

- Improved Yam Storage for Income and Food Security in Ghana.
- Impact of World Food Programme's Purchase for Progress (P4P) programme on the income and food security of farming households.
- Constraints to the Performance and Growth of Street Food Enterprises in Ghana.
- The Effects of Business Management Training on the Performance and Growth of Street Food Enterprises in Ghana.
- Organizing Informal Sectors Player for Collective Action; a Case of Street Food Vendors in Kumasi and Tamale Metropolises.

**Dr. D. Awunyo-Vitor**

- Agricultural Finance – Access to Financial Services, Determinants of Loan Repayment by Farmers;
- Accounting and Finance
- Marketing

**COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY**

As the extension wing of the Faculty of Agriculture, the execution of outreach programmes continues to be undermined by lack of a vehicle in the Department. However, individuals continued to offer services to the community in various capacities. The Department continued to provide general short-term technical, advisory and consultancy services to a wide variety of clients in the form of training, baseline surveys, agricultural project monitoring and evaluation, impact assessment and feasibility studies, among others. The Department has been central to the College's training programmes in Value Chain Development and Adaptive Management of Natural Resources.

**Dr. J.A. Bakang** was the Head of Department during the year under review. He continued to serve on the Faculty, College and Academic Boards and also the University Library Committee.

**Dr. S.C. Fialor** was appointed as the Hall Master for the University Hall during the year under review.

**Dr. G.K. Nurah** was appointed as the Coordinator of the Postgraduate section at the Department.

**Mr. Maxwell T. Asiamah** was appointed the Coordinator of the Agricultural Extension Section and continues as Chairman of the Vacation Training Committee and patron of Agriculture and related Sciences Students Association of the Faculty of Agriculture.

**Dr. Robert Aidoo** was appointed the Coordinator of the Agribusiness Section and also Vacation Training for the Department of Agricultural Economics, Agribusiness and Extension. He was also appointed as the Coordinator for the Environment and Climate Platform under the Building Stronger Universities Programme being implemented jointly by KNUST and DANIDA. Robert is also serving on the Postgraduate Committee at the Department. He is currently one of the patrons for the newly formed Agribusiness Students Association in the Faculty of Agriculture.

**Dr. Victor Owusu** continued to serve as the Departmental Examinations Officer and a member of the postgraduate committee at the Department. He also serves as the seminar coordinator for the Department.

**Mr. J. Osei Mensah** was appointed as one of the patrons of the newly formed Agribusiness Students association at the Faculty of Agriculture.

### **COLLABORATION/PARTNERSHIPS**

In addition to already existing collaborative projects, the Department won two new projects:

- **KNUST-DANIDA PARTNERSHIP –Research title: Strengthening Root and Tuber Value chains in Ghana.**

In response to the DANIDA call for applications in 2012 for the Pilot Research Cooperation Programme (PRCP) between Ghana and Denmark, the Department's proposal on the above topic was selected for support. In collaboration with a Consortium of three Universities in Denmark (DTU, AAU and UNC), our Department will lead a number of research activities to identify bottlenecks in the root and tuber value chains and propose evidence-based solutions to these constraints. The Department of Food Science will lead the research activities in the area of new product development and testing. In addition to joint field research activities, two PhDs and 5 MScs will be trained under the three year project. The budget for the project, which was signed in March, 2013, is **DKK 5 MILLION**.

- **KNUST-AUSAID PARTNERSHIP**

**Research title: Improved yam storage for improved farm income in Ghana.**

In April 2013, the Department signed a two-year research support contract with the Australian Development Aid (AUSAID) to conduct research into the economics of yam storage and related issues in collaboration with the Crops Research Institute of Ghana. This followed a call for concept note which was responded to by the Department in 2012. The project also has some financial support for the field work of one PhD and two MSc. Students. The budget for the project is **A\$ 375,000.00**.

During the year under review, the Department continued with a number of existing collaboration and partnerships with a number of institutions:

- **KNUST-DANIDA PARTNERSHIP**
- **Research title: Enhancing the performance and growth potential of street-food vending for accelerated socio-economic development in Ghana.**

In response to the DANIDA call for applications in 2011 for the Pilot Research Cooperation Programme (PRCP) between Ghana and Denmark, the Department's proposal on the above topic was selected for support. The contract for the collaboration was signed and all students under the project (Two MSc and three PhD students) have been recruited. The budget for the project is **DKK 5 MILLION**.

- **KNUST-DANIDA PARTNERSHIP**

**Sustainable Sanitation-Ghana Project (SUSA)**

The Department is in collaboration with DANIDA to carry out sustainable sanitation studies in the Dangme West District in the Greater Accra Region of Ghana. The SUSA-Ghana Project aims to identify existing barriers to improved sanitation and propose business models for providing hygienic latrine technologies and waste management solutions that can be used in poor, rapidly urbanizing townships in Ghana. The capacity building component of the Project has five PhDs (Socio-cultural, Engineering/Technology, Occupational Health Safety, Business/Economics, and Monitoring). One of our Senior Members (Mr. Fred Nimoh) is on his PhD Degree (Development Economics) at the University of Copenhagen, Denmark. He is working on the Business/Economics aspect of the SUSA project. One (1) MPhil student under the project is about finishing his draft thesis.

**KNUST-UN WORLD FOOD PROGRAMME PARTNERSHIP**

- **Project Title: Purchase for Progress (P4P) Project.**

The Department continued to provide technical support to the UN World Food Programme (WFP -Ghana office) within the framework of the MoU signed in 2011. During the year under review we conducted commodity value chain analysis for maize, rice and cowpea, and an assessment of the contribution of P4P programme to the economic empowerment of women farmers.

## **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 Veterinary Diagnostic Laboratories, respectively. The Meat Processing Unit has the capacity to process 60 metric tons of meat annually. These facilities are used for students' practical training programmes. The Nutrition and Veterinary Diagnostic Laboratories provide services for students, farmers and industry.

**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 animal production.

Students are allotted to Sections of the Department's farm for a 'hands-on' training on raising of birds and pigs, and processing of milk and meat for an 8-week period during the long vacation.

Several students from many 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 Farm during the year.

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 has also entered into a public – private partnership with Akate Farms in an effort to increase the production of poultry and poultry products for sale to the University and the surrounding communities.

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 swine and poultry production to pig and poultry farmers in the Afigya-Kwabre, Kwabre, Bosomtwe and Ejisu-Juaben Districts of the Ashanti Region with support provided by the Skills Development Fund (SDF) of the Council for Technical and Vocational Education and Training (COTVET). So far, more than 200 pig and poultry farmers in these 4 Districts have received training in the use of probiotics (Direct-Fed Microbials, RE-3) in diets and improved feeding, breeding and management.

#### **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

#### **STAFF MEMBERS**

The department has fourteen (14) academic members of staff out of which four (4) are Professors (all are on post retirement contract), two (2) Associate Professors, three (3) Senior Lecturers (one is on post retirement contract) and five (5) Lecturers.

## **MAJOR RESEARCH BY DEPARTMENT AND STAFF**

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 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, continued to conduct research in the following areas::

### **PROF. D. B. OKAI**

1. Utilization of exogenous enzymes in pig and poultry diets in Ghana.
2. Dawadawa (*Parkia biglobosa*) fruit pulp as a feed in swine diets.
3. Nutritional evaluation of commercial dawadawa (*Parkia biglobosa*) products available in Kumasi.
4. Problems associated with the procurement and utilization of wet brewer's spent grains and spent yeast and some possible solutions
5. On-farm feeding trial using direct-fed microbials/probiotics
6. Nutrient composition and nutritive value of new feed resources.

### **PROF. S. A. OSEI**

1. The effect of dietary methionine on broiler performance and carcass characteristics.
2. Effects of dietary enzyme-probiotics complex (XZYME™) on the performance and carcass traits of broiler chickens.
3. Egg laying performance of local-exotic crossbred layer birds fed diets containing Direct-Fed Microbial (DFM)

4. The effects of different dietary levels of methionine on broiler performance.
5. Reproductive performance of sheep and goats in the Northern Regions of Ghana.
6. Effects of probiotics on the performance and haematological characteristics of laying chickens.
7. Effects of probiotics on the performance and haematological characteristics of Guinea fowls
8. Effects of dietary enzyme on the performance of chickens fed diets containing cashew nut meal.

**PROF. (MRS.) C. C. ATUAHENE**

1. Response of broiler chickens to dietary inclusion of Allicin
2. The growth performance, carcass and haematological characteristics of broiler chickens fed alkaline-treated tiger nuts (*Cyperus esculentus*) residue meal.
3. Effect of yam slices meal on the growth performance, carcass and haematological characteristics of broiler chickens.
4. A comparative study on the use of and effect of probiotic and antibiotic on the performance of broiler chickens in the Kumasi Metropolis.
5. Effect of broiler feed withdrawal time on broiler meat yield in Ghana.
6. Effect of discarded biscuits on the growth performance, carcass and haematological characteristics of broiler chickens.
7. Challenges facing commercial Guinea fowl production in some selected farms in the Kumasi Metropolis.
8. Response of broilers to “Dusa”, a millet (*Pennisetum glaucum*) residue meal as an energy source in starter – finisher diets.

**PROF. A. DONKOH**

1. The effect of natural fermentation on the nutritional value and microbial profile of dried yam peels.
2. Evaluation of nutrient composition and nutritive value of new feed resources.
3. Sources of microbial contamination of beef from the Kumasi Abattoir to the consumer.
4. On-station feeding trial using direct-fed microbials/probiotics
5. Processing and utilization of rubber seed for pig feeding.
6. Effect of Direct-Fed Microbials (DFMs) on carcass and meat quality of broiler chickens.

**PROF. E.L.K. OSAFO**

1. Improving shelf-life of local soft cheese (Wagashi) using local spices/herbs.
2. Assessing digestibility and methane emissions of forages and browse plants of Ghana and Namibia.
3. Evaluating direct-fed microbials (DFM) on growth performance of calves.

**PROF. A.B. OMOJOLA**

1. Quality attributes of mushroom – fortified beef sausage
2. Utilization of non-conventional plant protein flour (*Parkia spp.*) as meat extender in sausage production.
3. Breadfruit as a filler in patty production

4. Yield and quality of milk produced by small-holder cattle farmers in the Ashanti Region of Ghana: effect of feed supplementation and milking management.
5. Anti-microbial and anti-oxidant potentials of *Tetrapleura tetraptera* extract (TTE).

**P. K. KARIKARI**

1. Yield, sensory assessment and consumer acceptability of cheese made with pineapple fruit juice, lemon juice or Sodom apple leaf extract.
2. Effect of peanut butter on quality of ice cream
3. Sodium benzoate effect on quality of drinking yoghurt.
4. Assessment of fishmeal and soybean cake in the diet of growing rabbits.

**DR. (MRS.) V. ATTOH-KOTOKU**

1. Utilization of non-conventional plant protein flour (*Parkia spp.*) as meat extender in sausage production.
2. Breadfruit as a filler in patty production
3. The incidence and economic implications of pneumonia in slaughtered cattle in the Kumasi Abattoir
4. Fruit and vegetable waste as livestock feed.
5. Influence of whole cotton seed on performance and haematological characteristics of sheep grazing natural pasture.

**DR. C. ANTWI**

1. The effect of feeding frequencies and allowances on circadian patterns of methane emission from beef cattle.
2. High sugar rye grass on methane emission by sheep
3. Assessment of feed availability in the Atebubu-Amantin Districts.
4. Monitoring the fodder quality in storage using Box Bale Technology

**DR. J. A. HAMIDU**

1. The effects of storage conditions on egg and blastoderm quality in naked neck birds
2. Hatchery conditions affecting chicken egg hatching performance
3. Feed withdrawal affects broiler meat quality, safety and yield.
4. Chick quality analysis of local and exotic day-old birds.
5. Hatchability of naked neck chicken eggs as influenced by different storage temperatures, periods of storage and turning frequency during incubation.
6. Increasing broiler production in Ghana through incubation and specialist intervention.
7. Effect of duration of egg storage and temperature of storage on embryo and chick quality in Hubbard strains.
8. Impact of storage on embryonic development and chick quality in the tropics in Lohmann Classic strains.
9. The effect of late incubation temperature variation on intestinal development and navel – mediated yolk sac infection in broiler and layer chicks in Ghana.

**DR. K. ADOMAKO**

1. Control points that define chick quality.



2. Effects of naked neck and frizzle genes on the meat quality of local-exotic crossbred chickens.
3. Egg production performance of two Lohmann strains, Lohmann LSL Classic and Lohmann Brown Classic.
4. Egg quality of Lohmann LSL Classic and Lohmann Brown Classic.
5. Egg production performance of all exotic egg – type breeds raised in Ghana.
6. Characteristics and effects of qualitative mutant genes found within the population of chickens in Ghana.

#### **DR. M. K. BOATENG**

1. Utilization of exogenous enzymes in pig and poultry diets in Ghana.
2. On-farm feeding trial using direct-fed microbials/probiotics
3. Evaluation of fruit pulp as a feed ingredient in swine diets.
4. Improving the nutrient composition and nutritive value of cassava peels using slaughter house by-products.
5. Prospects of swine production in the Ashanti Region: SWOT analysis.
6. Development of feed formulation software.

#### **W. Y. AKWETEE**

1. Nutritional and microbial profile of a food condiment (“Yagi”).
2. Eating quality of donkey meat.
3. Cabbage in low-fat meat loaf production.
4. Casing diameter and cooking method on consumer preferences of smoked pork sausage.
5. Microbial and nutritional profile of a traditional sausage (“Bosoa”).
6. Utilization of fish in Frankfurter production.
7. Effect of Direct-Fed Microbials (DFMs) on carcass and meat quality of broiler chickens.

### **DEPARTMENT OF CROP AND SOIL SCIENCES**

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.

At the moment, the Department runs a Tissue Culture/Plant Biotechnology facility in the University which is being expanded to include molecular genetics work. It has satisfactorily equipped Soil Science, Plant Pathology, Entomology and Soil Microbiology laboratories. There are also an Insectary, Plant-houses, teaching/research and model farms with cocoa, rubber, citrus, and oil palm plantations. The facilities provide services to other departments in the University.

#### **UNDERGRADUATE AND GRADUATE PROGRAMMES**

The Department continues to contribute to the running of the 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. BSc 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/Tissue culture for their dissertation in partial fulfillment for their degrees. A four-year BSc (Agricultural Biotechnology) degree programme has been introduced and the first batch of students graduated in 2013 with excellence. The programme is progressing well. The number of fourth year undergraduate students pursuing the BSc Agriculture (Crop and Soil Sciences option) stood at 107 during the period under review, the highest in the Faculty.

Postgraduate studies leading to the award of MSc, MPhil and PhD degrees in Agronomy/Crop Physiology, Plant Breeding and Genetics, Soil Fertility, Plant Nutrition, Forage Crop Production and Management, Weed Science, Entomology, Plant Pathology, Plant Virology, Nematology and Plant Biotechnology, among others, are offered. All our MSc programmes have been changed to MPhil to meet current demand. Postgraduate students enrolled in the Department during the year under review was 64 with 23 foreign students from Burkina Faso, Ethiopia, Gambia, Liberia, Mali, Niger, Nigeria and Sierra Leone. Of the total enrollment, 12 are PhD students. The Department is privileged in training foreign and local students leading to MSc and PhD degrees sponsored by Alliance for a Green Revolution in Africa (AGRA). The special four-year PhD programme in Soil Science for 20 foreign and local students, funded by AGRA is in progress and first batch of 10 students are expected to graduate in 2014. The West Africa Agricultural Productivity Programme (WAAPP), USAID and Intra-ACP STREAM are also sponsoring students in our Department. The research conducted by the postgraduate students aims at solving basic crop and soil problems as well as building their capacity for addressing community based research questions. During the period under review, 12 students completed their postgraduate studies.

### **STAFF MEMBERS**

The Department has 15 active academic Senior Members including two new lecturers with PhD employed at the beginning of the academic year. The new lecturers are to beef-up teaching, research and provision community service in Agronomy and Entomology. The Department has pressing need for Plant Breeders and Plant Biotechnologists to support the only Plant Breeder, especially, in the Agricultural Biotechnology Programme housed in the Department. However, effort is being made to employ two lecturers in the areas of specialization.

During the year under review, two of our Technicians had training at the International Institute of Tropical Agriculture (IITA), Ibadan, Nigeria to build the capacity to enhance their technical services to lecturers, students and other stakeholders. The International Institute of Tropical Agriculture, through the support of AGRA used our facilities for the training of selected crop and soil laboratory technicians in Ghana

### **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. Rev. Mensah Bonsu.**
  - a. Carbon Sequestration under different land use systems.
  - b. Soil Fertility management and Greenhouse Gas Emissions.
  - c. Assessment of soil heterogeneity using geostatistics and scaling techniques.
  - d. Development of drought indices for some tropical crops
  - e. Development of activity data and emission factors for greenhouse gases inventory in Ghana.
  - f. Use of soil amendments for improving hydro-physical behavior of some tropical soils.
  - g. Development of salinity index for rice cultivation
3. **Prof. C. Quansah:**
  - a. Modelling siltation and nutrient export in some small reservoirs in the Upper East Region.
4. **Prof. Richard Akromah**
  - a. Transfer and genetics of fresh seed dormancy in peanuts
  - b. Marker-assisted selection of ACMV-Resistant lines in Cassava.
  - c. Screening for tomato yellow leaf curl virus resistance in exotic and local tomato germplasm.
  - d. Transfer and inheritance of pod shattering in soybean.
  - e. Drought tolerance studies in cowpea and maize using morphological and physiological variables
  - f. Screening of rice germplasm for tolerance to salinity
5. **Dr. J. Sarkodie-Addo**
  - a. Bambara groundnut agronomy and environmental responses.
  - b. Soybean Nitrogen fixation.
  - c. Mulching in Cassava production.
6. **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 in fruit and vegetable crops
  - i. Aflatoxins studies
7. **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.
8. **Dr. E. Asare**
- a. Agronomic and physiological studies in arable crops.
  - b. Media and hormonal studies in arable crops and medicinal plants
  - c. Farming system models in cereals, legumes, and root and tubers.
  - d. Mineral nutrition of arable crops.
9. **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.
10. **Dr Nana Ewusi-Mensah**
- a. Enhancing the quality of manure through composting.
  - b. Biological nitrogen fixation.
  - c. Biochar management for soil fertility improvement.
11. **Dr. A. Opoku**
- a. Nutrient cycling and balances in crop-livestock systems
  - b. Crop residue and manure management in crop-livestock systems
  - c. Optimization of biological nitrogen fixation for enhanced legume productivity
  - d. Use of natural and synthetic nitrification inhibitors to control N leaching
  - e. Appraisal of the sustainability of nutrient management options.
  - f. Integrated nutrient management in cereal legume systems
  - g. Management and adaptation of non-responsive soils to integrated soil fertility management practices
12. **S. Duku (Mrs)**
- a. Effect of pre-sowing treatments on Tamarind seed germination.
  - b. Effects of auxin on rooting and sprouting of *Spondias mombin* and *Margaritaria discoidea* stem cuttings.
  - c. Vegetative propagation of *Bridelia micrantha* stem cuttings: Effect of auxin concentration and cutting length.
16. **Dr. Alice A. Amoah**
- 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.
17. **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.

## **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 Biotechnology and Nuclear Agricultural Research Institute (BNARI), Kwabenya.
- iii. International Institute of Tropical Agriculture, Ibadan, Nigeria
- iv. Soil Research Institute and Crop Research Institute of CSIR, Kumasi.
- v. Ministry of Food and Agriculture (MOFA), Ghana.

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

- a. 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.
- b. United States Department of Agriculture (USDA)
- c. United States International Development Agency (USAID)
- d. Intra-ACP Mobility Scheme and training a PhD student from Ethiopia under the Scheme.
- e. Michigan State University in Soil health and Nematology with a number of equipment to enhance studies.
- f. Root and Tuber Improvement and Marketing Programme in yield assessment of 15 cassava fields.
- g. 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.

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 GH¢34,000 for Soil Fertility Management Technologies for Efficient and Profitable Production of cocoyam comels and leaves from the Root and Tuber Crops Improvement and Marketing Project (a GoG/IFAD-sponsored project).
- ii. 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.
- iii. 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** provided disease diagnostic services for onion farmers in the New Oworobong area of the Kwahu South district. *Fusarium* basal rot was diagnosed to be the most important disease in the area. This diagnostic service has now paved the way for research on control of the disease.

**Rev. Prof. Mensah Bonsu** reviewed manuscripts for Journal of Science and Technology, KNUST and Journal of Natural Sciences, University of Cape Coast. External Assessor for Theses, Department of Crop and Soil Sciences, Faculty of Agriculture, University of Ghana, Legon and School of Agriculture, University of Cape Coast. Chairman, Promotions Committee of Cocoa Research Institute of Ghana (CRIG). External Assessor of Promotions to Senior Research Scientists, CSIR – SARI and SRI A representative of KNUST to the National Accreditation Team to review programme accreditation at University of Cape Coast and University of Ghana, Legon.

**Prof. C. Quansah** is an External Examiner in the Faculty of Agriculture, University of Development Studies (UDS), Tamale.

**Prof R. Akromah** was re-appointed as the Dean of Faculty of Agriculture from August, 2013 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) MSc. Programme in Plant Breeding and Seed Science, which is training students from 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 or 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. He is currently Professorial Member of the University Council.

**Dr. E. Asare** collaborates with Prof. C. Quansah on the Agribusiness for Sustainable Natural African Plant Products (ASNAPP) project on the conservation and utilization of selected medicinal plants. He is an External Examiner and Moderator of three Polytechnics of National Board for Professional and Technician Examinations, Ghana. External Examiner, University of Education, Mampong Campus

**Dr. J. V. K. Afun** is currently on Sabbatical Leave as Rector of Ho Polytechnic.

**Dr. J. Sarkodie-Addo** reviews manuscripts for Journal of Science and Technology. Kumasi, and Ghana Science Association Journal. He is the Chairman, Council of Convocation, KNUST.

**Dr. Charles Kwoseh** is the Head of the Department. He has moderated examination questions and marking schemes for two Polytechnics and also 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 currently, the Chairman of the Agriculture Staff Welfare Scheme of KNUST.

**Dr. E. A. Osekre** was the representative of the TALIF Committee for the College. He reviews papers for publication in the KNUST JUST Journal. Vice President, Agric Staff Welfare Scheme, KNUST. He is a Member, Committee on the Anwomaso Land. Presented “Discipline” at a forum as part of the orientation programme for level 100 students organized by the Faculty of Agriculture. He is the Faculty Examinations Officer.

**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. He is also the Sectional Head of the Department of Crop and Soil Sciences Research Farm, Anwomaso.

## **DEPARTMENT OF HORTICULTURE**

### **INTRODUCTION**

The Department of Horticulture, KNUST, is one of the four academic Departments in the Faculty of Agriculture that runs the BSc (Agriculture) composite degree programme, the BSc (Postharvest Technology) degree and the BSc (Landscape Design and Management) degree programmes. The Department also runs postgraduate degree programmes leading to the award of MSc, MPhil and PhD.

### **ACADEMIC SENIOR MEMBERS**

The department has ten (10) academic members of staff made up of five (5) Senior Lecturers, four (4) Lecturers and one (1) Assistant Lecturer. One of the Lecturers is however on study leave.

### **TEACHING**

Staff continued to teach courses leading to the award of degrees in BSc (Agriculture) programme, BSc (Postharvest Technology) programme and BSc (Landscape Studies) programme at the undergraduate level. At the postgraduate level, programmes leading to the award of MPhil and PhD degrees are offered in the regular academic stream. In addition, an MPhil (Postharvest Technology) programme is taught in the distance mode by the Department in collaboration with the Institute of Distance Learning. Some of the professional horticultural courses taught by staff of the Department at the undergraduate level include: Vegetable crops production, Fruit crops production, Seed Science and Technology and Landscape Design and Management. Others were Floriculture, Ornamental Nurseries and Management, Plant Materials for Landscaping, Plant Propagation, Breeding of Horticultural Crops, Amenity Horticulture, Organic and Sustainable Horticulture, Herbs, Spices and Aromatic Plants and Postharvest Physiology.

### **Postgraduate Programmes in regular stream**

The Department continues to run postgraduate degree programmes leading to the award of MPhil and PhD degrees. The programmes offered include Seed Science and Technology, Postharvest Technology, Landscape Studies, Vegetable Crops Production, Fruit Crops Production, Ornamental Horticulture. These programmes continue to attract applicants from all the five

public universities, research institutions and employees of various organizations. At 2013/2014 academic year, the total number of PhD students at the Department is (7). Over the same academic year, the total number of MPhil students in the regular stream is forty two (42).

### **Postgraduate Programme in Distance Learning mode**

An MPhil (Postharvest Technology) programme is run in the distance learning mode by the Department in collaboration with the Institute of Distance Learning. In the Distance Learning mode, a total of one hundred and six (106) are currently enrolled.

### **ACADEMIC STAFF DEVELOPMENT AND RECRUITMENT**

1. Dr. Francis Appiah was promoted to Senior Lecturer in October, 2011.
2. Mrs. Betty Amponsah-Doku was recruited as an Assistant Lecturer in December, 2013.
3. Mr. E. Otchere-Darko was recruited as a Part Time Assistant Lecturer in October, 2013.

### **COLLABORATIONS**

The Department is still in collaborative discussions with AngloGold Ashanti, Obuasi, Ghana, to rehabilitate their disused mine sites and degraded lands laden with heavy metals for future productive use. The discussions are also considering post graduate training of their staff in land remediation. However the current state of low gold prices have stalled the discussions but it is hoped that in the very near future favourably decisions would be arrived to kick start the implementation of the mutually beneficial activities.

Similar discussions have also been extended to AngloGold Ashanti, Guinea Conakry, Guinea . The Department also continued its collaboration with:

- a. Federal University of Agriculture, Abeokuta, Nigeria
- b. British Council, Kumasi, Ghana
- c. University of Cape Coast, Ghana
- d. Higher Education Institutions in Sierra Leone
- e. Higher Education Institutions in Benin Republic
- f. CSIR Institutes, Ghana
- g. Ministry of Food and Agriculture, Ghana
- h. University of Texas A&M, USA

### **INTERNALLY GENERATED FUNDS**

1. The Department did a landscape work at the Museum, KNUST at a total cost of Thirty Five Thousand Ghana Cedis (Gh ¢ 35,000)
2. The Department was contracted by the Institute of Distance Learning to undertake landscape works at the new auditorium of the Institute. The contract sum was Fifty Four Thousand, Nine Hundred and Thirty Four Ghana Cedis, Twenty Pesewas (Gh ¢ 54,934.20)
3. The Colleges of Engineering and Science and the Department of Publishing studies contracted the Department of Horticulture to undertake various landscape and ornamental beautification works at their premises. The total amount was Eight Thousand Ghana Cedis (Gh ¢8,000.00)



4. The Department sold a limited quantity fresh vegetables produced from the greenhouses for a total amount of One Thousand, One Hundred and Seventy Ghana Cedis (Gh ₵1,170.00)

## **RESEARCH**

### **Externally Funded Research Support and Grants**

1. Through the initiative of Dr. F. Appiah, the Department has secured \$23,805.00 from The World Vegetable Center (AVRDC), Taiwan, China to undertake a project titled “*Student Research Project in Vegetable Postharvest*”. The Funding is for a period of eight (8) months.
2. A joint competitive research grant proposal submitted by Dr. Robert Aidoo of the Department of Agricultural Economics, Agribusiness and Extension and Dr. Ben K.B. Banful of the Department of Horticulture has received approval from the World Bank through the MOFA/CSIR WAAPP Project. The research grant is Gh₵200,000.00 for a period of two years.
3. Dr. Ben K.B. Banful secured funding for a research project on plantain titled “*Effect of HYT bio-stimulants and protectants on growth, yield and postharvest quality of two varieties of plantain in a bush fallow system*”. The total funding is Gh₵87,880.00 for a period of three years (2013-2016). Funding is provided by AGRINOS AS of Norway.

### **On-going Research Activities**

Academic staff at the Department continued to conduct research as a key component of their core responsibilities to generate new information to enhance teaching and learning.

#### **Dr. B.K.B. Banful**

1. Effect of HYT bio-stimulants and protectants on growth, yield and postharvest quality of two varieties of plantain in a bush fallow system
2. Effects of magnesium and calcium fertilization on yield and fruit quality of two varieties of tomatoes.
3. Seed viability, seedling vigour and subsequent plant yield of garden eggs as affected by stage of harvesting and method of drying
4. Effects of drying and packaging on the nutritional quality and consumer acceptability of ground powder from two varieties of tomato
5. Standardization of soil amendments for urban horticulture and soil remediation in Ghana
6. Domestication of the shea nut tree through developing improved propagation techniques for seedling growth and plant establishment
7. Product development from fruit and vegetable waste to mitigate postharvest losses
8. Yield dynamics of yam (*Dioscorea* species) under varied natural fallow periods and different mulch types in the Forest-Savannah Transition Agro-ecozone of Ghana

#### **P.Y. Adjei**

1. Research studies on patterns of flowering and fruiting of some selected avocado (*Persea americana* L. Mill) species.

**Dr. B. K. Maalekuu**

1. Enzymes associated with fruit cell wall and cell membrane degradation during postharvest storage.
2. Mode of water loss in horticultural commodities during postharvest storage.
3. Pre-harvest and Postharvest factors affecting postharvest quality and shelf-life of produce.

**H. V. Adzraku (Mrs.)**

1. Development of an appropriate soil mix and turf for sports fields in Ghana in the face of climate change
2. Evaluation of biochar as soil amendment for lawn establishment.

**Dr. Laura Atuah**

1. Comparative response of lettuce to sawdust and rice husk soilless media.
2. Prospects and challenges of organic amendment application for vegetable production in the forest and savannah agro-ecological zones of Ghana.

**P. Kumah**

1. Determination of crown rot causing pathogens and mapping of affected areas in Ghana.
2. Development of ripening colour charts for some selected horticultural produce.
3. Quality and shelf-life of solar-dried onion powders.
4. Postharvest challenges of the banana industry: A case study of the commercial farms in Ghana.
5. Effect of pre-drying treatments and different solar dryers on the quality and shelf-life of dried leafy vegetables (*Xanthosoma sagittifolium* and *Colocasia esculenta*).

**Dr. F. Appiah**

1. Assessment of supply chain management, challenges and opportunities in the Food processing industry of Ghana
2. Product development from lesser used crop species
3. Production of fortified noodles for child nutrition
4. Assessment and enhancement of vegetable value chains in Ghana
5. Food fortification in Ghana: a tool for enhanced nutrition, food security and health

**P.D. Kaledzi (Ms)**

1. Screening of tomato (*Solanum lycopersicum* L) accessions for breeding and development of wilt resistant varieties in Ghana.
2. Effect of different rates of poultry manure on the vegetative growth and yield of two (2) tomato (*Solanum lycopersicum*) genotypes in pots.
3. Screening of six genotypes of egg plant for growth, yield and fruit quality.
4. Raising quality seedlings of coconut through organic soil amendment using cocoa bean testa in three coconut genotypes.
5. Screening of six genotypes of okra for growth, yield and fruit quality.

## **RESEARCH FACILITIES**

The Department improved its facilities for research, teaching and production through the provision of four greenhouses. Two of the greenhouses were funded by the University while the other two were funded by EDAIF.

## **CONFERENCE ATTENDANCE**

**P. D. Kaledzi (Ms.)** attended the International Training Workshop on Molecular Screening of Tomato for Resistance to Wilt Pathogens 2 and End of Project Meeting, 24 February – 7 March, 2013, Biotechnology Centre, Federal University of Agriculture, Abeokuta (FUNAAB), Nigeria. FUNAAB/KNUST/DFID/BRITISH COUNCIL DeLPHE 5 Research Project.

## **COMMUNITY SERVICE**

### **Dr. Ben K. B. Banful**

- Re-appointed Head of the Department of Horticulture from 1<sup>st</sup> August, 2013.
- Board Member, Institute of Distance Learning (IDL) Management Board
- Sole Facilitator for EDAIF Funds appointed by College Board
- External Examiner in the Department of Crop Science, School of Agriculture, University of Cape Coast.
- Reviewed manuscripts for Cameroon Journal of Experimental Biology; Agro-forestry Systems Journal; Ghana Journal of Horticulture; Journal of Enterprising Communities: People and Places in the Global Economy;
- Chairman, Department of Horticulture Examination Questions Vetting Committee

### **P. Kumah**

- Departmental Coordinator for Distance Learning – MSc Post harvest Technology programme
- Member, Governing Council of Ghana Institute of Horticulturists

### **Dr. B.K. Maalekuu**

- Departmental Seminar Organizer for BSc and Postgraduate programmes

### **P.D. Kaledzi (Ms.)**

- Honorary Treasurer of Ghana Institute of Horticulturists

### **Hannah-Vic Adzraku (Mrs.)**

- Continued to serve as the Landscape Consultant to the University.

### **Dr. F. Appiah**

- Departmental Exams Officer for regular BSc and MSc programmes
- Vice President of Ghana Institute of Horticulturists

### **Dr. Laura Atuah**

- Departmental Coordinator for Vacation Training for 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year- BSc Agriculture students
- Departmental Exams Officer for Distance Learning – MPhil Post harvest Technology programme

# **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 renowned for its high quality education and impeccable contribution to scientific research in development and preservation of the country's 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 utilise 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 of the 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
Chief Administrative Assistant	Mrs. Cecilia A. Owusu
Senior Administrative Assistant	Mrs. Dora Mensah
Senior Administrative Assistant	Mr. Kwame Kyei-Ampong

## **DEPARTMENTS AND HEADS**

There are five Departments headed by the following persons:

Dr. (Mrs) Olivia Agbenyega	Head, Department of Agroforestry
Dr. Nelson Winston Agbo	Head, Department of Fisheries and Watershed Management
Dr. Boateng Kyereh	Head, Department of Silviculture and Forest Management
Prof. William Oduro	Head, Department of Wildlife and Range Management
Dr. Charles Antwi-Boasiako	Head, Department of Wood Science and Technology

## **STAFF STRENGTH**

The Faculty consists of thirty-two (32) permanent teaching staff. They are made up of One (1) Professor and two (2) Associate Professors, eleven (11) Senior Lecturers and eighteen (18) Lecturers. Out of the thirty-two, two are on sabbatical leave and one on study leave. In its plan of expansion in response to growing student numbers and changing needs of the country, the Faculty embarked on recruiting additional academic staff. The new faculty members are Dr.

Thomas K. Agyemang, Dr. Winston Adams Asante and Ms. Gifty Anane-Taabeah. The Faculty runs an additional BSc programme in Aquaculture and Water Resources Management in response to a national demand for experts in that sector.

### **STUDENT POPULATION**

The Faculty has an undergraduate student population of about eight hundred (800) and about eighty (80) postgraduate students. The Faculty is working towards achieving a student gender balance of 50:50 population.

### **RESEARCH ACTIVITIES & FUNDING**

The Faculty continues to receive support from the Canadian International Development Agency (CIDA) for the APERL Project. Provision of funds from the National Forest Programme Facility, through the Food and Agriculture Organisation of the United Nations (FAO) to Faculty of Renewable Natural Resources for provision of services for the “Registration of 20,000 Modified Taungya Farmers” in the Ashanti, Juaso, Bekwai, New Edubiase and Kumawu Districts continues. Other research projects are on-going and are sponsored by USAID and DANIDA.

### **TEACHING AND RESEARCH ACTIVITIES**

The Faculty has established 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. To this effect, a borehole had been sunk and electrical power supply restored at the farm. The Faculty has acquired 5000 fingerlings for fish breeding.

### **UNIVERSITY OF EAST FINLAND (UEF)–KNUST STUDENT-STAFF EXCHANGE PROGRAMME**

In the year under review, the Faculty of Renewable Natural Resources completed agreements with the University of East Finland (UEF) and commenced a student and staff exchange programme aimed at enhancing the scientific capacity building of both staff and students and for cultural diversity experiences. A total of 8 students from the Faculties of Renewable Natural Resources and Forest Resources Technology selected from BSc year 3 spent a semester at the University of East Finland from September 2013. Five KNUST Lecturers also visited UEF to teach under the same agreement.

### **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 in the sections that follow:

#### **1. Department Of 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 Second Year. The Department is also in the process of introducing a taught plus research programme in M.Sc. (Aquaculture) to commence in 2015.

## **2. Department of Silviculture and Forest Management**

The Department of Silviculture and Forest Management commenced a M.Sc. in Natural Resource and Environmental Governance in the 2012/2013 Academic Year.

## **3. Department Of Wildlife And Range Management**

The Department has written a draft to run B.Sc. Degree Programme in Conservation and Wildlife Management and would start soon.

## **4. Department of Wood Science And Technology**

The Department has proposed to run the following undergraduate programmes in the as soon as they have obtained the approvals and accreditation. The courses are:

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

## **5. Department Of Agroforestry**

The Department initiated a programme in the year under review towards the introduction of Graduate programmes and professional training courses in Agroforestry. These drafts are being discussed at the College Board level.

## **SERVICE TO THE COMMUNITY**

The Faculty continues to offer professional services and technical advice to the Ghana Forestry Commission, Fish farmers and various NGOs in the natural resources sector. As a scientific authority the Faculty offers expert, technical 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 fisheries aquaculture (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 with the current third and fourth year Agroforestry option classes being 57 and 52 in number, respectively. The Department's graduate programmes continued to attract students. In the year under review three (3) MSc/MPhil/PhD students 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 within the College, some members of the Department provide service lectures. This has resulted in extra teaching loads for these lecturers

## RESEARCH

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

### **Dr. (Mrs) Olivia Agbenyega**

- Socio-economic Assessments of Agroforestry systems
- Gender mainstreaming in natural resources management
- Participatory approaches to natural resources management
- Socio-economic impacts of biofuels

### **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.
- Analysis of fire Incidence in Tain II Forest Reserve

### **Dr. Samuel Tetteh Partey**

- Plant residue decomposition and nutrient release dynamics
- Plant-soil relation in Agroforestry systems
- Soil fertility and organic residue management in agro-ecocosystems

## COMMUNITY SERVICE

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

**Dr. (Mrs) Olivia Agbenyega** is the lead author for Global Energy Assessment, coordinated by the Energy Program at the International Institute for Applied System Analysis (IASA) Vienna, Austria. Furthermore, Mrs Agbenyega is the coordinator for Gender mainstreaming workshops for APERL Project communities in the Brong Ahafo Region. She is also a trainer for the Africa Lead project for Food Security in Africa.

**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 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 on the United Nation for the protection of health of consumers and ensuring 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. Samuel Tetteh Partey** served as reviewer of Agroforestry systems Journal, Journal of Environmental Management and Journal of Agricultural Research.

**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. The Department continues to work with the APERL project, which ends in April 2014. In October 2013, An IFS grant to carry out research on leguminous plants is underway in the Department. This activity is currently on going at the Faculty Research Farm. The Department in collaboration with the Energy Centre, College of Engineering, started School Tree Planting activities amongst Basic Schools in Kumasi and the reactivation of a jatropha plantation in Tamale. These activities started in November 2013 and are still in progress. The Department is collaborating with the Natural Forest Division of Forestry Research Institute of Ghana (FORIG) Kumasi on ITTO funded Project on Rehabilitation of Degraded Forest Reserves in Ghana (Phase II). Dr. Twum-Ampofo is on the research team as Agroforester.

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 facilitator.

The Department is also in collaboration with Africa Lead/USAID Non-State Actor (NSA) Dialogue Platform Action Plan on Food Security and Comprehensive African Agriculture Development Program (CAADP) and International Institute for Applied Systems Analysis (IIASA) Vienna, Austria; Global Energy Assessment. Dr. (Mrs.) Agbenyega is their Lead Author and 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 World 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.

The Department is collaborating with Africa Rice Centre (AfricaRice) Benin. Dr. Samuel Tetteh Partey is on the research team. He is also in collaboration with some researchers of the environmental research group of the University of Manchester in assessing the role and management of organic residues on the soil microbial community structure and biomass, enzyme activities and nutrient dynamics.

The Department is collaborating with Ghana National Fire Service on Fire Management in Ghana.

The Department is also Collaborating with the University of Georgia, United States of America, World Agroforestry Centre, Ghana Cocoa Board and Ghana National Fire Service to develop a ten-year project entitled Wildfire Management and Agroforestry to Enhance Cocoa Adaptation and Mitigation of Climate Change and Production in West Africa.

## **CONFERENCES AND WORKSHOPS**

### **Dr. (Mrs) Olivia Agbenyega**

- Preparing Information for REDD as Climate Change Mitigation Strategy in Sub-Saharan African Countries. July, 2012. FORIG, Kumasi
- Promoting a value chain approach to climate change adaptation in agriculture in Ghana. Start-up Workshop, held in Sunyani, 27<sup>th</sup> – 28<sup>th</sup> March, 2013.

## **DEPARTMENT OF FISHERIES AND WATERSHED MANAGEMENT**

### **INTRODUCTION**

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

### **ACADEMIC STAFF**

The staffing situation has improved considerably over the years. The department has eight (8) academic members of staff. This consists of one (1) Associate Professor, two (2) Senior Lecturers, four (4) Lecturers and one (1) Assistant Lecturer.

### **TECHNICAL AND ADMINISTRATIVE STAFF**

These are four (4) and they support the academic members of staff to ensure smooth running of the department.

### **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 56 and 26 for the third and fourth years respectively during the year under review. In 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 practical-oriented personnel and professionals in aquaculture and water resources management for Ghana and the sub-region. The programme is in its second year.

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

Graduate studies leading to the award of MPhil and PhD degrees are offered in the Department. The number of postgraduate students enrolled in the Department during the year under review is 14. Postgraduate research is mainly focused on Aquaculture, Aquatic Ecology, Pollution, Climate change and impacts on livelihoods, watershed management. The department also has an active fish farm, where students have the opportunity to learn different aspects of aquaculture, and together with the faculty, use facilities for their projects.

### **FISH PRODUCTION (INCOME GENERATION)**

The department has been producing some fish for sale. Production has been modest and students and teaching assistants are gaining a lot of practical experience. During the year under review the department has been able to generate over GH¢6,000.00. Our plan is to develop a sales point where we can easily sell our products.

### **RESEARCH ACTIVITIES**

In the year under review the Department undertook research in the following areas:

- Aquaculture and environment
- Fish nutrition in aquaculture
- Best management practices for effluent control from fish farms
- Habitat modification and fish population dynamics
- Broodstock management and fingerling production
- Ecology of cichlids and freshwater clams
- Ecology and management of wetlands and watersheds
- Community water resources management and conflicts

Research interests of individual lecturers have been presented under the subsection “ACADEMIC STAFF” as indicated.

### **COLLABORATIVE RESEARCH**

The Department has also recently received Aquafish Innovation Lab CRSP (USAID) award and will be working with University of Arkansas on improving 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 also CRSP (USAID) funded is in collaboration with our Department and Virginia State University termed ‘the Global Experiment’. It is about standardizing pond culture activities worldwide.

### **CONFERENCES AND WORKSHOPS ATTENDED**

**DR. NELSON WINSTON AGBO**

- Resource person, Workshop on ‘Development of National Aquaculture Guidelines and Code of Practice for Ghana. Organized by the Ministry of Fisheries and Aquaculture Development, Koforidua, 22-27 September 2013.
- BSU- GEP workshop on ‘Strategizing Outreach for Sustainable Agriculture and Aquatic Products in Ghana and Tanzania’, 24-26 May, 2013, Livingston Resort, Bagamoyo, Tanzania. Presented a paper on ‘Outreach experiences of fisheries and aquaculture in Ghana’

#### **DR. BENJAMIN B. CAMPION**

- BSU- GEP workshop on ‘Strategizing Outreach for Sustainable Agriculture and Aquatic Products in Ghana and Tanzania’, 24-26 May, 2013, Livingston Resort, Bagamoyo, Tanzania.

#### **DR. DANIEL ADJEI-BOATENG**

- LARVI 2013, September 2 -5, Gent, Belgium. Presented a poster on “ Gametogenic development and spawning of the freshwater clam, *Galatea paradoxa* (Born 1778) from the Volta River Estuary, Ghana”
- AQUACULTURE AMERICA January, 2014, Seattle, WA, USA. Presented a paper on the topic “Effect of fertilisation and feeding level on the productivity of tilapia pond culture in Ghana.

#### **DR. REGINA EDZIYIE**

- BSU- GEP workshop on ‘Strategizing Outreach for Sustainable Agriculture and Aquatic Products in Ghana and Tanzania’, 24-26 May, 2013, Livingston Resort, Bagamoyo, Tanzania.

#### **WORKSHOPS ORGANIZED BY THE DEPARTMENT**

- AquaFish Innovation Lab–Africa Regional Meeting. 5-7 July, 2013, Hosted by KNUST at Engineering Guest House, KNUST, Kumasi, Ghana. Sponsored by USAID
- Building Stronger Universities, GEP Strategizing Outreach for Sustainable Agriculture and Aquatic Products in Ghana and Tanzania, 13-16 November, 2013, Engineering Guest House, KNUST, Kumasi, Ghana
- Pond Aquaculture Best Management Practices Workshop organized for fish farmers by KNUST, Kumasi in collaboration with Virginia Polytechnic Institute and State University, Blacksburg, and Purdue University, USA sponsored by AquaFish (CRSP) of the USAID. 2-5 July, 2013, Faculty of Engineering – UMaT, Tarkwa, Ghana

## **DEPARTMENT OF SILVICULTURE AND FOREST MANAGEMENT**

### **INTRODUCTION**

During the year under review the Department set and worked towards two new objectives; strengthening of peer learning and establishment of a commercial fuelwood plantation within the FRNR forest plantation project that begun three years ago.

### **SENIOR MEMBERS**

There are eight full-time senior members, one post retirement part-time senior member and four supporting staff at post.

### **SUPPORTING STAFF**

The department has two (2) Senior Technicians, one (1) Senior Administrative Assistant and one (1) Headman.

### **STAFF RECRUITMENT AND PROMOTION**

Dr Winston Adams Asante joined the Department as a lecturer during the year whilst Dr. Emmanuel Acheampong was promoted to the position of a Senior lecturer.

### **STUDENT POPULATION**

The student population is made up of 101 undergraduates (third and final year students) and 48 post-graduates.

### **DEPARTMENT RESEARCH WORK**

The Department's research programme is focused on the following areas:

#### **Dr Boateng Kyereh**

- Forest regeneration after logging in the moist semi-deciduous forest zone
- Exploring the potential of reducing emissions from deforestation and forest degradation in areas outside forest reserves
- 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

#### **Dr. K. Appiagyei Nkyi**

- Tree species' responses to different forest nursery practices
- Tree growth and development under various plantation development models in Ghana
- Relative abundance and distribution of *Albizia zygia* on fallow lands in Ashanti Region of Ghana
- The potential of leafy mulch in soil amelioration

#### **Dr Emmanuel Acheampong**

- Developing the potential of climate change mitigation activities as alternative livelihoods for chainsaw dependent communities in Ghana
- Forest-related livelihoods and forest governance in the high forest zone of Ghana

- Illegal chainsaw milling and the domestic lumber market in Ghana

**Dr. P. D. Kumapley**

- Charcoal production and trade in Ghana
- Honey production as a sustainable tree-based livelihood in the Atebubu District

**Dr Daniel Dompseh**

- The ecology and genetics of fragmented populations of the critically endangered tree, *Talbotiella gentii*

**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 presented.

**Dr. Boateng Kyereh:**

- Member of the scientific coordinating team of Tropenbos International Ghana projects. Responsible for the scientific direction and quality of Tropenbos supported research projects in the country.
- Member of the working group on Small and Medium Forest Enterprises Development in Ghana (Implementing Agency: Tropenbos International)
- Local supervisor of three 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) Potential effects of climate change on regeneration of forest tree species in Ghana (iii) Participatory spatial knowledge management and knowledge brokering in multi-level governance: mechanisms for community empowerment in Ghana's high forest zone.
- Member of the Network of MSc European Forestry Erasmus Mundus Programme, with focal point at School of Forest Sciences, University of Eastern Finland

**Dr Emmanuel Acheampong:**

- A member of a consortium of five organizations implementing the project "Assessing the socio-economic implications of industrial biodiesel plantations: Repercussions of *Jatropha curcas* on rural land use alienation and conflict escalation in Ghana and Ethiopia".
- Member of research team, "Developing the potential of climate change mitigation activities as alternative livelihoods for chainsaw dependent communities in Ghana". This research was conducted as part of the EU-funded Chainsaw Project 'Supporting the integration of legal and legitimate domestic timber markets into the VPA', implemented by CSIR-FORIG in collaboration with TBI-Ghana and Forestry Commission of Ghana.
- Member of project team, "Optimizing productivity and perennial intercrop diversity tradeoffs in West and Central African cocoa farms (Tradeoffs in Cocoa Project)". This Project is funded by West and Central African Council for Agricultural Research and Development (CORAF/WECARD).

**Dr Daniel Dompkeh**

- Collaborator, research group for tropical forest research on tropical forest biodiversity, School of Environmental Science, University of Aberdeen

**SERVICE TO COMMUNITY**

Staff of the Department played various roles in community service as individuals and team members.

**Dr. E Acheampong**

- Member, Administrative Instruments Committee, College of Agriculture and Natural Resources, 2012
- A member of a consortium assessing the socio-economic and ecological implications of industrial biodiesel plantations in Ghana and Ethiopia. This Project is under the Conflict and Cooperation over Natural Resources in Developing Countries (CoCooN) Programme, funded by the Directorate General of Development Cooperation (DGIS) of the Ministry of Foreign Affairs of the Netherlands and the Netherlands Organisation for Scientific Research (NWO).
- 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.
- International Baccalaureate Organization (IBO): Examiner of Environmental Systems and Society.

**Dr. Boateng Kyereh**

- Coordinator of the FRNR Forest Plantation Project
- Member of the project management team of the European Union Supported Project on Developing Alternatives for Illegal Chainsaw Lumbering through Multi-stakeholder Dialogue in Ghana and Guyana, 2012/2013 (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.

**Dr. E.A. Abeney:**

- Chairman National Working Group on Forest Certification
- Member of the Multi-stakeholder Implementation Committee of the Voluntary Partnership Agreement on legal timber between Ghana and the European Union.

**Dr Daniel Dompkeh**

- Board member, Presbyterian Senior High School, Abetifi, Kwahu
- Board chairman, Presbyterian Preparatory School, Anwomaso Kumasi

**WORKSHOPS/CONFERENCES ATTENDED BY STAFF****Dr Boateng Kyereh**

- Ministry of Lands and Natural Resources Joint Mission - Forest Investment Plan Consultative Workshop 13<sup>th</sup> February 2013, Miklin Hotel Accra
- Joint Multilateral Development Banks and Government of Ghana mission for forest investment plan 22 February 2013 RMSC Kumasi
- Advancing REDD+ in Ghana: preparation of REDD+ pilot projects in Ghana inception workshop 12<sup>th</sup> April 2013, FoRIG Kumasi
- National workshop on the draft manual for verification of legal timber. Organised by the Forestry Commission 24th July 2013, Miklin Hotel Accra
- Evaluation and synthesis of lessons from ACP-FLEGT supported projects on the Voluntary Partnership Agreement (VPA) in Ghana Workshop 6<sup>th</sup> October Hotel Feyiase
- National Climate Change Policy Focus Area 4 Consultative Meeting for National Validation of Action Programmes for Implementation. Organised by the Ministry of Environment, Science, Technology and Innovations. November 2013 Little Acre Hotel, Aburi

#### **Dr Emmanuel Acheampong**

- Workshop on “Re-toolling staff from extension and civil society organizations on key areas of science and practice of climate change in relation to forests”. Organized by the African Forest Forum, Accra, Ghana, 29<sup>th</sup> – 31<sup>st</sup> July 2013.
- Workshop on “Re-toolling staff from national training, education, and research institutions on key areas of science and practice of climate change in relation to forests”. Organized by the African Forest Forum, Dar es Salam, Tanzania, 26-28 August, 2013.

#### **Dr Daniel Dompheh**

- Annual conference of the Society for Experimental Biology, 3<sup>rd</sup>-6<sup>th</sup> July 2013, Valencia, Spain

## **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. 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 **23** graduate students in the Department with **5** pursuing PhD degrees.

### **ACADEMIC AND TECHNICAL STAFF**

The department is headed by a Professor. Besides him there is one (1) Associate Professor, one (1) Senior Lecturer, two (2) Lecturers and two (2) Part-time Lecturers. These are supported by five (5) ancillary staff.

## **EXTERNAL COLLABORATIONS AND MAJOR RESERACH IN 2012/2013**

The Department continued to conduct research with reputed institutions including external collaborations with:

- University of Twente, Faculty of Geo-information Science and Earth Observation, Netherlands in a joint M.Sc. programme in GIS for Natural Resource Management and in delivering Tailor-Made-Training on “Spatial Analysis and Geo-Information Production for Ghana’s REDD+
- Monitoring, Verification and Reporting System” , sponsored by the Netherlands Government and fully implemented for a cross-section of staff from the Forestry Commission, Environmental Protection Agency, International Union for the Conservation of Nature (IUCN) and the Centre for Remote Sensing and Geographic Information Services in the University of Ghana, Legon.
- German Research Council (DFG), University of Bonn, Institute of Virology, Germany, Ulm University, Germany and Kumasi Centre for Collaborative Research (KCCR) in a German African Cooperation Project in Infectology - Corona viruses in Wildlife.
- KCCR and Bornhard Nocht Institute for Tropical Medicine in a Malaria Vector Control Project
- Royal Belgian Institute of Natural Sciences, Brussels, Belgium and National Museum of Wales, UK in Capacity building in Taxonomy and Museum Management.
- Forestry Commission/Wildlife Division as the National Scientific Authority for Convention on International Trade in Endangered Species (CITES)
- Netherlands Centre for Biodiversity, NATURALIS, LEIDEN, Netherlands in conducting Biodiversity Inventories and Taxonomic, Ecological, Phylogenetic and Bio-Geographical analysis of extant organisms; Technical and Professional training and Development of libraries and other documentation collections
- National Museum of Natural History, Paris – France (MNH) in researching into Molecular Biogeographic typing of Natural Resources i.e. bush meat and fish in Ghana – monitoring tool applied to the crisis of the bush meat and Exchange of technical and scientific expertise
- University of Maryland Eastern Shore in Capacity building and student exchange to Strengthen institutions in Ghana and US for national interest and global food security
- Canadian International Development Agency in developing Agroforestry Practices to Enhance Resource-Poor Livelihoods (CIDA -APERL) Project No. S63440
- UNESCO/KOICA and MAB National Committee of Ghana in Creation of an Enabling Mechanism for the Nomination of Lake Bosomtwe and its Environs as a UNESCO Biosphere Reserve Project. (2012).
- Form Ghana in conducting Ecological Studies for an Agro-Forestry Project in Tain II Forest Reserve, Ghana.
- US Fish and Wildlife Service Project and A Rocha, Ghana in Management of Crop Raiding Elephants around Bia Conservation Area, Ghana. Project AFE-0779.

## **MAJOR SERVICE TO THE COMMUNITY**

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



## PROF WILLIAM ODURO

- KNUST representation on the scholarship review committee, scholarship secretariat. Accra. (2012/2013).
- Member, Embedding Changes Group. Responsible for embedding changes in College of agriculture and Natural resources culture and analysing Strategic choices (E&S). NPT 278 project. (2012/2013).
- Coordinator, CIDA -APERL (Agroforestry Practices to Enhance Resource-Poor Livelihoods). 1 October (2012/2013).
- Dean, Faculty of Renewable Natural Resources, CANR, 3 October, (2012/2013).
- Member, FC/FFRT, CANR, KNUST Sawmill Sub- Committee. (2012/2013).
- Patron, agency for Health and Food Security. Ntonsu, Kwabre District, Ashanti Region. January, (2012/2013).
- Trustee, RAINFOREST FRIENDS, GHANA-RAFFS/G (affiliated to Forest Friends Ireland-FFI). RAFFS/G (2012/2013).
- Member serves on TROPENBOS International Ghana Bi-National Steering Committee. (2012/2013).
- Member, UNESCO-MAB Sub-Committee. (2012/2013).
- Reviewer, African Journal of Ecology. 28 May (2012/2013).
- Reviewer, African Journal of Biotechnology, [www.academicjournals.org/aaajbc](http://www.academicjournals.org/aaajbc), (2012/2013).
- External Assessor Department of Wildlife and Entomology, University of Cape Coast, (2012/2013).
- External Assessor. Department of Geography and Resource Development, University of Ghana, Legon 2012 to date)
- External Assessor, Department of Wildlife and Range Management, Federal University of Technology, Abeokuta. Nigeria 2013
- External Assessor, Department Wildlife and Ecotourism, University of Ibadan, 2013
- External Assessor, **Faculte des sciences agronomiques** Departement d'amenagement et de gestion de l'environnement laboratoire d'ecologie appliquee Universite d'Abomey-calavi (UAC) Benin 2013.
- Member, Sustainable Management of Lake Bosomtwe Project Steering Committee, Ministry of Water Resources, Works and Housing, Accra. January, 2012.
- Facilitator 1<sup>st</sup> GRASAG-KNUST Research Seminar. "Publish, Not Perish. Great Research Problem Formulation/Design and Approach Data Collection and Analysis. Hall Conference Room. " 1<sup>st</sup> 72<sup>nd</sup> November, 2012
- Facilitator ToT PhD Supervision workshop. BSU project Danish-KNUST 05- 13 October. Miklin Hotel. 2012
- Facilitator, scientific writing course. BSU project Danish-KNUST ICIL, KNUST 2012
- Assisted Fund raising and proposal writing training Workshop, Erata hotel, Accra. April 2013
- Jury, GRASAG-KNUST Research Conference. 6<sup>th</sup> annual GRASAG-KNUST research conference 25-26 March 2013, College of science complex auditorium
- Member, Growth and Employment Working Group. DKK 20 million grant for GEP. Ministry of Foreign Affairs in Denmark/DANIDA (2011 to 2012).

- Member of steering committee. Sustainable management of Lake Bosomtwe in the Ashanti Region of Ghana. Ministry of Environment, Rural and Marine Affairs of Spain/UNESCO USD 1,479,290.91 (2011-2013).
- PI strategizing Outreach for Sustainable agriculture and aquatic products in Tanzania and Ghana. 2013.
- Facilitator, Workshop: Fundraising and Scientific Proposal Writing\_: Pentecost University College (PUC) Graduate School, Labone, Accra 29<sup>th</sup>-31<sup>st</sup> July, 2013
- Facilitator, Seminar: Scientific Writing\_: KNUST Affiliate Institutions, Local Government University College, Accra, 2013
- Facilitator, Seminar: Scientific Writing\_: KNUST Affiliate Institutions, KNUST, Great Hall, 2013
- Editor/Reviewer International Journal of Environment and Waste Management (IJEWM). Refereeing report – IJEWM\_27487. 2013

### **PROF. S. K. OPPONG**

- Joint Course Coordinator, ITC/KNUST MSc in GIS for Natural Resources Management programme, (2012/2013).
- Management Team, Agroforestry Practices to Enhance Resource-Poor Livelihoods (APERL), Project No. S63440, Funded by Canadian International Development Agency (2012/2013).
- Reviewer, Ghana Journal of Agricultural Science, (2012/2013).
- Reviewer, Journal of Ghana Science Association, (2012/2013).
- Reviewer, Journal of Science and Technology, (2012/2013).
- Reviewer, Pachyderm, (2012/2013).
- Moderator, Faculty of Renewable Natural Resources, UDS, Tamale, (2012/2013).
- Dean, Faculty of Renewable Natural Resources, UDS, Tamale, (2012/2013).
- Principal Investigator, Virus biology, host ecology and human behaviour as determinants for coronaviral zoonoses in Ghanaian Bats. Collaboration with KCCR, University of Bonn, Medical Centre and Ulm University, Germany, Germany. (2012/2013).
- Principal Investigator, Malaria Vector Control Project. Collaboration with KCCR and Bernhard Nocht Institute for Tropical Medicine (2012/2013).

### **MR. EMMANUEL DANQUAH**

- Reviewer, Pachyderm, (2012/2013).
- Reviewer, African Journal of Ecology (2012/2013).
- Mentor, African Women in Agricultural Research & Development (AWARD) Project
- Member – FRNR Project Committee, (2012/2013).
- Member – FRNR Welfare Committee, (2012/2013).
- Examinations Officer – FRNR, Department of Wildlife and Range Management, (2012/2013).
- Member – FRNR Guest House Management Committee, (2012/2013).
- Member – College Board, CANR, FRNR, (2012/2013).
- Member – Ghana Science Association, (2012/2013).
- Member – IUCN World Commission on Protected Areas (WCPA) (2012/2013).
- Member – IUCN SSC African Elephant Specialist Group (AfESG) (2012/2013).

- Lead Consultant – Red Hot Pepper Solution for Crop Raiding Elephants around Bia Conservation Area, Ghana. (2012/2013) (USF&WS/A Rocha Project \_ AFE-0779).
- Lead Consultant – Baseline Faunal Surveys at Juaben (Ashanti Region), Norpalm and BOPP (Western Region) and TOPP (Central Region) Oil Mills, Ghana. Component of SWAPP towards RSPO certification. Proforest, Ghana. (2012/2013).
- Lead Consultant – Environmental Impact Assessment on Proposed Alluvial Mining Project at Bogyawe Concessions, Bogyawe, Bekwai Municipal Ashanti Region-Ghana. Optimal Development Consults (OPDEC). (2012/2013).
- Lead Technician – Ecological Studies for the Form Ghana Agro-Forestry Project in Tain II Forest Reserve, Ghana. Technical Form Ghana. (2012/2013).

### **GRANTS TO THE DEPARTMENT**

A senior member of our department has been awarded the 2014-2015 Fulbright Junior Staff Development Programme award and is expected to pursue his PhD studies in the United States.

### **KEY VISITS ASSOCIATED WITH CURRICULUM DEVELOPMENT**

A high powered delegation from ITC was received in June 2013. The delegation, comprising the Dean of ITC, Prof. Tom Veldkamp, the Managing Director of the ITC Directorate and a Senior Project Officer visited KNUST to discuss issues concerning the future of collaboration with KNUST. A staff of the department also visited ITC in November for a workshop of all Joint Programme Partners of ITC on ways to strengthen existing collaborations. Another delegation from ITC is expected in a month's time to prepare documentation for the re-accreditation of the Joint MSc Programme currently being run by ITC and KNUST.

## **DEPARTMENT OF WOOD SCIENCE AND TECHNOLOGY**

### **TEACHING**

The Department provides support to the FRNR in the teaching of several undergraduate courses including Basic Genetics, Pathology and Microbiology, Environmental Physiology 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 one (1) Associate Professor (on post retirement contract), two (2) Senior Lecturers (out of which one is on part time) and two (2) Lecturers. These are supported by five (5) other ancillary staff.

### **MAJOR RESEARCH BY STAFF**

#### **DR. CHARLES ANTWI-BOASIAKO**

1. Comparative wood Anatomy of Primary and Secondary Ghanaian Timber Species. (e.g. The Less-Known and Lesser-Utilized Species)
2. Natural Durability Studies of Secondary and related wood species using: the Field Graveyard and Laboratory tests.
3. Studies on the use of different strains of decay micro organisms (e.g. decay-fungi) in natural durability and the significance of biotechnology of decay.

4. Preservative-treatment of Wood and laminates-Identification, Characterization and Assessment of the use of Extractives as 'Natural Preservatives' in Wood protection.
5. Propagation, chemo-mechanical analyses, protection and potential utilization of bamboo and rattan - A Research Programme in conjunction with ICBR in Beijing, China.
6. Biomass (Wood) Energy Technology.
7. Growth performance and properties of forest trees and the "Miracle Tree" (*Moringa oleifera*.).
8. Microbiology and Pathology of forest/wood.
9. Forest Botany and Systematics.
10. Bio – chemical and physic-mechanical properties of bamboo, Rubberwood and Borassus
11. Wood and Wood Residue utilization in the Forest/Timber/Wood Industry.
12. Health and Safety in the Wood Industry (Ergonomics improvement in the Workplace).

#### **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 ethiopum* as a potential commercially viable woody 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. Utilization of lesser utilized timber species for light bridge construction.
8. Solid timber waste utilization for briquettes and biomass energy.
9. Utilization of timber for construction.
10. Furniture design in non-timber wood products.
11. Remnant trees on cocoa farms.

#### **DR. N. A. DARKWA**

1. Pulping Characteristics of Lesser utilized Plantation Species (*Gmelina arborea*).
2. Physical and Chemical Properties of *Gmelina arborea* wood.
3. Paper recycling techniques.

4. Tannin extraction from indigenous plant species for formaldehyde-free wood adhesive production.

#### **DR. K. A. AFRIFAH**

1. Biodegradable and compostable wood plastic composites (WPCs). WPCs properties and applications in construction, automobile and packaging industries.
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 compostability.
7. Food Packaging. Food product/package compatibility and interaction, high barrier packaging and modified atmosphere packaging.

#### **SERVICE TO COMMUNITY**

- Members of the Department provide support to the FRNR/FCGE/HSB project between Ghana and Switzerland.
- 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.

Mr. Jonny Osei Kofi participated in the structuring and functioning of the Centre for Disability and Rehabilitation Studies (CEDRES) of the School of Medical Sciences in the year under review. Other services are as follows:

#### **DR. C. ANTWI-BOASIAKO**

- **Researcher, Team member and a Supervisor:** Timber Bridges Research Project with BERN University, Switzerland
- **Student Tutoring Project:** Dr. Antwi-Boasiako has had the chance to be engaged in the “*Student Tutoring Project*” at the Reading University, Reading (UK).
- **Chairman** – *FRNR Guest House Management Committee regarding the Operations of the two Faculty Guest Houses, their refurbishment and promotion*

#### **MR. J. OSEI KOFI**

- **Team Leader** - Tannin Adhesive Project (DWST-FRNR) with Bern University of Applied Sciences, Biel, Switzerland (2012)
- **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
- **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

- **Member**, Catholic Graduates for Action (CAGA), Kumasi, Ghana.
- Government Appointee: Kumasi Metropolitan Assembly
- **Member**: Executive Committee (KMA), Development Planning Committee (KMA) Education Committee (KMA)

#### **PROF. NANA K. FRIMPONG-MENSAH**

As the previous Dean of the Faculty and Head of Department, Prof. K. Frimpong-Mensah directed all activities in the Faculty and also administratively represented the concerns of the Faculty in all matters of Domeabra and the University.

- **Board Chairman**, Oweriman Schools, Domeabra, - Ashanti-Akim.
- **External Moderator/Examiner**, Department of Renewable Natural Resources, UDS, Tamale.
- **External Moderator/Examiner** for National Board for Professional Technical Examinations (NABPTEx).
- **External Examiner** for Accra, Takoradi, Kumasi Polytechnics, Departments of Furniture Design and Construction.
- **Board Member** of Aninwah Medical Centre at Emena, Kumasi.
- **Member**, International Union of Forest Research Organizations, IUFRO.
- **Member**, Institute of Professional Foresters, Ghana.
- **Member**, National Accreditation Board panel on College of Technology Education programme on Wood Science and Technology.
- **Member**, Unity Hall Council
- **Member**, Board of Directors of GACON, an Environmental NGO.
- **Researcher and Team leader**: Timber Bridges Research Project with BERN University, Switzerland.

#### **DR. N. A. DARKWA**

- **Member** of the Ashanti Regional Environment Networking committee.
- **Researcher and Team member**: Timber Bridges Research Project with BERN University, Switzerland
- **Lead Expert on adhesives**, Tannin Adhesive Project (DWST-FRNR) with Bern University of Applied Sciences, Biel, Switzerland

#### **DR. K. A. AFRIFAH**

- Member, Institute of Professional Foresters, Ghana
- Member, Society of Plastic Engineers
- Facilitator in the Trans disciplinary Student Platform Approach (TSPA) by Tropenbos International and KNUST
- Acting Faculty Examination Officer, Faculty of Renewable Natural Resources
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#### **SEMINARS, CONFERENCES AND WORKSHOPS**

In the year under review, academic members of staff attended seminars, conferences and workshops locally and internationally.

# **FACULTY OF FOREST RESOURCES TECHNOLOGY (SUNYANI)**

## **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). It started in the 2007/2008 academic year. The Department offers training and research into wood related issues. Their main aim is to provide skillful Wood Scientists and Wood Technologists so that they 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 current third year and fourth year Wood Processing and Marketing option classes are two (2) and seven (7) respectively.

### **STAFF**

The department has an academic staff strength of six (6) of which three (3) are on part time and one (1) on post retirement contract.

### **TEACHING**

The Department continues to provide support to FFRT regarding the teaching of several undergraduate causes including Forest Machining and Roads, Logging and Harvesting, Forest Products Utilization, and Experimental Design and Data Analysis.

### **RESEARCH ACTIVITIES**

Projects initiated by the academic staff of the Department during the year are as outlined below:

#### **Mrs. Sylvia Adu**

- Economic utilization of wood residue.
- Assessment of Wood Residues in Energy Generation in Ghana.
- Efficient Utilization of Wood Residue to Combat Climate Change.
- Assessment of work safety in the timber industry.
- Mechanical strength properties of *Bambusa vulgaris* and *Bambusa virrata* from the Sunyani localities.
- Moisture Buffer Values (Mbv) of Ten Ghanaian Timber Species.
- Physical Properties of Natural- and Plantation-Grown Cordia Timber Species in Ghana.

#### **Mr. Osei-Owusu Antobre**

- Evaluation of Safety measures in Samartex Plywood and Timber Company.

#### **Mr. Francis Wilson Owusu**

- Machineability of *Eucalyptus grandis* grown at Sunyani locality
- Development of conversion ratios of some commercial timber species in Ghana: A case study at Samartex Timber and Plywood Company, Samaboi – Western region and Logs and Lumber Limited, Kumasi – Ashanti region
- Sawing characteristics of *Senna siamea* and *Eucalyptus grandis* grown at Sunyani locality.

- Mechanical Strength Properties of *Cola gigantea* and *Ficus sur* from Afram Headwaters Forest Reserve at the dry semi-deciduous forest Zone
- Weathering characteristics of four Ghanaian timber species extracted Afram Arm of the Volta Lake in Ghana

#### **Mr. Joseph Kwame Appiah**

- Processing Properties of Invasive Alien Timber Species Grown in Ghana - Part 3: Drying Characteristics of *Broussonetia Papyrifera*
- Moisture Buffer Values (Mbv) of Ten Ghanaian Timber Species.
- Physical Properties of Natural- and Plantation-Grown Cordia Timber Species in Ghana.

### **CONFERENCES/WORKSHOPS/SEMINAR ATTENDED**

#### **Mrs. Sylvia Adu**

- Workshop on Academic Mentorship. College of Science Auditorium – KNUST. 2<sup>nd</sup> April, 2014.
- Workshop on “Trade Capacity Building for Ghana Phase II”. Value Chain Analysis of the Wood Sector in Ghana. Programme for Validation. Excelsa Lodge, Kwamo. Kumasi - Ghana. January 30, 2014.
- Conference on Climate Change and its Impact on Africa: The Role of Science and Engineering for Combat. At Tyco City Hotel – Sunyani, Ghana. October 15 – 18, 2013.
- Workshop on “Academic Quality Assurance and Leadership in Higher Education Management” – UENR. February 20, 2013.

#### **Mr. Osei-Owusu Antobre**

- Workshop on “Academic Quality Assurance and Leadership in Higher Education Management” – UENR. February 20, 2013.
- Academic Exchange programme at University of Eastern Finland. April 5 – 13, 2014.
- Protection and Management of Forest Reserves in Developing Countries an overview in Ghana.
- Forest Laws enforcement and Climate change.

### **ARTICLES PUBLISHED IN REFREED JOURNALS**

In the year under review, academic members of staff published some book chapters and articles in some peer reviewed journals. These can be found in the University’s Quality Assurance Bulletin for the year under review.

### **SERVICE TO COMMUNITY**

The Department of Wood Processing and Marketing serves the community in the following ways:

- Visit to selected Timber Industries in the Brong Ahafo Region to educate workers on safety precautions
- Visit selected Senior High Schools to promote KNUST
- Research into problems facing some Timber Industries in the Brong Ahafo Region by lecturers and supported by students of the Department.



- Final year students were taught how to make artifact using wood residue, an activity which can help sustain them in life if they decide to take it up as a profession.

#### **Mrs. Sylvia Adu**

As the Ag. Head of Department, regular consultations have been held for the best running of the Department as far as Students and Lecturers are concerned. Other services include:

- Curriculum development (Wood Science and Forest Products Option) for University of Energy and Natural Resources (UENR) – Chairperson. 2013
- 2013 Organization of Women in Science for the Developing World (OWSD) Africa Regional Conference Planning Committee – Member
- Committee to revitalize the UENR Sawmill – Member (Wood Scientist) (2013)
- Academic Board, UENR – Member (2012-2013 Academic Year)
- Faculty Board, UENR – Member (2012-2013 Academic Year)
- Department of Forest Products and Wood Science (UENR) – Head (2012-2013 Academic Year)
- Sandwich Coordinating Committee (FFRT) – Member (2011-2014)
- College of Agriculture and Natural Resources (CANR) Board, KNUST - .Member.
- Faculty Board, FFRT-KNUST – Member.
- Students Industrial Attachment Committee, FFRT – Member (2011 –Date)

#### **Mr. Osei-Owusu Antobre**

- Ag. Departmental Exams. Officer
- Students Industrial Attachment Committee, FFRT – Member.

#### **Mr. Lawrence B. Antwi**

- Technical report on the Review of the SUNSTEX COMPANY Ltd., Timber Utilization Contract (TUC) area management plan and align it with the Certification PCIs and the FMU management plan to provide SUNSTEX COMPANY Ltd., the basis, objectives and prescriptions for managing the Esukawkaw Forest Reserve in a sustainable manner. Submitted to Kumasi Wood Cluster on 20<sup>th</sup> March 2013
- Chairman of Technical committee to report on the state of the university sawmill and a Proposal to Revamp the Sawmill submitted to the vice-chancellor on February 7, 2013
- Chairman of Technical Committee To Develop Parallel Programmes In Natural Resources Management (Sandwich) For The School Of Natural Resources University of Energy and Natural Resources Sunyani. Report submitted on 10 April 2013
- Chairman, FFRT/UENR Sawmill Committee.
- Member, Regional Task Force for the Establishment of UENR.
- Board member, Pentecost Credit Union, Sunyani.

#### **COLLABORATION**

The Department collaborates with;

- 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
- Forestry Services Division – FC
- Environmental Protection Agency (EPA)
- Some Timber Industries

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

## **BUREAU OF INTEGRATED RURAL DEVELOPMENT (BIRD)**

### **INTRODUCTION**

During the 2012/13 academic year, the Bureau made some progress in her core mandate areas of research, consultancy, teaching and outreach. And, with the recruitment of four Assistant Research Fellows, one of whom is a female, the Bureau stepped up her research and outreach activities under its flagship program, *“Taking the University to the Grassroots for Sustained Growth and Development”*. In addition, we were also able to meet all commitments to our clients on time and to execute contractual obligations successfully. The state of the department including details of our activities is presented below.

### **STAFF STRENGTH**

The Bureau had a staff strength of seven (7) made up of three (3) Senior Research Fellows and four (4) Assistant Research Fellows. The research staff was supported by administrative and ancillary staff totaling twelve (12). The Bureau continued to depend on National Service Personnel to provide research assistance to the Research Staff. This has been a major constraint to our research and development activities since Service personnel’s duration is only one year. Thus, the Bureau has not had a critical mass of experienced research support staff. In addition, one of the three Senior Research Fellows has been on Study Leave, whilst another coordinates the International Center for Innovative Learning (ICIL) program. Consequently, the Department has had limited high senior level staff input into her research and this has affected its research output. Recruitment of at least two Senior Research Fellows with PhD and three Research Assistants with B.sc or BA would enhance capacity to initiate and implement research projects.

### **RESEARCH**

#### **a) International Collaborative Research**

During the reporting period, BIRD successfully implemented two projects it won awards for under the Building Stronger Universities (BSU) Platforms on Environment & Climate (EC) and Growth & Employment (GEP) Research Grants of the Danish Government. Three proposals under the themes: *“Taking the University to the Poor and Grassroots People for Sustained Local Level Growth and Development”*; *“Adaptive Collaborative Approaches to Meet Change Challenges in Natural Resource Governance in Ghana – Integrating Scientific and Traditional Knowledge”*; and *“Partnering Local Communities For Sustained Development Through Outreach And Networking”* were submitted. The first two proposals were approved and a total of US\$60,000 research grant was awarded. Dr Paul Sarfo-Mensah and Prof Jens Emborg of Institute for Food and Resource Economics (IFRO), University of Copenhagen were the lead researchers.

## **b) Departmental-Funded Research**

Within the reporting period, the Department prioritized research on general community development based on community-university engagement. It continued with previous years' research activities in its adopted Social laboratories in the Sekyere South, Ahafo Ano South and Atwima Nwabiagya Districts in the Ashanti region. In the former, BIRD, with Dr Paul Sarfo-Mensah as lead researcher, has been facilitating university-community engagements in Afamaso village on sustainable natural resources management. As part of deepening the community engagement processes, BIRD in December, 2013, facilitated an engagement between the community and students on the M.Phil Program in Natural Resources and Environmental Governance at the College of Agriculture and Natural.

Other research works carried out are listed below:

### **i) Conditional cash transfers: pathways for improved health outcomes amongst orphans and vulnerable children in rural Ghana**

The objectives of the research were to critically examine the different pathways through which the Ghana Livelihood Empowerment Against Poverty (LEAP), a conditional cash transfer program works to improve orphaned and vulnerable children (OVC) health in rural Ghana, and to identify and critically examine the barriers to improving child health through the LEAP. The study was conducted in the Ahafo-Ano North and South Districts in the Ashanti region with Mr. Ebenezer Owusu-Addo as the Lead Researcher. The study participants included caregivers of OVC benefiting from the LEAP, local program implementers and the District Directors of Social Welfare. Approval was granted by the Committee on Human Research and Ethics, School of Medical Sciences, KNUST (CHRPE/RC/019/14) to conduct the research.

### **ii) Strengthening evidence-based practice in local public health work in rural Ghana**

The objectives of the research were to investigate how and at what level evidence is used in policy and work processes in relation to public health work in rural Ghana, and to find out how the use of evidence can be enhanced in public health decisions. The study was conducted in selected Municipal and District Assemblies in Ashanti Region with Municipal and District Directors of Health Services as the respondents. Approval was granted by the Committee on Human Research and Ethics, School of Medical Sciences, KNUST (CHRPE/RC/018/14) to conduct the research.

### **iii) Enhancing farmer productivity**

Four thematic research areas executed by the Department on the above were: Gender Roles and its Effect on Farm Level Productivity; Farmers' Preferences for Varietal Characteristics: Implications for Breeding and Adoption of Improved Rice Varieties; Increasing Local Rice Production through Rice Value Chain Development; and Assessment of Impacts of Climate Change on Food Security and Rural Livelihoods.

Preliminary studies leading to the writing of full blown proposal for international funding were carried out in the Ahafo Ano South and Sekyere South Districts. Mrs. Monica Addison and Kwaku Obeng-Okrah were the Lead Researchers in each district respectively.

#### **iv) Tackling Deforestation and Poverty for Sustainable Livelihoods in Northern Ghana**

This was a joint research collaboration developed with Forest and Livelihood Program of Centre for International Forestry Research (CIFOR) with Kwaku Obeng-Okrah and Dr. Terry Sunderland of FLP, CIFOR as the lead facilitators.

#### **v) Policy integration across the forest and agricultural sectors of Ghana**

Mr. Yaw Amo Sarpong and Prof. Bas Arts of Wageningen University of the Netherlands worked on the research proposal. The main objective was to investigate how two or more policy sectors converge ideas, interests and institutions (3Is) to transcend their established policy fields. It looked at how policy integration could be conceptualized based on the 3Is. Mr. Yaw Amo Sarpong was the lead researcher.

It must be noted that BIRD provided small seed money (GHC500) for transport (fuel) and stationery for each of the above mentioned research to enable staff kick-start them whilst combing for international support. This would enhance productivity and performance of staff, particularly in getting some preliminary data for publications, and also to improve the quality of the proposals.

#### **C) Contract Research**

Guinness Ghana Limited (GGL) started has been in discussion with BIRD about an award of a contract research to undertake an Impact Assessment of Local Raw Material Sourcing (LRMS) for the producing Ruut Extra Premium Beer, made from 51% cassava starch. The study would seek to investigate whether the local sourcing has significantly improved livelihoods of farming communities and reduce poverty. The specific objectives for the study would be to:

- Establish direct impact of local raw material sourcing on farmers and their immediate communities.
- Establish the total direct and indirect number of jobs created and livelihoods supported by the local raw material sourcing.
- Identify improvement within the supply chain.
- Measure the impact a low end alcoholic beverage vis a vis the consumption of illicit alcohol within farming communities.
- Establish and identify new business developments out of the broader LRM project
- Determine income level variance among local farmers and immediate community.

It is anticipated that the research will be awarded in 2014.

BIRD submitted four separate competitive bid proposals to the Ministry in response to the Request for Proposals (RFP) on *Preparation of Environmental and Social Impact Assessment on Community Senior Secondary Schools Project in response to Ministry of Education Request for Proposal*. Mr. Kwaku Obeng-Okrah was the Lead Consultant/Facilitator.

#### **COMMUNITY SERVICE**

The Department continued to carry out its outreach research program in some selected districts in the Ashanti Region. These are the Sekyere South District, Ahafo Ano-North and South Districts and Atwima Nwabeagya District. Through this consultative engagement, three proposals were developed and studies are being conducted (see Section 3 above). It must be

noted that these districts have also been adopted by BIRD as social laboratories and a concept paper and a draft memorandum of understanding will be prepared for future follow-up studies.

### **LOCAL AND INTERNATIONAL COLLABORATIONS**

At the local level, BIRD collaborated with the Ministry of Local Government and Rural Development for the former to build the capacity of the Rural Development Department of the Ministry. The Department held discussions with a delegation from the Ministry at BIRD towards the later part of the year at the Ministry with selected Technical Staff and a Deputy Minister to revive the process which had stalled since mid 2012. Some milestones were set including the facilitation of a workshop by BIRD to kick start the preparation of Rural Development Policy for the Ministry.

BIRD through Dr Paul Sarfo-Mensah provided support to the Technical Working Group (TWP) on Innovative Adaptive Technologies (Livelihoods and Rural Development), in the 'Promoting a value chain approach to climate change in Agriculture in Ghana' (ProVACCA) Project. It was collaboration with the Root and Tuber Improvement and Marketing Program (RTIMP) of the Ministry of Food and Agriculture.

### **TEACHING AND SUPERVISION OF THESIS**

As part of her mandate, the Bureau undertakes teaching and provides supervision of Students' Theses. Nana Dr. S.E. Edusah continued with his lectures in Project Management at the Department of Geography and Rural Development at the Post Graduate level. During the period under review, Dr. Paul Sarfo-Mensah participated in the teaching (first semester) of the M.Phil program in Natural Resources Management and Environmental Governance at the College of Agriculture and Natural Resources. Staff from BIRD (Dr. S.E Edusah, Ebenezer Owusu Addo, Yaw Amo Sarpong and Mrs. Monica Addison) participated in teaching in the M.Phil Program in Sustainable Integrated Rural Development in Africa.

### **Internal and External Examiners**

Dr S. E Edusah continued to act as an External Examiner for the Institute of Development Studies (IDS), University of Cape Coast and Centre for Sustainable Development at the University of Ibadan, Nigeria. Dr. Sarfo-Mensah continued to act as external examiner of Masters and PhD programs for the Institute of Development Studies, School of Agriculture, University of Venda, Thohoyandou, Republic of South Africa. Mr. Ebenezer Owusu-Addo did supervision at the Department of Planning.

### **NPT/GH/ NPT 278PROJECT**

The NUFFIC funded project NPT/GH/278 which was implemented from 2008 officially ended in July 2012. The final report on the project was submitted to NUFFIC in September 2012. The implementation of the project offered BIRD and the College of considerable opportunities in staff and program development. Currently, two staff members are pursuing their PhD programs with funding from the NUFFIC project; one is at the Wageningen University and Research and the other at Department Planning, KNUST. Three M.Sc. programs were designed and are to be delivered in the 2013/14 Academic Year. Additionally, five short courses were designed and being run by BIRD in collaboration with Centre for Development Innovation (CDI) of Wageningen University and Research. Two of the courses attract international participant from

different parts of the World. One of the flagship courses, Rural Entrepreneurship, which was selected for full sponsorship by NUFFIC, is starting from Mid June 2014.

One of the gains of the NPT project was the construction of the International Centre of Innovative Learning (ICIL). Some members of staff of BIRD were among the top management of the Centre. It hosted a number of academic programs and high profile National and International Conferences and Workshops. The Centre aims at becoming a Centre of Excellence for Integrated Natural Resource Management (INRM) Principles and Approaches and Innovative Learning.

### **Short Courses**

During the reporting period BIRD, in collaboration with some staff of the College of Agriculture and Natural resources, undertook preparations to roll out the underlisted short courses at the International Centre for Innovative Learning (ICIL). Mr. Yaw Amo Sarpong acted as the leader of the marketing and logistics organization for the Short Courses.

1. Genetics of Roots and Tubers
2. Rural Entrepreneurship
3. Gender Issues on Value Chain
4. Value Chains Management for Rural Development
5. Adaptive Management in Natural Resources
6. Participatory Social Monitoring and Evaluation (PSM&E) for staff of Guards of the Earth and the Vulnerable

Mrs. Ernestina Fredua Antoh has offered support to the short course programs. The Department also developed a Memorandum of Understanding with the Institute of Distance Learning (IDL), KNUST for collaboration in the running of short courses which would be delivered at the ICIL.

### **CONFERENCE(S) AND WORKSHOPS ATTENDED**

Mr. Owusu-Addo presented two papers at the 21<sup>st</sup> International Union for Health Promotion & Education World Conference on Health Promotion held in Pattaya, Thailand as indicated below:

1. *Midwives' Perceptions and Experiences of Health Promotion Practice in Ghana*, Paper presented at the 21<sup>st</sup> International Union for Health Promotion & Education World Conference on Health Promotion, 25-29 August, 2013 in Pattaya, Thailand
2. *Strengthening Midwifery Capacity in Comprehensive Family Planning in Ghana: A Strategy for Achieving Millennium Development Goal (MDG) 5*. Paper presented at the 21<sup>st</sup> International Union for Health Promotion & Education World Conference on Health Promotion, 25-29 August, 2013 in Pattaya, Thailand

### **STAFF DEVELOPMENT**

During the reporting period, Mr Yaw Amo Sarpong continued with his PhD program in Development Policy, Department of Planning, KNUST, Kumasi, Ghana which is being funded by the Institutionalisation of Integrated Natural Resource Management (INRM) project (NPT-GHA-278) in CANR / KNUST. Under the PhD scholarship, he has received training on many

topics including project planning and time management, policy theories, working in interdisciplinary groups, short course organisation and logistics, qualitative and quantitative research methods.

Mrs. Ernestina Fredua Antoh continued to work on a PhD program at the Institute for Development Studies (IDS), University of Cape Coast. Her research is on 'Microfinance Services of Sinapi Aba Trust and Human Capital Development of Beneficiaries in Ashanti Region of Ghana'. Her estimated time of completion of the program will be in July, 2014. Mrs. Antoh won a Visiting Scholarship Award at the Global Studies, Laurier International, Laurier University, Canada. As part of the visit, which lasted between September and December 2013, she presented a paper at Tshepo International on Microfinance and Human Capital Development in Ghana.

### **CHALLENGES OF THE BUREAU**

The department was confronted with inadequate computers and printers. All senior members were compelled to use their own laptop computers because the two desk top computers at the Department had been installed for the Secretary and Administrator. The situation was not only inconveniencing but undermined the security of departmental data.

The Bureau grappled with its perennial problem of inadequate office accommodation. The problem hampered expansion and development of the Bureau. Some senior members were paired up in their office, and some supporting staff including national service persons did not have offices. The Department was compelled to use its library as a temporal office space for National Service Persons, a situation which undermined effective use of the library for research.

### **PROJECTIONS FOR THE YEAR 2013/14**

The Bureau, within the reporting period made some tremendous efforts in establishing herself as a key Development Consultant in Rural Development for several ministries, departments and agencies including Ministry of Local Government and Rural development (MLGRD), Ministry of Food and Agriculture (MoFA), the Rural Enterprises Project and Root and Tuber Improvement and Marketing Program. It also had an excellent working relationship with Newmont Ghana Gold Limited (NGGL). Although the Department has built capacity in consulting services which would be tapped to earn more income, it was of the view that its core mandate in basic and applied research might suffer if it overstretched its limited resources on contract research. Therefore, moving forward, it has decided to place emphasis on seeking for research grants through deepening her research proposal writing activities.

We also hope to continue with our program on university-community engagement in at least four districts, Sekyere South, Ahafo Ano North and South Districts as well as Atwima Nwabeagya District.

### **CONCLUSION**

The Department will very soon put together a road map to guide the actualization of its proposed Restructuring. In this, will be a research strategy document to guide it to revamp her research activities. BIRD has continued to make major contribution to creating visibility for the university 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.

## **AGRICULTURAL RESEARCH STATION (ARS)**

### **STAFF**

Technical Instructor – One (1)

Senior Technicians – Four (4)

National Service Personnel (4)

### **LABOUR**

Permanent labour (male – 8, female – 4)

NB: Casual labourers at the station have been made permanent staff of the University in March, 2014. Currently there are no casual Labourers at the station.

### **DEVELOPMENTS**

- Installation electricity at the station was completed on the 15<sup>th</sup> of January, 2014.
- Staff from the Department of Physics completed the installation of a meteorological station in January, 2014 at the station.
- Two thousand four hundred germinated oil palm nuts were procured from Sumatra Ghana on the 17<sup>th</sup> of February, 2014 and planted on February 18<sup>th</sup> 2014.
- Twenty cubic meter (20m<sup>3</sup>) quarry stones was bought on the 27<sup>th</sup> February, 2014 for the construction of an office building at the station.
- Aluminium sheets have been cut (15cm × 20cm) and labeling of oil palm trees is ongoing for research and management/maintenance purposes.

### **PROJECTS AND VISITS**

- A team from the International Institute of Tropical Agric. – Ibadan, Nigeria and staff visited the on 8<sup>th</sup> January, 2014 on a workshop to demonstrate techniques of soil and plant sampling.
- Members of the Fire Unit – KNUST visited in January to educate on fire prevention and safety measures to staff at the station.
- Head and staff from the physics department visited the station to discuss on the progress of installing a meteorological station.
- The Nkosuo Hene of Anwomaso upon permission has been given a portion of land for a project on pineapple.
- Staff from the Estate Department were at the station in March to discuss on a site for dumping of biodegradable waste from the Universities households.
- Students from the mechanization and Engineering sections of the faculty of Agric. were at the station in February to obtain orange fruits and cassava tubers respectively for their projects.
- Dr. Adomako from the Faculty of Forest Resource Technology (FFRT) visited in March to discuss the possibility of bee keeping and snail rearing for student's projects and internship.



## CHALLENGES

- **OFFICE BUILDING:** Need to speed up the construction of an office building at the station.
- **SECURITY:** Attendance of security personnel to the Agricultural Research Station needs more to be desired. Some personnel detailed to the station fail to report for work.
- **ENCROACHMENT:** There have been several incidents of encroachments of the stations land by neighboring individuals thus obstructing the progress of projects.

Destruction of teak trees behind Dr. Harmon's residence at Domeabra.

- **FUNDING:** The station lacks adequate funds to purchase seeds for vegetable production and tools viz. gloves, hand forks, hoe and watering cans.

## DAIRY/BEEF CATTLE RESEARCH STATION

### INTRODUCTION

The Station was established in 1974 as a teaching and research facility in the Faculty of Agriculture. It is at the moment stocking rabbits, cattle, sheep and goats for research purposes. The main research areas are livestock production and dairy processing.

### RESEARCH

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

1. *Leucaena leucocephala* and *Moringa oleifera* leaf meals as supplements for broiler rabbits.
2. Influence of peanut paste on yield and organoleptic properties of ice cream.
3. Sodium benzoate effect on shelf life and viscosity of refrigerated drinking yoghurt.
4. Evaluation of graded levels of fish-meal and soybean cake on feed intake, growth rate and carcass yield of growing rabbits.

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

1. Age effect on pH, viscosity and microbial population of refrigerated drinking yoghurt preserved with sodium benzoate.
2. Economics of incorporating varying levels of soybean cake and fish meal in the diet of weaner rabbits.
3. Influence of housing type on reproductive performance of primiparous rabbit does.

### On-farm research launch

The Station has decided to start on-farm research work from the coming year. For the next several years, the work will focus on the title "Yield and quality of milk produced by smallholder cattle farmers in the Ashanti Region of Ghana: Effect of feed supplementation and milking management."

## **TRAINING**

During the year under review, the Station offered facilities and inputs for the practical training of students in the area of livestock production and milk processing. As usual, some final year students of this University undertook their final year projects at the Station. Several continuing students of the Faculty of Agriculture, KNUST, did their vacation training on the Station during the year. Also, many second cycle institutions paid educational visits to the Station during the year.

## **COMMUNITY SERVICE**

Many students and private individuals received training in yoghurt production in the course of the year. Advisory services were also provided by officers of the Station to some livestock farmers in the Kumasi metropolis. The Station's officers also helped some final year students from outside the Faculty of Agriculture to undertake their final year project works.

## **INCOME GENERATION**

About GH¢ 120,000 was generated by the Station during the year under review; which money enabled the Station to continue its research and renovation works.

# **COLLEGE OF ARCHITECTURE AND PLANNING**

## **INTRODUCTION**

The College of Architecture and Planning comprises four Teaching Department and two Research Centres. These are:

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

## **RESEARCH CENTRES**

- Centre for Land Studies
- Centre for Settlements Studies

The College's vision is to promote excellence in the advancement of knowledge in the Built and Natural Environment. To achieve this vision, the College continues to provide the needed environment for teaching and training, research and service in Architecture, Planning, Building Technology and Land Economy for the accomplishment of the vision. All the teaching Departments in the College except the Department of Architecture run two undergraduate programmes. Besides the undergraduate programmes, all the Departments run Postgraduate programmes and it is one of the leading Colleges in presenting Postgraduate students during congregations for the conferment of degrees.

The College had three thousand, one hundred and eighty two (3182) students during the 2013/2014 Academic Year, comprising of three hundred and seventy one (371) postgraduate students and two thousand eight hundred and eleven (2811) undergraduate students.

## **ADMINISTRATION OF THE COLLEGE**

The following constitutes the administrative personnel of the College:

Provost	Prof. E. Badu
College Registrar	Mr. O. A. Debrah
College Finance Officer	Mr. J. Gambrah
College Librarian	Mr. Agyen-Gyasi
Assistant College Registrar	Mr. D. Nti Buabeng

## **ACTIVITIES**

To fulfil vision and achieve its mission for training the needed manpower for the Built environment, The College undertakes a host of activities every year that provides a sound environment for teaching and research.

## **HUMAN RESOURCE DEVELOPMENT**

In recent years, the College has sought to develop its human resource capacities by supporting staff to attend seminars and conferences. In the year under review, the College sponsored ten staff to seminars and conferences in a number of countries such as South Africa, Nigeria, USA and

Kuwait. The result has reflected in the increase in the number of publications by staff of the College.

In addition, the College has also provided institutional framework that would enable staff to share ideas and also work on joint projects with staff of other sister institutions abroad. In this regard, KNUST and Cape Peninsular University of Technology signed a Memorandum of Understanding in which the Department of Building Technology, KNUST and the Department of Construction Management and Quantity Surveying of Cape Peninsular University of Technology are the implementing agents for the two universities. This collaboration would allow staff of the two institutions to undertake joint projects in procurement methods, construction management and industrial psychology among others. The College anticipates further improvement in research activities which would lead to corresponding increase in the number of publications in the years to come.

The College gives priority attention to issues of promotions of its staff. In the year under review, eight senior members' applications for promotion were successful. These promotions have strengthened the College's human resources capacity by increasing the number of professors and senior lecturers. The following promotions were reviewed in the year under review:

- One Professor
- One Associate Professor
- Six Senior Lecturers

Some applications are still pending at the Appointments and Promotions Committee. These are applications for promotions to Professor and Associate Professors.

### **INFORMATION AND COMMUNICATION TECHNOLOGY IN THE COLLEGE**

The College recognises the critical role Information and Communication Technology plays in teaching and learning and it has been investing in the sector. The strategy is to leverage on teaching and learning through the use of ICT. The College has therefore upgraded the existing infrastructure and also established new ones. Last year, the College reported that it was working on the E-Library, Geographical Information System (GIS) and a computer Laboratory. The College is proud to announce that the E-Library has been fully completed. However, work on the computer laboratory and Geographical Information System is still in progress and is in the final phase of completion.

The E-library, which was commissioned in April 2014, was completed through the corporation of the College, Department and the student society of College of Architecture and Planning.

In addition to the E- Library, the GIS which is a custom made information system for Department of Planning is almost complete. This 24 capacity computer centre has had more than half of the needed computers installed. It is anticipated that the facility would be ready for students in 2014/2015 academic year.

### **PROVIDING ACCESS TO FURTHER EDUCATION**

Expanding the access of tertiary education in the Built Environment continues to engage the attention of the College. The MPhil Settlement Programme which has been on the drawing board for a number of years has become a reality. The programme was among those which the School

of Post-Graduate Studies advertised for 2014/2015 Academic Year. The response has been good and all is set for enrolment of the premier batch of students for the next Academic Year.

### **RE-ACCREDITATION OF PROGRAMMES**

As a centre of excellence for training professions in the Built Environment, the College keeps on reviewing and re-designing its academic curricula to keep pace with emerging trends with both national and international standards. This is done through renewal of accreditation with local and international bodies. The Department of Architecture in cognisance with its affiliation with Commonwealth Association of Architects prepared for its accreditation / re-validation. The College is proud to announce that the Commonwealth of Architecture has renewed the accreditation of Department of Architecture for the next five years.

### **RESEARCH AND PUBLICATIONS**

The provision of the ICT infrastructure coupled with the College readiness to sponsor staff for seminars and Conferences have created the enabling environment for promotion of teaching and research. In the period under review, the research output of the College has increased. The Faculty have 198 publications in a number of referred journals, book chapters and conference proceedings. The departmental distribution for these publications is as follows:

Department of Architecture	31
Department of Building Technology	42
Department of Planning	69
Department of Land Economy	25
Centre for Settlement Studies	11

The research activities and associated projects have enabled the College to render invaluable services to communities and the nation.

### **PROVISION OF NEW WORKSHOPS AND OFFICE COMPLEX**

Expanding infrastructure to match the ever increasing student population is now a major concern of the College. The existing infrastructure is simply not enough for the large numbers of students. This has resulted in overcrowding of students in the lecture halls. Unlike other programmes where practical component is very minimal, the programs at the College require rigorous practical work and this requires well furnished workshops/studio. Faced with this challenge, the College is vigorously pursuing the promise made by Ghana Commercial Bank to construct an office complex for the College. The three storey complex would provide office accommodation, lecture halls and space for a library. The estimates and the drawings for the complex have been submitted to the Bank for consideration.

### **CONCLUSION**

The College as a pioneer in the training of professionals in the Built Environment continues to maintain the lead as a centre of excellence. Through teaching, research, conferences and seminars the College is charting this noble course by training the needed manpower for the development of Ghana and Africa.

## **DEPARTMENT OF ARCHITECTURE**

### **INTRODUCTION**

The College of Architecture and Planning is made up of four teaching departments and two research centres. The Department of Architecture is one of them with a student population of a little over 500.

Its programmes include a four-year Bachelor of Science in Architecture, a two-year Masters in Architecture (M.Arch), a one year Masters of Science in Architecture programme for graduates with the defunct Postgraduate Diploma in Architecture degree, a two-year Master in Architecture, and a two-year Master of Philosophy (M.Phil) programmes.

### **AIMS AND OBJECTIVES**

The Department has, by its strong adherence to modern forms and a trend of architectural pedagogy, developed, and keeps on developing programmes, which will make it a Centre of Excellence in architectural education, both in scholarship and professional practice, keeping in mind its responsibility towards the needs of society at large.

The Department also aims at offering quality and versatile training to students to become leaders through internationally accredited degree programmes which produce competent professionals and a sound theoretical basis for higher academic pursuits.

### **ACTIVITIES**

The undergraduate (B.Sc. Architecture) and graduate programmes (M.Arch) are interlinked; the former offers solid academic basis for broad architectural education, producing architectural scholars and leaders in technical teams responsible for the development of the built environment. This is done through critical consideration of climate, culture and construction which is the ethos of the Department.

The graduate programmes provide students with the required skills for comprehensive research, analysis, design and implementation of various projects at the rural and urban scale, thereby producing well-rounded professionals who could easily dovetail into the academic milieu.

### **NEW PROGRAMMES AND COURSES**

The Department's intention of introducing new courses at both the undergraduate and graduate levels is still on course. At the undergraduate level, the Department is in consultation with the Departments of Painting and Horticulture (College of Arts and Social Sciences and College of Agriculture and Renewable Natural Resources respectively) to soon mount new courses in Interior Design and Landscape Design at the undergraduate level in the near future. This intention would be further facilitated if the proposed migration of the Faculty of Art from the College of Art and Social Sciences (CASS) to the College of Architecture and Planning is implemented.

The Department, through the Institute of Distance Learning (IDL) introduced a new two-year Diploma in Architectural Technology course for draughtsmen and women who had successfully

completed the erstwhile Certificate course offered by the IDL and have the WASSCE certificate. The first batch of students of this new course is among this year's graduands.

Last year it was reported in our annual report that the Faculty of Applied Sciences, Frankfurt in Germany, was in discussions with our department to start a Masters programme in Urban Agglomerations. We are happy to state that all discussions have been concluded with the requisite proposals having been sent to the relevant authorities in our institution for consent to enable its commencement.

## **STAFF**

The department has an academic staff strength of eighteen (18). These are supported by other administrative staff who help in ensuring that the department functions smoothly.

Presently, one academic member of staff, Mr. Daniel Addai Duah, who is on study leave, has just completed his doctoral programme. He will be joining the Department in the next academic year. Staff strength was boosted by the appointment of Mr. Titus Kwofie who completed his M.Phil programme last year. He is presently undertaking a doctoral programme in the College

## **EDUCATIONAL AFFILIATIONS INTERNATIONAL**

As stated in the last report, the Department's link with the University of Michigan, Ann Arbor, USA has been in existence for over fifteen years. Each year students from the University of Michigan come down to our Department on their annual field trips. They were here in May this year. Discussions with their Emeritus Professor James Chaffers, centered on how the Department could package a programme to enable our students to also visit their institution annually to gain experiences in their design studios as well.

It is also worth mentioning that the University of Hanover, in collaboration with our Department and two other African Universities, (Addis Ababa and Namibia) have been awarded a grant of 200,000 Euros to help finance a DAAD project on Green Architecture and Urban Biodiversity. Our Department was represented at a meeting held in Hanover from 12<sup>th</sup> – 17<sup>th</sup> of May 2014 to discuss the way forward.

The Ambassador of Italy, Ms Laura Carpini, also made an unprecedented visit to the Department, accompanied by two professional architects and a Planner to talk and make presentations to the whole student body during the Italian Cultural Week. A letter was written by the Department to the Ambassador to institutionalize it and make it an annual event and also help the Department to network with other Italian universities of architecture.

## **LOCAL**

Architecture students from the Central University College (CUC) at Prampram, which is affiliated to KNUST, visited the Department to interact and observe works and juries of our products in order to improve on their studio design works. The Head of Department of CUC, also was present as an observer at the recent international validation exercise undertaken by the Commonwealth Association of Architects (CAA) from the United Kingdom.

The Department and students gave them all the needed help they could offer. Plans are afoot to mount an exhibition at CUC to enable a greater number of students to see works of our students in order to enhance the quality of their design schemes.

The Department is also proud to announce that, it has been awarded a five-year validation from the CAA from 2014 to 2019. This means all our products would be able to work in any commonwealth country without going through all the necessary stringent requirements of the practice. What made this year's accreditation unique was the presence of members of the Canberra Accord who were also observing the methods used by the CAA to accredit and validate schools of architecture (members include Australia, Canada, America etc). If they are satisfied, our products' sphere of architectural practice would be enlarged to include all the countries of the Accord.

## **PUBLICATIONS**

The list of publications from the Department and Senior Members for the past academic year can be found in the other KNUST documents for the Congregation.

## **DEPARTMENT OF BUILDING TECHNOLOGY**

### **INTRODUCTION**

The Department of Building Technology is one of the four teaching Departments of the College of Architecture and Planning in the Kwame Nkrumah University of Science and Technology, Kumasi. 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 underlisted programmes:

MSc. Construction Management  
MSc. Procurement Management  
MPhil Procurement Management  
MPhil /PhD. Construction Management  
MPhil /PhD. Building Technology

### **STAFFING**

The Department of Building Technology has a total staff strength of fifteen (15) comprising one (1) Professor, one (1) Assoc. Professor, four (4) Senior lecturers and eight (8) Lecturers and one (1) Assistant Lecturer.



At the moment, staff/student ratio at the undergraduate level stands at 1:49 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.

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 2297 undergraduate students in the Department at both regular and distance learning including those in the Bridging programme. In the IDL programme, there are currently 1010 in the third and final years, and about 600 bridging students. The regular student population is 725, including 340 in Construction Technology and Management and 385 in Quantity Surveying and Construction Economics programmes. At the postgraduate level, the population of students is 224, including 210 MSc, 8 MPhil and 6 PhD students.

### **Graduation**

At the postgraduate level, 65 Students are expected to graduate from the Department in June 2014. This number comprises 51 MSc Procurement Management students, 12 MSc Construction Management students, one MPhil Building Technology and one PhD Construction Management student.

At the undergraduate level, a total of about 606 students comprising 156 regular and 454 Distance Learners in the final year are expected to graduate this June 2014.

## **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 four years as shown in the University's Quality Assurance Bulletins, making it one of the leading 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 2012/13 academic year is in the following areas:

- Sustainable Construction
- Research on indigenous materials
- Construction industry performance
- Supply Chain Relationship Management
- Dampness in Residential Buildings
- Infrastructure Development and Management

### **PUBLICATIONS ARISING FROM RESEARCH ACTIVITIES IN THE DEPARTMENT**

For the 2013/2014 academic year, a total of 37 papers have been published in the Department. These include 17 refereed journal papers and 20 peer reviewed conference papers. Details of these can be found in the University's Quality Assurance Bulletin for the year under review.

### **CONFERENCES AND SEMINARS**

Three Lecturers - received funding from the University to attend the 3rd International Conference on Infrastructural Development in Africa (ICIDA) in March 2014 in the state of Nigeria. The Lecturers were accompanied by students to the International Conferences at which papers were presented. Conferences attended by Lecturers and students include:

1. 5<sup>th</sup> West Africa Built Environment Research (WABER) Conference, 12<sup>th</sup> -14<sup>th</sup> August, 2013, Accra, Ghana;
2. 3<sup>rd</sup> International Conference on Infrastructural Development in Africa (ICIDA), 17<sup>th</sup> -19<sup>th</sup> March 2014, Nigeria.
3. Construction Industry Development Board (CIDB), 9<sup>th</sup> – 11<sup>th</sup> February, 2014

### **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)
5. National Council Members and Fellows of the Ghana Institution of Surveyors (GhIS)
6. External Examiners, Reviewers, and Moderators of other Universities and the Polytechnics in Ghana, including KAAF University, University of Education-Winneba, Kumasi Polytechnic, Cape Coast Polytechnic, Sunyani Polytechnic, Tamale Polytechnic, Pentecost University College, St. Margaret's University College (CTM and QSCE)
7. Representatives of the Chartered Institute of Builders International
8. Boards Members of some Second Cycle Institutions.
9. Chairpersons of Building Committees of Religious Organizations and NGOs

### **LOCAL/INTERNATIONAL LINKAGE**

#### ***Institutional Linkages***

The Department of Building Technology has strong linkages with all the ten Polytechnics in Ghana, providing services such external examiners, reviewers, and moderators. The Department also has a strong linkage with KAAF University, Budumbura, Pentecost University, St. Margaret's University College. The linkage with the Council for Scientific and Industrial Research through the Forestry Research Institute of Ghana and the Building and Roads Research

Institute has also existed for many years. There are also strong linkages with professional bodies in the construction industry such as Ghana Institution of Surveyors (GhIS), Chartered Institute of Builders (CIOB), Ghana Institution of Architects (GIA), Ghana Institution of Engineers (GhIE) and Ghana Institute of Construction (GIOC).

There also exist inter-departmental collaborations with the Department of Architecture, Department of Planning, Department of Civil Engineering and Department of Horticulture in the University. Staff of the Department of Building Technology provides teaching services to these departments.

### ***International Linkages and Collaboration***

The Department of Building Technology is affiliated to the following overseas Universities:

1. Dept of Construction Management and Quantity Surveying  
Faculty of Engineering and the Built Environment  
University of Johannesburg  
South Africa.
2. Faculty of Development and Society  
Sheffield Hallam University  
Sheffield, UK.

The terms of the MOU with these two institutions include exchange of Lecturers, Post-Doctoral visits, Visiting Professorship, student exchanges, industrial and institutional visits etc. There is a current plan for final year students of IDL to pay an industrial visit to South Africa under the auspices of the Dept of Construction Management and Quantity Surveying of the Faculty of Engineering and the Built Environment, University of Johannesburg.

## **INCOME GENERATION ACTIVITIES**

### ***Production Unit***

In the period under review, the Department's Wood workshop continued to generate income for the Department. This unit manufactures tables and chairs and other products for the University community as part of its teaching/research functions. The Workshop undertook job assignments to the tune of GH¢174,421.60 in the period under review. Income from the workshop is mainly used to finance the improvement of teaching, learning and research activities in the Department.

### ***IDL Grant***

Within the period under review, the Department of Building Technology received a grant totaling GH¢56,100.00 from the IDL for improvement of teaching and learning.

The grant is for the improvement of teaching and learning.

### ***Parallel Programmes***

In the year under review, the Department generated about GH¢1,710,000.00 from parallel programmes for 2013/2014 academic year, which was disbursed according to the University's 20:40:40 formula. Out of this, the Department earned GH¢684,000.00 as its share of the

proceeds from parallel programmes. The University Administration also earned an amount of GH¢342,000.00 from the parallel programmes.

The Department's share of the proceeds from the parallel programmes is used to to run the logistical needs of the programme and for the currently being used for the improvement of teaching and learning and academic infrastructure in the Department. In the current year, part of the amount has been used o finance the following:

- Laptops
- Printers
- Air conditioners
- Renovation of offices and office blocks.

## **DEPARTMENT OF LAND ECONOMY**

### **INTRODUCTION**

The utilization and management of land as a resource has far-reaching consequences for both current and future generations. As it becomes increasingly clear that Ghana's development path to an upper middle income country rests largely on agricultural transformation, so also is the centrality of land to development brought to the fore.

While Ghana's agricultural sector has been integrated in the world economy for a long time, in recent years private sector interest in Ghana's agriculture has increased. This trend is part of the wider land rush in the global South, driven by investments for the production of food, fuel and agricultural commodities. Since 2007, Ghana has attracted considerable attention from both multinationals and local companies. Over 20 companies from countries like Brazil, Italy, Norway, Israel, China, Germany, The Netherlands, Belgium and India are currently developing investments, mainly for the cultivation of jatropha, on vast acres of lands in the Volta, Brong Ahafo, Ashanti, Eastern and Northern Regions of Ghana.

However, there are also major risks as agricultural investments require land. In most cases, large-scale land acquisitions involve the taking of the lands of several communities to satisfy the land requirements of a single investor. This risks local communities being denied access to their environmental resource base of land, water, forests and wildlife from which they make a living. Local food security is also at risk, especially where energy crops are the investment targets and environmental damage becomes a threat in these communities. This underlines the need for a careful balance between the need and desire to promote agricultural investments and the obligation to protect the interests of local communities for sustainable development to take place.

Over the past four 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. The Department continues to turn out highly competitive graduates who are employed in both public and private sectors, and shaping the policy framework within which there can be improved land governance for effective national development. The Department offers courses leading to the award of BSc. Land Economy, BSc. Real Estate and MPhil/ PhD in Land Management degrees.

## STAFF STRENGTH

The department has an academic staff strength of twelve (12) made up of one (1) Associate Professor, two (2) Senior Lecturers, five (5) Lecturers, three (3) Assistant Lecturers and one (1) Technical Instructor.

## STUDENT ENROLMENT

The total student population at the undergraduate Land Economy programme currently stands at 439 students. The total enrolment for the BSc Real Estate currently stands at 259 students. The total undergraduate enrolment at the Department currently stands at 698 students. The Department currently has 3 PhD students. Table 1 below shows the enrolment figures in the Department.

**Table 1: Student enrollment by programme**

<i>Programme</i>	<i>Year</i>				<i>Total</i>
	1	2	3	4	
<i>BSc Land Economy</i>	120	130	94	96	440
<i>BSc Real Estate</i>	50	81	61	67	259
<i>PhD Land Management</i>					3
	<b>Total</b>				<b>702</b>

Of the total of 699 undergraduate students, 429 (61%) are male and 270 (39%) female. In terms of fee-paying status, 540 (77%) are non-fee paying, while 159 (23%) are fee-paying. The nationality of the undergraduates is 692 (99%) are Ghanaians and 7 (1%) foreigners.

Based on the current student population and staff strength, the Department has a Student-Staff Ratio (STR) of 1:63. This is much higher than the recommended STR of 1:18 for the professional programmes of training offered.

## PUBLICATION ARISING FROM RESEARCH ACTIVITIES/CONFERENCES

During the year under review, twelve (12) publications and twelve (12) conference papers emanated from academic members of staff of the department. Details of these are available in the University's Quality Assurance Bulletin for the year under review.

## CONFERNCES/WORKSHOPS ATTENDED BY STAFF

1. *World Bank Annual Conference on Land and Poverty*, Washington DC, March 24-27, 2014
2. *9<sup>th</sup> Surveyors week* of the Ghana Institution of Surveyors held at GIMPA, Accra in February 2014.
3. *Consultative Workshop* for Stakeholders on Legislative Instrument for the Office of the Administrator of Stool Lands Act, 1994 (Act, 481). May 14, 2013, Georgia Hotel, Kumasi.

4. *National Urban Forum*, organized by Ministry of Local Government and Rural Development, Anita Hotel, Ejisu-Ashanti, June 6, 2013.
5. *2nd International Conference on Infrastructure Development in Africa* 2013, 17-19 March 2013, Johannesburg, South Africa
6. *International Federation of Surveyors Conference* in May, 2013 at Abuja, Nigeria
7. *Symposium* organized by the Thabo Mbeki African Leadership Institute in Pretoria, South Africa on Finding Solutions to Africa's Development, 22nd-23rd August, 2013
8. International Institute for Environment and Development (IIED)'s West Africa Stakeholders *Conference on Land Governance* in Ouagadougou, Burkina Faso, 12-14th February, 2014)
9. *Pan African Parliament Conference on Africa Land Grab*, 27th – 30th October 2014, in Johannesburg, South Africa.
10. *Valuation and Estate Surveyors Seminar*, organized by the Ghana institution of Surveyors November, 2013, Woezor Hotel, Ho.

## **ONGOING RESEARCH**

Staff are involved in ongoing research activities in the following areas;

1. REIT Development Activity, Institutional Ownership and Operational Performance.
2. The Equity of Property Tax Administration in Ghana: A case of the Accra Metropolitan Assembly.
3. Do Elections Necessarily Enhance Citizen Participation and Accountability in Local Governance? Experience from the District Assemblies in Ghana.
4. The Perceptions of Farmland Security among Nankana Women Farmers of the Upper East Region of Ghana.
5. Adequacy of Compensation and Alternative Livelihood Support Initiatives in Mining Communities: The Case of Newmont Ahafo Project in Ghana
6. Customary land ownership and transfer mechanisms; implication on youth access to agricultural land: A study of Techiman and Nkoranza traditional areas of Brong Ahafo Region of Ghana
7. Corporate Real Estate Management and Barriers to Persons with Disabilities.
8. Health and Safety concerns in the management of students' hostels.

## **SERVICE TO COMMUNITY**

Staff of the Department continue to render service to local, national and international communities. During the year under review, **Dr. J. T. Bugri** chaired the following committees;

Senior Members Housing Committee, Special Committee for the Assessment of Rentals and other Costs for the Operation of the University Swimming Pool, Committee for the Review of Rental and Utilities Charges payable by Messrs Churchill Heights Limited. He was also a member of Congregation Planning Committee of the College of Architecture and Planning, Organizing Committee for the 1<sup>st</sup> International Conference on Infrastructure Development in Africa, Brong-Ahafo Regional Lands Commission, National Accreditation Panel for Assessment of MSc Real and MSc Environmental Management programmes of GIMPA, and Guest House Building Committee of the Faculty of Pharmacy. He continued to serve as the representative of the College of Architecture and Planning on the Student's Financial Services Management Board. He served as Country Coordinator of the Alliance for a Green Revolution in Africa (AGRA) Land Policy Action Node of the Ghana Policy Hub for the development of breadbasket strategies for enhancing food security in Ghana. He was also External Examiner, Department Real Estate and Land Management, University for Development Studies, Tamale.

In the year under review, **Prof S.O. Asiamah** 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 was appointed to serve on the Ashanti Regional Peace Council as a representative of the Regional Coordinating Council. He continued to work with the National Accreditation Board on the accreditation of the Department of Estate Management of the Wa Polytechnic. Prof. Asiamah ended his three-year term as Assistant Governor of District 9100 of Rotary International and attended the District Assembly and Conference of the District as a Resource Person in Yamoussoukro, Cote d'Ivoire in April. He also attended the Jerusalem Institute organized by Rotary International in Jerusalem, Israel in November. He serves on the National Executive Committee and the National Council of the KNUST Alumni Association.

**Mr. P. E. Tudzi**, He continues to serve as the examinations officer for the Department. He is a Board member of Community Land and Development Foundation (COLANDEF): a non-governmental organisation that focuses on Land Governance and Natural Resource Management, Research and Advocacy and Gender. He also continues to provide career guidance and counseling to students through the Ghana Fellowship of Evangelical Students (GHAFES).

**Mr. Jonathan Zinzi Ayitey** during the year under review also represented the College on the Senior Members Housing Committee of the University. He remains a Fellow of the University Hall and a member of the Legal and Property Committee of the Watchtower Bible and Tracts Society, Ghana Branch. He is a member of the Governing Council of the Ghana Institution of Surveyors and a member of the Board of Examiners for the Institution. Mr Ayitey continues as the College Examination Officer to date. He was a member of a Conference Organizing Committee (STEM- Africa, collaboration between University of Michigan and KNUST).

During the year under review, **Dr. Frank Gyamfi-Yeboah** was appointed to a committee set up by the Provost, CAP to investigate an alleged examination malpractice. He also continues to serve as a member of the College's Library Board. Dr. Gyamfi-Yeboah attended the 9<sup>th</sup> Surveyors week of the Ghana Institution of Surveyors held at GIMPA, Accra in February 2014.

**Dr Eric Yeboah** continues to serve as the Coordinator of Postgraduate Studies of the Department. He also serves on the Departmental Committee for reviewing and interviewing

matured applicants. During the year under review, He served as a Resource Person to the Ghana Institution of Surveyors and in the area of Continuous Professional Development. He has also been supporting Land Resource Management Centre, a land based NGO in developing innovative tools to secure land rights. Dr Yeboah also received invitations to contribute towards policy development of various aspects of Land Governance in Africa from institutions including, United Nations Economic Commission for Africa; UN-HABITAT; Global Land Tools Network; International Institute for Environment and Development; International Federation of Surveyors, Land Policy Initiative of the African Union and Thabo Mbeki African Leadership Institute. Dr Yeboah is also currently working as a Guest Editor for African Review of Economics and Finance Journal. He continues to serve as a reviewer for other journals including Herald Journal of Geography and Regional Planning, Land Use Policy and Journal of Social Science Studies.

**Mr. James Frimpong-Asante** continued to offer Free Consultancy Services for NGO's helping the poor, deprived and vulnerable in Society. He was a Consultant and Board Member, Kings Village- Assemblies of God Missionary Services Centre at Bogatanga- Tolon Kumbungu District of Ghana and also remained a Patron-Land Management Students Association (LAMDSA), Department of Land Economy.

**Mr. Joseph K. Kidido** served as a member of Five Year Development Plan Committee of the Bomso S.D.A Church, Kumasi. Kidido also participated in a consultative workshop on Legislative Instrument for the Office of the Administrator of Stool Lands Act, 1994 (Act, 481) and National Urban Forum, organized by Ministry of Local Government and Rural Development.

**Mr E. K. Gavu** served as Assistant Examinations Officer of the Department. He served as a Fellow of the Republic Hall and Patron of the Real Estate Club. Mr Gavu provides career guidance and counseling to students and is involved with the Land Management and Development Students' Association (LAMDSA) activities. He was adjudged the winner of the Surveyor F.K. Owusu-Adjapong (Fellow GhIS, PP) Award for Professional Excellence, Best Professional Surveyor Trainee of the Ghana Institution of Surveyors (GhIS) 2014.

**Mr. William Mark Adolwine**, during the year under reviewed served as a Fellow of Unity Hall, Patron of Notre Dame Old Boys Association, KNUST Branch and an executive member of Aid to the Vulnerable Foundation (AIDVU) an NGO.

## **DEPARTMENT OF PLANNING**

### **INTRODUCTION**

The Department of Planning has accreditation to train skilled personnel (from undergraduate to PhD level) to promote, coordinate and manage development at the national and sub-national levels. The philosophy of the Department of Planning is to promote an "integrated process of political, social, economic and spatial dimensions which affect the quality of life of all people". The Department's approach in tracking development problems is therefore interdisciplinary, reflecting the multi-dimensional nature of development problems.



The Department's main mission is therefore to train skilled personnel required to formulate and manage various development policies and programmes at all levels of national development in line with the National Vision on Socio-Economic Development as required by the 1992 Constitution. The Department looks forward to a more dynamic future in which its activities - teaching, research and outreach programmes as well as community work - would become more directly relevant to the rapidly changing socio-economic and spatial development needs of Ghana, Africa and other developing economies.

### **PROGRAMMES OFFERED AND STUDENT POPULATION**

The Department of Planning has two undergraduate programmes, namely B.Sc. Human Settlement Planning (202 students) and B.Sc. Development Planning (553 students). About 29% of the undergraduate students' population was females. The Department also runs two taught postgraduate programmes. These are M.Sc. in Development Policy and Planning and M.Sc. in Development Planning and Management, which is code-named Spatial Planning for Regions in Growing Economies (SPRING). The Department also runs research degrees in Planning and Development Studies. They include M.Phil Planning and M. Phil. Development Studies as well as PhD Planning and PhD Development studies. The Department had a total of 120 postgraduate students out of which 20 were PhD students. About 20% of the postgraduate enrolments were females.

### **STAFF STRENGTH**

The Department had a total of 20 academic staff. The academic staff comprised one Professor, three Associate Professors, four Senior Lecturers and 12 Lecturers.

During the year under review two of the senior lecturers were promoted to Associate Professors, two lecturers were promoted to senior lecturers and the only Assistant Lecturer was promoted to lecturer. One of the Associate Professors is still on secondment to the College of Arts and Social Sciences as Provost whilst another Associate Professor has been appointed as Deputy Provost of the African Institute of Sanitation and Waste Management in Accra.

One Professor, One Associate Professor, One Senior Lecturer, and One Lecturer are on contract.

In effect out of the 20 lecturers only 17 are at post as two are on study leave and the third is on secondment. The student teacher ratio (STR) of the Department stands at 1: 40 as against the anticipated norm of 1:18. This implies that the lecturers are overloaded and therefore there is a high risk of compromising quality. We hope to recruit more qualified staff in the coming year to improve the STR.

### **HUMAN SETTLEMENT PLANNING PROGRAMME**

The B.Sc. Human Settlement Planning programme, which was introduced in the 2005/2006 academic year is making steady progress with student population standing at 202. Within the next few years the Department expects to train sufficient Settlement Planners to man the Town and Country Planning Offices in all Metropolitan, Municipal and District Assemblies (MMDA) in Ghana.

## **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 scheduled graduation of its second jointly supervised PhD candidate by August 2014. The Department is also collaborating with the Energy Centre of the College of Engineering to train PhD Students in Energy Planning. The Department and the Energy Centre will jointly host an International PhD candidate from the USA in July 2014.

The Department is also collaborating with the College of Agriculture and Natural Resources (CANR) of KNUST, the Technical University of Denmark and the Danish Technical Institute in the execution of the SaWaFo Project involving the training of PhD and MPhil students. In August 2013 two student supervisors and two students from the Department of Planning attended a PhD Workshop sponsored by DANIDA through the SaWaFo Project in Morogoro, Tanzania.

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 Department to participate in the preparation of the State of Ghanaian Cities report under the State of the Cities in Africa Project (SOCA) with funding from Cities Alliance. The Department has completed the initial part of the State of Ghanaian Cities Report comprising of road shows in the ten Regional capitals.

The year under review witnessed the Department's collaboration with the Ghana Institute of Planners (GIP) at the highest gear. The Department hosted a Regional Seminar for GIP members of the Ashanti Region, staff and students of the Department of Planning. The theme of the seminar was Street Naming and Property Address System in Ghana. GIP also secured funding from the BUSAC Fund and applied some of the funding to organize a training programme for all GIP members on advocacy as a Planning tool. The training programme was held at the Engineering Guest House. Part of the funding was used to implement a research project to prepare background materials for a new Planning Law in Ghana. The research was executed by the Department of Planning. Finally the Department collaborated with GIP to train staff of the National Development Planning Commission (NDPC) to qualify for GIP Membership from January-February, 2014 at the Institute of Local Government Studies (ILGS) in Accra. In November 2013 the Department hosted the Sierra Leonean Institute of Planners, who were sponsored by GOPA/CES, for a 14 days study tour of Ghana.

## **RESEARCH AND SERVICE**

The Department of Planning actively participated in the preparation of a proposal for the establishment of a Regional Centre of Excellence for Water and Environmental Sanitation to be based at the College of Engineering. The World Bank and the Government of Ghana is funding the establishment of the Centre of Excellence. With the expected commencement of implementation of the project in 2014, the Department is gearing up to play a very active role in the execution of the programme to undertake research and train students in Water and Sanitation from the West African Sub-region.

The Department is actively involved in the preparation of a detailed land master plan and layout for the KNUST Campus. The updating of physical development has been done in consultation

the Geomatic Engineering Department. The Department is currently digitizing the layout following the installation of a new GIS laboratory with GIS software donated from Sambus Ghana limited for a two-year trial. The Department is again taking advantage of the newly established laboratory to prepare a master plan and layout for a 3000 acres piece of land acquired by the Kintampo College of Health and Well Being.

The Department is proud to be of service to the University in specialized areas where we have the expertise including strategic planning and land use planning. Our staff serve as moderators 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, etc.

## **CONCLUSION**

We are happy to note that the Department of Planning in spite of all the challenges is making every effort to fulfill 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 publication. This we hope will enable our faculty without terminal degrees to acquire them and together with their colleagues prosecute an agenda of sustained research and publications for a sustainable knowledge creation and academic progression. This will enhance the confidence of our academic staff to deliver their mandate of quality teaching, research and service for the sustainable development of Ghana and Africa.

## **CENTRE FOR SETTLEMENTS STUDIES**

### **BRIEF HISTORY**

A United Nations technical assistance team who 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. 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).

### **MANDATE**

The mission of Centre for Settlements Studies is to conduct research into human settlements, planning issues and to devise interventions targeted primarily towards addressing the socio-economic, housing and construction 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 services to the community through field demonstration units, and problem-solving consultancy.

With changing trends in the world, the Centre broadened its research base beyond its initial scope to include issues on other aspects of human settlements. This was in tandem with the Ghana National Development Policy framework on poverty reduction, wealth creation and Shared Growth Agenda. The current concern of the Centre for research and development of human habitat include: 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.

### **RESEARCH STAFF**

The department has six (6) research staff made up of one (1) Associate Professor four (4) Senior Research Fellows and one (1) Research Fellow.

The Centre has thirteen (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 project work, it supplies furniture and wood products on demand.

### **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. These comprise the Departments of Architecture, Building Technology, Planning and Land Economy.

### **M.Phil Programme in Urban Management Studies**

The Centre will start running Master of Philosophy in Urban Management Studies programme in the 2014/2015 academic year.

### **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. The courses are on **Contemporary Issues in Research Methodology and the Use of Factor Analysis in Social Science and Management Research; and Building Construction Regulations and Environmental Management**. 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 nation-wide.

## **PROMOTION OF KNOWLEDGE**

The Center for Settlements Studies participated in a Workshop on African Urban Research Initiative organised by the Africa Centre for Cities and Cities Alliance with support from Rockefeller Foundation. The Centre (CSS) is in collaboration with other research centres in Africa to promote the African Urban Initiative. Their 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 using cities and urbanisation as anchor for development on the continent. The first conference was held in Ethiopia in March 2013 and the 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 following:

The purpose comprise 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

The Centre of African Urban Initiative seeks:

- To create a framework to empower research centres to access sustainable sources of information and financing for their works
- To develop protocols and methodologies of engagements
- To strategize about how to engage with organisation and regional networks and,
- Promote the exchange of research outputs in addition to research practices and ideas

A steering committee was set up to represent all the linguistic regions to oversee the functions of the AURI. The Centre of Settlements Studies, represented by Dr. Divine Ahadzie is a member of the said steering committee.

The Centre is also collaborating with Emerald Journals, (publishers of leading academic journals in the United Kingdom) so they can be the guest editor for Structural Surveys Journal of Building Pathology and Refurbishments. The theme for the special edition is 'key challenges or building adaptation and retro-fitting'. Submissions and review processes are currently handled at the Centre.

The CSS has 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. 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 makes the Centre and for that matter the University an active research organisation in the sub region and internationally, especially in urban planning and built environment domain.

## **INCOME GENERATING ACTIVITIES**

The Production Units of the Centre (i.e. Carpentry, Welding and Masonry Workshop) produce door/ 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 publicises the Centre's research output in the building and construction technology industry.

### **PUBLICATIONS**

In the year under review, research staff published in some refereed journals. The list can be found in the Quality Assurance Bulletin for the year under review.

# **COLLEGE OF ARTS AND SOCIAL SCIENCES**

## **INTRODUCTION**

The College of Art and Social Sciences is one of the six colleges created by the Statute of the University. Its mandate is to train, research and dissemination knowledge of the humanities and social sciences. It is constituted by four teaching faculties viz Faculty of Art, Faculty of Law, Faculty of Social Sciences and KNUST School of Business and a Research Centre, the Centre for Cultural and African Studies. The College runs twenty two departments and services the entire University. 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.

## **FACULTIES**

- Faculty of Art
- 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 under the Provost; the College Accountant heads the Finance and Accounts staff while the College Librarian direct library services to students and staff. The faculties are headed by Deans while departments and centre are headed by Heads of Department and a Director.

The office of the Provost is responsible for the coordination of teaching, research, and students' welfare and other activities which have been reported by the faculties and departments. The College Administration is constituted by the following personnel:

Provost	Prof. Sam Afrane
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. Mavis Okra
Office support	Mr. Samuel Baffour Senkyire

## **ACTIVITIES**

In the course of the year, the College made significant stride in the area of research, industrial and professional linkages, capacity building, infrastructure development, teaching methods, exhibitions and participation in conferences.

## **RESEARCH AND PUBLICATIONS**

The College continues to whip up research activities and publications to improve the professional advancement of academic staff in the College. Among the activities were Intra-

college seminars, workshops, research retreats and colloquia etc. The College has also instituted a research fund and other incentive packages to promote inter-disciplinary research activities and publications among staff in different faculties of the College. During the year under the College funded two (2) research projects and paid publication fees for nineteen (19) journal articles. The College continues to see much improvement in research publications. During the year under review, the College academic staff produced one hundred and seventy-two (172) journal articles; forty-five (45) papers of conference proceedings; five (5) books; seventeen (17) papers being contributions to chapters of books; and fourteen (14) conference papers.

### **INTER/INTRA-FACULTY LECTURES**

The College of Art and Social Sciences continued to sustain its Inter/intra-Faculty Lectures. During the year under review the College had four (4) inter-faculty lectures.

1. “*A Theoretical Analysis of How Health care User Fee can Waste Economic Resources*” delivered on 4<sup>th</sup> February, 2014 by Dr. Sr. Eugenia Amporfu, Department of Economics.
2. “*Development of a Participatory Assessment Strategy within Studio-Based Pedagogy to Enhance the Quality of Student Learning in Graphic Design*” delivered on 13<sup>th</sup> March 2014 by Dr. E.F. Eshun, Department of Communication Design.
3. “*Art Studio Practice as a Professional Career: A General Survey of the Intent of BFA and MFA Studies*” delivered on 27<sup>th</sup> March, 2014 by Prof. H.B. Ato Delaquis
4. “*The Recent Proliferation of Spirito-Herbal Centre: A Preliminary Studies of Socio-Religious Investigation in Ashanti and Eastern Regions*” delivered on 24<sup>th</sup> April, 2014 by Rev.(Dr.) N.I. Samwini, Department of Religious Studies, Nan Afia Opoku-Asare (Mrs.), Department of General Art Studies and Harriet Takyi (Ms), Department of Sociology and Social Work .

### **CONFERENCES**

At the last congregation the College reported that plans were far advanced for the College to have its first international conference on Oil and Gas Industry. The College wishes to report that it successfully held its first ever international conference under the theme “*The Emerging Oil and Gas Industry*” from August 28 – 31, 2013. The conference is to provide a platform for the academia, Oil and Gas Industry practitioners, legislative bodies, service providers, policy planners, government agencies and trade groups to understand the social dimension of the emerging issues in the Ghanaian Oil and Gas Industry.

### **WORKSHOPS**

The College of Art and Social Sciences continues to exploit innovative ways to enhance teaching and learning. To this end, the College during the year under review organized two workshops- one on Application of ICT in teaching Large Classes and the other was on Setting of Multiple Choice Questions (MCQs) – for its academic staff.

Apart from this, the College also organized two workshops for its staff as part of its policy on capacity building:



- One-day workshop for Deans and Heads of Department on the theme “*Leadership Empowerment*” at Noda Hotel on 24 August, 2014.
- One-day workshop on the theme “*Developing a Successful Academic Career*” for the newly recruited academic staff at KCCR Conference Room on 18<sup>th</sup> January, 2014.

### **LINKAGES WITH INSTITUTIONS AND INDUSTRY**

The College continues with its remarkable performance of establishing linkages with industrial and professional organisations locally and internationally. The results of these linkages with other institutions and organizations continue to show. The collaboration between the Faculty of Art and Cape Peninsula University, South Africa led to a visit by Prof Gronje from the Peninsula University to deliver two lectures on the topic ‘*Promotion of Research and Publication*’ in the College. The Department of Painting and Sculpture through its collaboration played host to the Director of Graduate Studies of Painting and Printmaking, Yale University School of Art, Dr. Rochelle Feinstein, who had a seminar with staff and students. The Department of Sociology and Social Work continues to enjoy a fruitful collaborative relationship with the University of Utah, Salt Lake City USA. .

### **STAFF RECRUITMENT AND DEVELOPMENT**

The College, with the support of the university authorities, continues its recruitment drive to augment its staff strength. The College reported at the last congregation that twenty-eight (28) new lecturers joined the various departments in the College. During the year under review, the College hired twenty-six (26) new academic staff to further augment its staff strength.

The College continues to look for avenues for staff development and staff capacity building to ensure professional advancement for efficient and effective academic work. The College continues to support its non-PhD holders to obtain terminal degree. Through a consortium approach, the College has established linkages with some professors outside to support local doctoral programmes. Currently nine (9) lecturers from KSB are benefiting from the programme.

### **INFRASTRUCTURAL DEVELOPMENT**

Although the College continues to face challenges in infrastructural development, efforts are being made to overcome that to promote effective teaching and learning. The College continues to support funding of the Faculty of Art building. The College is happy to report that the Faculty of Art building has been completed and handed over to the College for use. Plans are far advanced for the commencement of construction work on the proposed Faculty of Social Sciences building.

### **TEACHING METHODS**

Faculty members continue to make improvements in pedagogy. Some members prepared courses on 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**

Proposal for mounting the following programmes have received approval from the Graduate School Board and the Planning and Resources Committee

- One Year M Sc. in Business Administration
- One Year MA in Religious Studies
- PhD Religious Studies
- MA History/MA Political Studies
- M Phil History/M Phil Political Studies
- PhD History/PhD Political Studies

## **EXTENSION SERVICES**

The College, through the IPR organized a six-week entrepreneurship clinic for all final year students of KNUST. The programme was to equip students to initiate their own private ventures and to reduce pressure on employment in the public sector.

## **AWARDS**

The College continues to show appreciation to high performance and excellence through an award for its students and staff. This year's Awards under the theme '*Rewarding high Performance*' was held on 24<sup>th</sup> January 2014 at the Faculty of Law 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 wishes to report that it has secured a deal with the Royal Bank Ghana Limited under which the Bank has offered a 3-year sponsorship package in the sum of GH¢50,000.00.

## **CONCLUSION**

In spite of these successes chalked, we would not say the College has no challenges. The College continues to face some challenges including inadequate infrastructure, high student-teacher ratio and a snail-paced professional advancement of academic staff. The provision of spacious lecture halls, laboratories, studios, workshops could go a long way to improve teaching and learning. In the case of staff, the provision of staff offices with internet facility and staff common rooms could serve as motivation for professional advancement to put the College on a higher pinnacle of academic excellence.

# **FACULTY OF ART**

## **INTRODUCTION**

The Faculty of Art, formally College of Art is one of the academic units in the University. The Faculty has six academic departments, a small scale Printing Press (Design Press) which serves as a lab for students of Departments of Communication Design, Publishing Studies, and a Jewellery training centre. The faculty also has a library which seats 56 users at a time.

The faculty offers graduate and undergraduate and occasionally short courses in varied areas in visual, fine and literary arts.

## **DEANSHIP AND HEADSHIP POSITIONS**

Dr. Kwasi Opoku-Amankwa	-	Dean
Dr. Patrick Osei-poku	-	Vice-Dean and Head, Department of General Art Studies
Dr. Francis Eric Eshun	-	Head, Department of Communication Design
Peggy Fenning (Mrs.)	-	Head, Department of Industrial Art
Dr. Rudolf Steiner	-	Head, Department of Integrated Rural Art and Industry
Mr. Felix Annor Anim	-	Head, Department of Painting & Sculpture
Dr. Smith Esseh	-	Head, Publishing Department

## **STAFFING**

The faculty of Art has total staff strength of 158, comprising 82 senior members including three Associate Professors, seven senior lecturers, one Assistant Registrar, 33 senior staff and 43 junior staff.

## **STUDENT POPULATION**

The Faculty of Art has a total student's population of 2,500 comprising graduates and undergraduates.

## **FACULTY OF ART LIBRARY**

The Faculty of Art Library is one of the four libraries in the College of Art and Social Sciences (CASS). It has a seating capacity of fifty-six (56) with staff strength of three (3). The Library has 8 PCs out of which only six are in good working condition. The total stock of the Library stands at three thousand, one hundred and twenty three (3,123) books. This excludes student's theses, newspapers and print journals. Mr. Reuben Clover donated a copy of a book written by the Mosan Art Museum to the Faculty of Art Library in the year under review. The Library has also acquired a number of assorted textbooks through the utilization of the AFUF to augment its current stock. Plans are far advanced to move the Library to the Faculty's new block.

## **LINKS WITH OTHER INSTITUTIONS**

The Faculty has established links with a number of institutions. They include the following:

1. Cape Peninsula University of Technology - Cape Town, South Africa.
2. Ecole National Supeneure des Beaux – Arts, Paris, France.
3. Kolding School of Design, Denmark.
4. Arkeshus University, Norway. Etc

## **VISITS**

A number of Basic Schools and Senior High Schools particularly students offering Visual Arts continue to visit the faculty for the year under review close 30 schools. Visited the faculty to learn more about our programmes; how to access them and career opportunities they offer.

## **NEW FACULTY BUILDING**

The Faculty of Art through the Vice-Chancellor's initiatives has acquired a new building to be used for lectures and staff offices. Currently, the faculty's second semester Examinations for the 2013/2014 Academic Year is being held at the new building.

The cleaning services for the new building has been awarded to Zoomlion Company Ltd. on temporal basis pending arrangement to sign a Memorandum of understanding (MoU) between the faculty and the company.

The Faculty intends to move fully from the old block to the new block building the next academic year which begins in August 2014.

## **DEPARTMENT OF COMMUNICATION DESIGN**

### **INTRODUCTION**

The Department of Communication Design (DECODE) is one of the six Departments of the Faculty of Art of the Kwame Nkrumah University of Science & Technology. The Department offers comprehensive training in communication design and other related areas, to undergraduate and graduate students. Before 2000, Department of Communication Design was the sole higher education institution responsible for the training of professional studio trained graduate in Ghana. However, with the elevation of the Polytechnics to tertiary status, coupled with the introduction of private tertiary institutions, these institutions also have joined in the training. Notwithstanding, the Department of Communication Design will continue to be the main source of professional graduate for the country.

The Communication Design programme, by far is the popular offered in the faculty of Art. The department continues to attract the best visual art students of the Faculty. Products of the Department of Communication Design have always found numerous niches in the changing job market. This has been made possible because the Department has maintained high standards in training students and the continual modification of the internal content of curriculum and instructions to reflect the fast changing development in national and global professional fields.

### **STAFF DEVELOPMENT**

Our staffing situation continues to improve a bit but not up to the recommended norm of 12: 1. We have a total twelve senior members, making the teacher/student ratio (54:1). We have had to rely on part-time lecturers to teach some of the course we lacked the expertise. This is becoming increasing critical with the retirement of the senior most. There are some areas until now had been difficult to attract the needed graduate professionals to take up appointment. The following Academic staff members finished and received their doctoral degrees:

- E. F. Eshun (PhD) Art Education – KNUST, Ghana
- E. Appiah (D. Tech) Graphic Design - CPUT, Cape Town, South Africa

The following members are pursuing doctoral studies and at various stages of completion

- Mr. George Kushiator: Ph.D programme with Department of Painting/Sculpture. He will be graduating in November 2014.
- Mr. Rahman Adam: Ph.D programme with Department of Painting/Sculpture. He will be graduating in June 2015.
- Miss Ralitsa D. Debrah: Ph.D programme with CPUT, Cape Town, South Africa. Graduation is estimated to be by June 2016.
- Miss Bertha A. Ayim has since completed her Master's programme and appointed as Assistant Lecturer.
- Dr. K. N. Amoako Agyeman has been given a temporary appointment as a lecturer in the department.

### **PROGRAMMES OFFERED**

The Department of Communication Design runs a four-year B. A. (Communication Design) programme that incorporates all the major disciplines in Communication Design namely graphic design, photography, interactive media design, animation, film and video and advertising & media management.

In addition to the B. A. undergraduate programme, the department runs two (2) postgraduate programmes – M. Phil (2 years) and M. Comm. Design (18 months studio). Arrangement are far advanced for the introduction of two-year (2) inter multi-disciplinary Master of Design taught course August 2015.

The Department of Communication Design in its quest for value addition and differentiation has introduced this option Advertising and Media Management. This is to expose students to other challenges in the industry, producing Graphic Designers who could play lead roles in the Agency and Client relationship and even as marketing executives in the corporate world.

Twelve months of intensive lectures, students had the opportunity to experience the industry. Reports from the few who had the experience with marketing department or Ad Agency testified that programme has a great future, even though they had not covered much of the curriculum. But it is believed that the confidence level of students would be superfluous after the four years. After its first year of inception with 38 students, we anticipate a sharp increase in the near future. This serves as a reminder the challenges we face as a section now (staffing). We need to scout for permanent lecturers or part time lecturers. Also, students must be encouraged to develop attitude for reading and if possible do a collection of some marketing or advertising books.

Next academic year is going to be a challenging one, but we shall overcome. Meanwhile we are looking forward to the new entrants to start the programme at second year next year.

### **RESEARCH ACTIVITIES**

Our research activities have also grown. We continue to research into problems facing the academia and the community with the view to helping solve some of them. This has been made possible as a direct result of the improvement in the staffing situation at the department. The department continues to participate in collaborative international research to date. The following research projects are on-going:

**E. F. Eshun**

- Participatory Assessment in Art & Design Education
- Assessment in Art & Design Education
- Impact School Psychosocial Environment on Self-esteem
- Graphic Design Pedagogy and the Creative Process

**E. Appiah**

- Exploration of Cultural Influence on Visual Communication on Issues of Ideation
- Implications of ICT on Ideation Within the Curriculum of Graphic Design in the Senior High Schools

**R. Adam**

- Package Design and its impact on quality product delivery in Ghana
- Instructional Design

**Dr. Ismaila Moro**

- Packaging Design and Environmental Sustainability

**A.K. Badu**

- Service Design in the Creative Industry
- Service Quality in Higher Education

**CONFERENCES, SEMINARS AND WORKSHOPS**

Members of staff of the Department had the opportunity to attend and participate in a number international conferences, seminars and workshops. The evidence is seen in the number of publications that were published. Details of these can be obtained from the University's Quality Assurance Bulletin for the year under review.

**EXTENSION LINKS/COLLABORATION**

A formal research and education linkage between the Department and Faculty of Informatics & Design, CPUT, Cape Town South Africa was established while collaboration at the local level is strongly maintained with the Institute of Packaging Ghana (IOPG) and Ghana institution of Graphic Artists (GHIGA).

**KNUST OER PROGRAMME**

In collaborative efforts between the Department of Communication Design and the College of Health Sciences, there is technical production of content in different media relating to Health Open Educational Resource (OER) Materials for teaching, learning and research. This programme also ensures development of non-medical OER content for the university and envisages providing technical services to allied academic institutions, including all those within the OERAfrica group.

The activities of this programme have helped immensely in the hosting of an OER repository within the KNUST website.

## **ADVANCED SKILLS ACQUISITION PROGRAMME (ASAP)**

The Advanced Skills Acquisition Programme (ASAP) is competence-based and aims at empowering youth with relevant appropriate advanced skills necessary for the pursuit of entrepreneurial activities or as is demanded by Industry. Participants are trained in various vocational skills related to general graphic design, photography, multimedia, advertising and media management. There will also be a Lifelong Learning System to ensure continuous knowledge and skill updating by the Programme Coordinator. Therefore access to higher layers of professionals (mentors) with advanced skills in the related areas is assured. In this vein, the Educational Resource Centre will also include the use of Open Educational Resources. The training programme includes soft skills development (Communicative English and IT) embedded within the training in the selected skill domains. Educational trips are part of the package.

### ***Target Participants***

- SMEs/Operators in the Food Packaging Industry, including Food Processors, Food Handlers and Caterers
- SHS graduates as well as those with diplomas/certificates in Visual Communication/Graphic Design and multimedia can apply.
- Practicing/Star photographers
- Currently the Department Of Communication Design (DeCoDe) has three female candidates on this programme being sponsored by the Ghana chapter of CAMFED (Campaign for Female Education), an NGO operating in several countries on the African continent.

## **INSTRUCTIONAL DESIGN PROGRAMME (IDP)**

- This programme offers services through the systematic development of content submitted by Subject Matter Experts (SMEs)/lecturers/authors, etc, using learning and instructional theories to ultimately ensure quality of instruction, thereby gaining better learning outcomes. It includes development of instructional materials and activities; and tryout and evaluation of all instruction and learner activities.

The department is in collaboration with

- **MARIAM DAWOOD SCHOOL OF VISUAL ARTS & DESIGN, BEACONHOUSE NATIONAL UNIVERSITY, LAHORE, PAKISTAN;**
- **SCHOOL OF DESIGN, Politecnico di Milano University, MILAN, ITALY** to set up modules in *Design for environmental sustainability* and *System Design for Sustainability* within our Postgraduate Section;
- Five masters' students from the department will be on attachment with Faculty of Informatics and Design, CPUT from August till October, under the MOU with CPUT to undertake research activities within their studies.

## **AWARDS/SCHOLARSHIPS/FELLOWSHIPS**

Mr. Adam Rahman of the department brought honors to the department and university when he received the following honours

- Certificate in Packaging of Fresh and Processed Food Products, **Indian Institute of Packaging**, Mumbai, India. (*March, 2013*)

- First Prize - Country Paper Presentation (Packaging) on Ghana, Indian Institute of Packaging (IIP), Mumbai, India (March 2013)
- Recipient – Plaque Citation, Kingsway International School (Centre of Excellence), Tema, Ghana for outstanding contributions towards education. 29<sup>th</sup> March, 2014.

### **INFRASTRUCTURAL DEVELOPMENT IN THE DEPARTMENT**

The Department continues to self-support the civil works in the department during the year under review.

1. Construction of an Equipment store.
2. Rehabilitation and construction of two Postgraduate multi-purpose studios
3. Construction of the modern sound recording studio.
4. Provision of permanent exhibition hall.
5. Provision of modern integrated media laboratory for video and image editing.

### **SERVICE TO COMMUNITY**

The Department continued to make available to primary and secondary institutions in Ghana, teachers, professionals and student groups paid visits and used its facilities for diverse uses. Students from other tertiary institutions came to the department to acquaint themselves with our research and production practices. Researchers from recent international conferences held in the College were involved in primarily discussion for community-based research activities.

### **LINKS WITH INDUSTRY**

The Department continues its collaboration with the university in establishing the TECH TV Station for educational and community based programmes. The objectives of the project include exploring the opportunities for using terrestrial TV platform for teaching and learning purposes. The project is an initiative of DECODE/KNUST and funded from internal resources to date. The project is far advanced at various stages in the procurement of equipment, infrastructure development. Hopeful the project would be commissioned very soon.

### **REPORT ON INTERNSHIP (2014)**

As part of the curriculum of Department of Communication Design, year three students are required to have an experience with the industry for a minimum of ten (10) weeks. This year (130) students were placed in Accra, Tema, Kumasi and Takoradi with majority of them being placed in the Advertising and Printing firms in Accra. Responses from students were positive regardless of the initial challenges we had from certain companies. This could be either the industry had a shorter notice or they were not prepared for our interns. By the end of the first week majority had started work whilst places to the few others were sorted out.

Responses from the supervisors regarding work ethics, relationship, skill (creativity, software), punctuality, timely delivery of assignments, dress codes etc were excellent. It was clear from the industry that the desire to corporate with the department in the future endeavors is still significant. However, there were concerns from some big players in the industry that need to be addressed, which we hope to address in the coming year.



## **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 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 three senior lecturers, six lecturers, one part time lecturer and two administrative staff.

### **ADMISSION OF STUDENTS**

The Department admitted thirty-one students during the 2013/2014 academic year. They were made up of twenty-one for Art Education and ten for African Art and Culture. As part of the Department's mandate to support staff development of the Faculty of Art, one staff of the Faculty was admitted to pursue a PhD degree in African Art and Culture.

### **GRADUATION OF STUDENTS**

The Department graduated eight Masters and two PhD students during the period under review. Among them was Ebenezer K. Howard of the Textile section of the Department of Industrial Art who successfully completed a PhD degree in Art Education.

### **STUDENTS' RESEARCH ACTIVITIES**

The Departmental seminars were organized to oblige second year Masters and PhD students to present their research outcomes for assessment on scheduled dates. The periods for presentations were mid-semester and end of semester. This new development allowed ample time for graduate students to prepare adequately and do PowerPoint presentations twice in a semester to the levels of literature review, methodology, fieldwork and analysis of results. Comments and contributions from the senior members and students enabled student researchers to improve the contents of their theses.

### **RESEARCH FORUM**

The Department hosted a bi-weekly Research and Publication Forum which was meant to provide a platform for senior members and postgraduate students of the Faculty to have in-depth academic dialogue on Art-Based Research. This was facilitated by Dr. Mariama Ross, a staff of the Department.

## **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**

### **NANA AFIA OPOKU-ASARE CONFERENCES ATTENDED**

1. Participated in the 4<sup>th</sup> Biennial African Creative Economy Conference organised by ARTERIAL NETWORK in Cape Town, South Africa from October 6<sup>th</sup> – 9<sup>th</sup> 2013.
2. Participated in the 2013 CEFWA International Conference organised by the Faculties of Education in West Africa at University of Cape Coast from September 9<sup>th</sup> – 13<sup>th</sup> 2013. Paper presented was “**Linguistic Access to Curricula Content: a Critical Issue in Deaf Education in Ghana**”, which was co-authored with Mr. Gideon Obosu of the Department of Educational Foundations, Faculty of Education of University of Cape Coast.
3. Chaired Planning Committee and hosting of Design Development and Research 2013 (DDR2013) International Conference organised by Faculty of Art, KNUST, in collaboration with Cape Peninsula University of Technology, South Africa, and The University of Georgia, USA from July 18<sup>th</sup> – 20<sup>th</sup> 2013 at KNUST, Kumasi.

### **WORKSHOPS ATTENDED**

1. Consultancy Skills Development Workshop organised for members of the Chartered Institute of Administrators and Management Consultants (CIAMC), Ghana, at Ghana Post Lodge, Kumasi, from March 19<sup>th</sup> – 20<sup>th</sup> 2014.
2. Health, Safety and Environment Management System Awareness Workshop organised for members of the Chartered Institute of Administrators and Management Consultants (CIAMC), Ghana at KCCR, KNUST, Kumasi, on November 9<sup>th</sup> 2013.

### **DR. E. A. ASANTE**

#### **INTERNATIONAL APPOINTMENT /AWARD**

In February 2014, Dr. E. A. Asante was honoured to receive a distinguished International Travel Grant / Award by the College Art Association (CAA) and the Getty Foundation.

In March 2014, Dr. E. A. Asante was successfully elected by members of the prestigious *Arts Council of the African Studies Association* (ACASA) to be a member of the Board of Directors.

### **DR. JOE ADU-AGYEM**

Dr. Adu-Agyem was nominated as the Chairman of the newly established College Quality Assurance Sub-Committee and subsequently attended a four-day intensive QAPU's 1st RETREAT at Pempamsie Hotel in Cape Coast from January 30<sup>th</sup> – February 2<sup>nd</sup> 2014.

## DEPARTMENT OF INDUSTRIAL ART

### INTRODUCTION

The Department of Industrial Art is made up of three sections: Ceramics, Textiles and Metal Product Design. The sections are responsible for the training and production of high-level manpower in their respective disciplines for the Ghanaian economy.

The mission of the Department is to produce properly trained graduates with the requisite knowledge and skills for today's technology-based industries. The Department is committed to providing the best possible conditions for research, study, practice and techniques of design, art and technology as related to the applied Arts. Upon entering the Department, students begin exploring the process by which design, art and technology impact on the individual and the community.

The department is staffed by men and women who are committed to guiding students towards personal and professional excellence. Alumni of the Department are successfully engaged in industry, commerce and teaching.

Student population keeps increasing while facilities remain obsolete and inadequate. The Department currently has a population of five hundred and seventy-nine (579) students and the breakdown is as follows:

		Textiles	Metals	Ceramics
<b>First Year (Foundation)</b>				112
<b>Second Year</b>	56	56	31	143
<b>Third Year</b>	61	58	33	152
<b>Fourth Year</b>	66	53	37	156
<b>Subtotal</b>	<b>183</b>	<b>167</b>	<b>101</b>	<b>563</b>
<b>Post graduate MFA</b>	<b>7</b>	<b>2</b>	<b>7</b>	<b>16</b>
Undergraduate and Postgraduate				
<b>Total</b>	<b>190</b>	<b>164</b>	<b>108</b>	<b>579</b>
<b>Grand Total</b>		<b>579</b>		

### PROGRAMME

The Department of Industrial Art offers a four-year undergraduate programme leading to the Bachelor of Art in Industrial Art with Ceramics, Textiles and Metal Product Design options. The Department also mounted a parallel programme to absorb part of the large number of applicants who were not admitted into the main stream in 2013/2014 and those expected to apply in the subsequent years. The first year is a common foundation course intended to provide students with specific basic skills required for Industrial Art disciplines.

The Department intends to broaden its programmes to include undergraduate/post-graduate degree courses leading to BSc. Ceramic Technology, BSc. Textiles Technology, B.A. Clothing and Fashion.

The Department runs Masters of Fine Art (MFA) postgraduate courses in Ceramics, Textile Design and Jewellery and Metalsmithing.

### **STAFF**

The department has twenty (20) academic members of staff out of which one is on post retirement contract.

These are supported by (1) one Senior Administrative Assistant and nine (9) technician/Senior technicians.

### **DEPARTMENTAL COLLABORATION**

- Collaboration between Development Dimensions Limited for the establishment of KNUST Jewellery Design and Technology Centre for the production of jewellery at the Metal Product Section – 2010.

- Feasibility on production of glass containers and Glass blowing unit has been completed and an MOU between Georgia South Western State University and the Department has been signed and awaiting funding to start the mounting of the equipment.

- A linkage has been formalized by the Department for Textiles Section and the GTP, ATL and Printex Ghana Limited for students' practical attachment. Occasionally, the Department also receives materials from these companies for textile students.

### **SERVICE TO COMMUNITY, RESEARCH ACTIVITIES AND PUBLICATIONS**

#### **Service to community**

#### **DR. CHARLES FRIMPONG**

- Chairman - Sub-committee of the Planning and Resources Committee to review the curriculum of Central University College (UCC)
- Member – Committee of the migration of the Faculty of Art from College of Art and Social Sciences to College of Architecture and Planning
- CASS Rep. –International Programmes Office, KNUST
- Member – M.Tech Curriculum Development Committee Task Force, KNUST
- Penal member – Development to review B.Tech programme in Textile Technology, Takoradi Polytechnic

#### **OSEI-KWABENA NTIRI**

- Member: Association of Textile Technologists of Nigeria (ATTN)
- Member: Institute of Textile Science, Canada National
- Executive member: The Advance Technology Training and Information Networking Labs (ATTAIN), NGO

## **GBOLOGAH LEMUEL**

- Member/Secretary - Board of Trustees – Art Society Support Trust Fund CASS-KNUST Publication

## **DR. SAMUEL NORTEY**

### **Resource Person**

- Presented a paper on the Emerging Oil and Gas Industry in Ghana: Social Dimensions to the Ministry of Energy and Petroleum, Affiliated Agencies, International Oil Companies and Oil and Gas Stakeholders at the Ministry of Energy and Petroleum Conference Room on November 01, 2013.
- Presented a paper on Referencing and Citing Sources: Contemporary Issues in Academic Publishing to Academic staff of the Faculty of Creative Art, Kumasi Polytechnic on November 18, 2013.
- Presented a paper on **Prospects in Visual Art Education and Modern Trends in Teaching Visual Art Courses** to students and teachers of Archbishop Porter Girls SHS on January 31, 2014 at the School's Visual Art Block.
- Presented a paper on **"The Essence of Museums in the life of the Modern Artist"** as a preparatory education to Ashanti Visual Art Students Safari. The presentation was made at the Yaa Asantewaa Museum on July 01, 2013. Twenty eight second cycle institutions listened to the presentation.
- Presented a paper on **"The Relevance of Visual Art in Nation Building"** and **From SHS to University: Making the Right Choice of University Programmes** to Visual Art students and tutors on October 29, 2013 at the School's Assembly Hall.
- Paper Presentation on How to write and publish in Academic Journals to Lecturers in School of Applied Arts, Takoradi Polytechnic on March 1-3, 2011 at the Polytechnic Central Lecture Hall.

### **Grants won through Proposals**

- His research proposals have yielded fruitful results. The following amounts were received for the College of Art and Social Sciences Oil and Gas Conference through proposals

Ministry of Energy	=	GHS 72, 920.00
Technip UK	=	GHS 2500.00
OMNI Energy	=	<u>GHS 2060.00</u>
		<b><u>GHS 77,480.00</u></b>

### **Committee and Coordinating Work**

- Member - Committee on Expression of Interest for Advancing Early Career Research in Africa – responsible for new project on strengthening institutional approaches to professional development of early career academics to be funded by the Association of Commonwealth Universities.
- Master of Fine Art [MFA] Coordinator- responsible for all Matters regarding the MFA Programme, Department of Industrial Art
- Journal Reviewer - Journal of Pedagogy, Culture and Society, Taylor and Francis, Routledge Publishers, College of Art and Social Sciences Oil & Gas Conference Proceedings

- Editor In Chief - for CASS Oil and Gas Conference Proceedings on the Emerging Oil and Gas Industry in Ghana: Social Dimensions, Volume I, Number 1, pp. 1- 164

#### **ISAAC KWABENA AGYEI**

- Member - Ashanti Regional Jewellers Association
- Member: Committee to Consider the College Welfare Issues 2013-Present
- Member: Department Exhibition Committee, 2013

#### **DR. BENJAMIN K. ASINYO**

- Developed Fashion and Apparel Design Curriculum for Blue Crest College
- Member – M.Tech Curriculum Development Committee Task Force, KNUST
- Web Administrator, Department of Industrial Art

#### **EBENEZER KOFI HOWARD**

- Coordinator: MFA Textile Design Programme
- Patron: Textiles Students' Association
- ICT Coordinator: Dept. of Industrial Art
- Chairman: Committee to draft a position paper on the Dynamics of Recent Changes in the Selection of Course Options at the SHS Level
- Member: IPR Team, CASS, KUNST
- Member: Exhibition Committee, Dept. of Industrial Art
- Member: Committee set up to draft an MOU between Textiles Section, KNUST and School of Design, Reutlingen University, Germany
- Design and Production of Cloth for the Faculty of Art, KNUST
- Cloth Design for IRAI, KNUST
- Cloth Design for Africa Hall, KNUST
- 50TH Anniversary Cloth Design for the University Hall, KNUST
- KNUST Rep. of Chartered Institute of Textile Professionals (CITP)- Ghana
- Member: Ghana National Academy Management Board.
- External Examiner/Moderator, NABPTEX
- Boa Amponsem SHS 50TH Anniversary Cloth Design
- Agona SHS 20TH Anni. Cloth Design

In the year under review, academic members of staff in the department conducted researches which lead to some publications. Please refer to the Quality Assurance Bulletin for the details of these publications and conference papers.

## **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. The department deals with an integrated approach to Ghanaian crafts and also researches into locally available raw materials to develop indigenous crafts to 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, Claywork and Clay Technology and Product Design together with allied and elective courses.

### **GRADUATE DEGREE PROGRAMME**

The graduate programme started in 2012/2013. Currently there are eighteen (18) first year students and (22) final year students. At the graduate level, the Department offer Master of Philosophy in Integrated Art. There are 36 postgraduate students. The department has eleven Senior Members: including (6) are PhD holders and Three (3) Senior Lecturers.

### **FACULTY MEMBERS**

The department has an academic staff strength of eleven made up of three (3) Senior Lecturers, seven (7) Lecturers and one (1) Technical Instructor.

### **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 net work with industry. Biological extracts are some of the products now used for dyeing, preservation of wood and bamboo, dehairing of animal skin and leather. All these are results of research in the Department.

### **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**

### **GENERAL INFORMATION**

The Department continues to run the following undergraduate programmes:

- |                 |                   |
|-----------------|-------------------|
| i. BFA Painting | ii. BFA Sculpture |
|-----------------|-------------------|

The Department also runs the following postgraduate programmes:

- |                            |                            |
|----------------------------|----------------------------|
| i. MFA Painting            | ii. MFA Sculpture          |
| ii. MFA Painting/Sculpture | iv. PhD Painting           |
| v. PhD Sculpture           | vi. PhD Painting/Sculpture |

### **ADMISSIONS**

The Department of Painting and Sculpture admitted the following number of first year students for undergraduate and postgraduate programmes respectively in the 2013/2014 academic year.

#### **BFA Programmes**

Number of Students	-	102
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#### **MFA Programmes**

Number of Students	-	2
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#### **PhD Programmes**

Number of Students	-	2
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<b>Total</b>	<b>=</b>	<b><u>106</u></b>
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### **DEPARTMENTAL COLLABORATIONS**

#### **Kolding School of Design, Denmark**

Through the initiative of Mr. K. B. Kissiedu, Thirty-three students and two lecturers from the Kolding School of Design Denmark teamed up with forty-eight students and three lecturers from the Department of Painting and Sculpture for this year's joint project on the theme "*Inside out, outside in*". Students were placed in groups to explore the theme using design research method cards with the aim of identifying problems, comprehending the situation, conceptualizing, and creating prototype solutions.

The Department continues to collaborate with the following organizations:

- Sansa International Artists Association, Ghana
- Foundation for Contemporary Art, Ghana
- Nubuke Foundation, Ghana
- Stedelijk Museum Bureau (SMBA), Amsterdam



## **VISITING ARTISTS**

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:

- Anthony Obodai (UK), November, 2013
- Atta Kwame (Ghana), February, 2014
- Willem de Rooij (Holland), February, 2014
- Mary Evans (UK), 7<sup>th</sup> March, 2014
- Ibrahim Mohammed (Ghana), 18<sup>th</sup> March, 2014
- Wendelien Von Oldenborgh (Holland), 23<sup>rd</sup> April, 2014
- Adrian Jeans (UK), 19<sup>th</sup> March, 2014

## **KUMASI ZOO AND ACCRA NATIONAL MUSEUM**

The Department has initiated discussions with the Kumasi Zoo and Accra National Museum to produce Taxidermy and Diorama objects respectively for the two Institutions.

## **FUNDING FROM NATIONAL COUNCIL FOR TERTIARY EDUCATION**

Through the initiative of Mr. E. K. Bodjawah, the Department received funding from NCTE for the purchase of Painting and Sculpture equipment. Most of the equipment, which have been fully audited by the Audit Department of the NCTE are in use at the Department.

## **ON-GOING RESEARCH ACTIVITIES**

Mr. F. A. Anim is researching on “Reconstruction of Cultural Memory of the Fourth Republic of Ghana”; and “Grid – How effective it is, vis-à-vis eye balling for capturing resemblance in relief clay statue”.

Mr. E. O. Bonsoo is working on a research to establish database for carvable rocks such as basalt, serpentine, sandstone, soapstone, white, black and brown granite in Ghana. This is meant to promote the popularity of stone carving in Ghana.

Other ongoing research works by Mr. E. O. Bonsoo are “Refractory material for casting sculpture pieces in metal using fine white sand and plaster of Paris”; “Soapstone and serpentine stone powders for plastering and modelling material for sculpture”; and “Soapstone dust as pigment for painting”.

## **STAFF ACTIVITIES**

Dr. Prof. Richmond Teye Ackam served as Resource Person for the University of California Education Abroad Programme and School for International Training of Vermont, USA, Study Abroad Programme.

Mr. K. B. Kissiedu continues to serve as an External Examiner for Makerere University, Kampala, Uganda.

Dr. Mantey Jectey-Nyarko continues to be the National President of the Ghana Art Teachers Association.

Dr. Godfred Annum continues to render part-time teaching services to the Department of Medical Education at the School of Medical Sciences at the University of Cape Coast. He held the first ever Digital Painting exhibition by a Ghanaian on the theme “Inspiring the Ghanaian amateur & professional painters for explorative adventure in computer artistry”. It was held at the Alliance Française, Kumasi, in 2014.

He also presented a paper on the topic “Fundamentals of Digital Painting” during the 2014 Ghana Art Teachers Association Annual Students Conference in Kumasi.

Dr. Dorothy Akpene Amenuke participated in Handmade Paper making Workshop organised for the Industrial Art Department of Bolgatanga Polytechnic held from 18<sup>th</sup> – 22<sup>nd</sup> November 2013, where she collaborated with Professor Mary Hark of the University of Wisconsin – Madison.

She also participated in Project 1975 which is a two-year program exploring the relationship between Contemporary Art and Post Coloniality by Stedelijk Bureau Amsterdam (SMBA) and also took part in “Fusion” exhibition which is a group exhibition of artists in academia, exploring, and discussing contemporary artistic practices and building connections between themselves and the general public towards a sustainable development of art in Ghana.

Mr. Kwabena Afriyie Poku illustrated “Once Upon a Time in Ghana” in a book authored by Ms. Cottrell and Agbotadua Kumassah which is a CABA award winner. A book that has been named 2014 Best Book for Older Readers by the Children’s Africana Book Awards Committee.

He also participated in the Japanese Cultural Festival as a Technical Head, organised by the Japanese Embassy under the leadership of His Excellency Mr. Nikai Naoto, Japanese Ambassador to Ghana, to stage an exhibition of karate forms and movements on 16<sup>th</sup> November, 2013.

Mr. Kwabena Afriyie Poku was a member of the organisers, head of technical team and head of referee panel for the first Japanese Ambassador Karate Championships held at the Sports Hall of the National Sports Authority in Accra on 17<sup>th</sup> November 2013.

He is currently the instructor of the KNUST Karate Club. He trained students to stage performance of fine blend of Karate styles during the durbars of the Unity and Africa Hall Week Celebrations respectively. In February 2014, Mr. Kwabena Afriyie Poku and Dr. Tamakloe of the Physics Department successfully got the three most popular forms of Martial Art practiced in Ghana, and recognised by the Ministry of Youth and Sports and the National Sports Authority: Judo, Karate and Taekwondo were duly registered under the KNUST Sports Directorate. Mr. Poku oversees the Judo and Karate whiles Dr. Tamakloe oversees the Taekwondo.

### **CONFERENCE ATTENDANCE/ EXHIBITIONS**

Dr. M. Jectey-Nyarko attended the National Conference for Visual Art Students and Teachers in Ghana in February, 2013.

Mr E. K. Bodjawah attended the 1<sup>st</sup> International Conference on Oil and Gas organised by CASS from August 28-31, 2013 in Kumasi, Ghana and the 3<sup>rd</sup> International Conference of

Design, Development and Research” from July 18-20, 2013 in Kumasi, Ghana. Mr. Bodjawah also participated in the 11<sup>th</sup> World Cultural Art Symposium on the theme “Cultural Art and Peace in between Man and Mother Nature”, organized by Mosan Art Museum and Gaehwa Art Park from September 25-October 20, 2013 in Boryeong City, South Korea.

Dr. Dorothy Amenuke participated in the “How Far How Near” in “Project 1975, - Contemporary Art and Post Colonial Unconscious”, in January, 2014 at Stedelijk Museum, Amsterdam.

Dr. Godfred Annum attended the Design Development and Research Conference 2013 at KNUST, Kumasi, Ghana.

Ibrahim Mahama Mohammed, MFA student of the Department held the following public exhibitions between October 2013 and May 2014 at “Charcoal sacks over objects” at Nima, Kawokudi, Mallam Atta Market, Adum, Central Market, and KNUST Museum. The other exhibitions were the Pangaea Exhibitions: New art from Africa and Latin America; Group Show at the Saatchi Gallery London, 2<sup>nd</sup> April-31<sup>st</sup> April 2014; and Masked and unmasked Group Show, Dakar, May, 2014.

## **PUBLICATIONS**

Papers presented at conferences and publications made out of research by academic staff can be found in the University’s Quality Assurance Bulletin

## **DEPARTMENT OF PUBLISHING STUDIES**

### **INTRODUCTION**

The Department of publishing Studies provides education, research and training and other services in Authorship, Editing, Publishing and Printing Management, Publication Design and Illustration, Book Marketing, Publicity, Sales and Rights and Electronic Publishing.

The Department also focuses on imparting a high sense of moral uprightness into students through a strong student –lecturer relationship and efficient monitoring and evaluation system. Alongside developing subject specifications, the students acquire other skills like teamwork, problem solving and communication, all valuable for the student’s future profession and personal life.

### **STAFFING**

The Department has competent teaching staff with varied expertise and research interest in books and literacy development, publication illustration and design, editorial practices and publishing and print management. The Department still faces the challenge of inadequate lecturers, hence, need lecturers to handle areas such as colour management, editorial practices and theory.

## **ACADEMIC PROGRAMMES**

### **Undergraduate Regular**

The Department of Publishing Studies offers a 4-year undergraduate programme leading to Bachelor of Art in Publishing Studies with specialization in Publishing Administration, Printing Technology and Design and Illustration

### **Undergraduate Parallel**

The Department commenced a Parallel programme in the 2012/2013 Academic year. The decision to introduce the programme became necessary when a large number of **qualified** applicants could not gain admission to the programme because they did not meet the cutoff grade. The department admitted its first batch of 79 students on the Parallel Programme for the academic year. The second batch of students admitted in the 2013/2014 academic year are 114.

The Parallel Programme since introduction in the department has indeed proved to be an innovative approach to converting the challenges of massification into opportunities for expanding access to qualified students who are prepared to finance their education at the university.

### **Postgraduate Programme**

The Department currently runs a two-year Masters programme in Publishing. The Master of Publishing is the only postgraduate programme being run to educate and train students in the Sub-Saharan region. We are glad as a department to record that, our first set of students will be graduating this year.

### **LOCAL AND INTERNATIONAL COLLABORATION**

The Department is in the process of signing an MOU that fosters international collaboration relationship with Stanford University (USA), Simon Fraser University (Canada), and University of British Columbia (Canada) with the goal of developing and mounting Online Programmes in Publishing. The Online Publishing Programmes intend to support Scholarly Publishing activities in developing economies, particularly Africa.

The Department is in the process of establishing a collaboration with Print Promotion, Germany, an organization that organizes specialist teacher training courses in the field of printing and paper converting. This collaboration will enable a senior member of the department to participate in an annual specialist teacher training programme. A member has been invited for this year's training programme.

### **PUBLICATIONS**

In the year under review, three (3) publications came out of research conducted by academic members of staff. (Please refer to Quality Assurance Bulletin for details).

## **FACULTY OF SOCIAL SCIENCES**

### **INTRODUCTION**

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;

Mr. Joseph Appiah-Nkrumah	-	(Dean of the Faculty)
Dr. Charles O. Marfo	-	(Vice Dean)
Mr. Felix Asante	-	(Faculty Examinations Officer)
Mr. Kweku Appiah-Badu	-	(Assistant Registrar)
Ms. Cecilia Addison	-	(Senior Administrative Assistant)
Mr. Seth A. Grechie	-	(Senior Accounting Assistant)
Monica Duah	-	(Accounting Assistant)
Mr. Abraham Donkoh	-	(Assistant Librarian)

## **PROGRAMMES**

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 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 our Part-Time/Parallel programmes.

## **Postgraduate Programmes**

With the exception of History and 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, Ph.D French, MA/M.Phil Sociology, M.Phil English, Ph.D English, MSc/Mphil/PhD Economics, Ph.D 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.

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## **DONATIONS/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 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.

## **DEPARTMENT OF ENGLISH**

### **INTRODUCTION**

This department reports that things were not smooth-sailing in the 2013/2014 academic year. We diligently reviewed our undergraduate programmes and swiftly put in place our design to help non-English speaking students to acquire working knowledge of the English language. We trudged on, hoping the University would increase its support to the department in the subsequent academic years.

### **IMPLEMENTATION OF NEW ACADEMIC PROGRAMMES**

We keep reviewing our academic programmes to meet societal needs. Now our focus has been to bridge the gap between the study of Literature and Language. Consequently, certain courses have been introduced to meet the needs of those who are interested in the study of the English Language. Dr. Esther Serwaa Afreh is assiduously working to sustain this. Indeed, but for the urgent need for her to take advantage of a fellowship award the language studies at the Mphil Level would have taken off in the 2013/14 academic year. Happily she is back and it is the hope of the department that students would have the opportunity to study the English Language at the highest level. The snag however is that unless the University assists the department to rope in experienced experts from sister Universities, even if on part-time basis, we would be seriously handicapped.

### **UNTIMELY DEATH**

Death has visited our department and we choose to call it untimely because it looked much like Christopher Okigbo's "match-flare in the wind." We inform you formally about this sad matter. But we take advantage to draw attention to the dire situation in which we are in regard to the dearth of qualified staff. Our numbers are dwindling. Prof S.K. Okleme is gone; two senior

members are moving into the part-time zone; we have lost Michelle Debrah to the University of Education, Winneba and Kofi Agyei to Fiapre. Mr. Vayra Goka has been teaching as a Graduate Assistant but has remained unremunerated since September 2013.

### **ENGLISH FOR NON-ENGLISH SPEAKING PEOPLE**

This programme is now effectively in place. The department is ready for such international applicants. In the last academic year we handled two students, one from the Republic of Benin and the other from the Republic of Cote D'voire. The one from Benin improved so rapidly that he is now in the College of Science and apparently doing well. Happily, we are in consultation with the College of Agriculture to handle some fifteen or more students from the Republic of Mali. This department can deliver, if honestly supported.

### **DEVELOPMENT**

Our focus is also on staff welfare. We are now occupying a place previously occupied by the Department of Mathematics. Obviously this would necessitate changes. Thus, we are currently tiling our offices and effort is being made to air-condition those offices. We would also tile our already air-conditioned conference room which can serve other departments "free of charge."

### **FURTHER RESEARCH AND STUDIES**

We have great difficulty in regard to the above. However, our senior members have remained resolute. Dr. Peter Arthur has obtained his doctorate degree from the University of Birmingham. Dr. Esther Serwaa Afreh has completed her fellowship assignment following her winning of the best doctoral dissertation in 2012 while two lecturers and a graduate assistant are vigorously studying at the PhD Level.

We also proudly state that in the year under review, some publications emanated from our department and these can be found in the University's Quality Assurance Bulletin for the year under review.

## **DEPARTMENT OF ECONOMICS**

### **INTRODUCTION**

The Department of Economics is one of the seven departments of the Faculty of Social Sciences. The Department continues to offer undergraduate program, BA Economics, as well as graduate programs, MPhil Economics and PhD Economics. In addition, the Department teaches Economics courses to students in various programs in the University both at the undergraduate and graduate levels.

### **TEACHING AND SUPERVISION**

Despite the serious under staffing problem faced by the Department, it continues to teach all Economics courses needed for BA Economics and MPhil Economics programs in addition to supervising several undergraduate projects, MPhil, and PhD theses. In the current academic year the staff supervised forty (40) undergraduate level project works and twenty eight (28) new MPhil theses. Twelve (12) MPhil theses were defended early enough to enable the students to finish their program within two academic years. All this is made possible as a result of the hard work of the staff.

## **NEW EVENTS**

### ***The MSc Economics Program***

The department is introducing a one year fee paying Masters program: MSc Economics, MSc Economics (Energy and Resource Economics), and MSc Economics (Money, Banking and Finance). The program will be offered in both the Kumasi and Accra campuses of KNUST. While courses will be taught at weekday evenings and Saturdays in Kumasi, those in Accra will be taught on weekends only.

### ***Website for the Department***

The department now has a website that makes communication of the department's programs to the world possible.

### ***Job Fair***

To help address the high graduate unemployment problem, the department organized a job fair during the week of Economics students Association. It was well attended by potential employees in industry. The theme of the job fair: Linking Academia and Industry

## **RESEARCH GRANT**

Two members of the department were part of a research team that won a research grant of US\$33,500.00 on 'Counting Women's work in Ghana'

## **VISITING SCHOLAR**

One member, Dr. George Adu was invited by the University of the Witwatersrand in Johannesburg, South Africa as a visiting scholar to do research for three months, from May to July 2014.

## **STAFF STRENGTH**

The department has an academic staff strength of twelve (12) made up of one (1) Associate Professor, five (5) Senior Lecturers and six (6) Lecturers.

Efforts are being made to increase the staff strength so the staff strength is expected to increase in the next academic year.

## **CONFERENCES/WORKSHOPS**

In the year under review members of staff attended conferences/workshops locally and internationally. These are:

**Dr. (Sr.) Eugenia Amporfu**, Third International Conference of the African Health Economics and Policy Association, March 11-13, 2014, Nairobi, Kenya

Dr. (Sr.) Eugenia Amporfu, Universal Health Coverage Conference by the Ghana National Health Insurance Authority, 4 – 5, November, 2013, Accra, Ghana

Dr. (Sr.) Eugenia Amporfu, 9th World Congress on Health Economics - Sydney, Australia - July 7-10, 2013

Dr. (Sr.) Eugenia Amporfu, 9<sup>th</sup> Meeting of the Working Group of the Macroeconomic Aspects of Intergenerational Transfers, June 3 – 8, 2014, Barcelona, Spain



**Mr. J. D Quartey**, Development and Mitigation Forum, January 27-29, 2014, Cape Town, South Africa

Mr. J. D. Quartey, Conference on 'engineering Education for Sustainable Development, September 22—25, 2013, Cambridge, UK

**Dr. Daniel Sakyi**, 9<sup>th</sup> Meeting of the Working Group of the Macroeconomic Aspects of Intergenerational Transfers, June 3 – 8, 2014

## **WORKSHOPS**

**Dr. (Sr.) Eugenia Amporfu**, Counting Women's Work Africa Training workshop, May 11 – 17, 2014, Cape Town, South Africa

**Dr. Daniel Sakyi**, Counting Women's Work Africa Training workshop, May 11 – 17, 2014, Cape Town, South Africa.

**Dr. Anthony Osei-Fosu**, Presenter at a workshop on Assessment of Impact of Small Scale Mining Activity on the Economy of Ghana, organized by University of Michigan in Accra, April 28 – 31, 2014.

**Mr. Eric Oteng-Abayie**, Econometrics Summer School at the Department of Economics, Clare College in the University of Cambridge, UK, July 26 – 28, 2013.

## **SERVICE TO COMMUNITY**

**Prof. Ohene-Manu** External Examiner/Moderator to Central University College, Accra

**Mr. J. Appiah Nkrumah**, Chief Examiner, West African Examination Council, Ghana; Examiner/Moderator in Economics for the Institute of Chartered Accountants (ICAG)

**Mrs. G. Ofori-Abebrese**, Moderator in Economics, West African Examination Council, Ghana; represented the chief examiner in Lagos, Nigeria.

**Dr. (Sr.) Eugenia Amporfu**, Research manager, African Health Economics and Policy Association.

**Dr. Daniel Sakyi**, Coordinator of the new MSc Economics program for the department; Manager and builder of the department's website.

**Dr. George Adu**, Coordinator of seminars at the department of Economics

**Dr. Hadrat Yusif**, Examination officer for the department of Economics; Chairman of the Departmental conference committee.

## **PUBLICATIONS**

Publications from the department more than doubled in the 2013/2014 academic year. This is at least partly due to new motivation to staff. Please find details in the University's Quality Assurance Bulletin for the year under review.\

# **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 Art 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 fifteen(15) full time lecturers and three (3)

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 wider range of courses from Geomorphology, Climatology and Biogeography, Cartography to Mapwork. It also offers courses in Gender and Population Studies, Decentralisation and Rural Development, Geography of Tourism and Transportation. Courses on the multi-disciplinary Culture and Tourism Programme include Transport and Tourism, Events Management, Ethics and Etiquettes, 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 is reviewing all current programmes on offer and designing 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.

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 and one (1) Senior 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 Nkwanta North District' has been slated for July 2014.

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.

About eight (8) students passed their viva voce and graduated with Master of Philosophy and Doctor of Philosophy degrees during the 2012/2013 November graduation. The Departmental Graduate Seminar series which comes off every fortnight could not come on due to on-going renovation works at the time. However, graduate students and a few senior members benefited from a Weekly Workshop on Practical GPS and GIS proficiency course delivered from February to April 2014.

### **FOREIGN COLLABORATIVE/PARTNERSHIPS**

Our active international linkages remain with the following foreign Universities: The Department of Geography, University of California, Fresno in the USA and the 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.

### **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 is in the process. It is our expectation that all these investments would create the congenial environment conducive for enhanced teaching and research which should translate into improved quality publications which is an important ingredient for the promotion of senior members.

### **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 during

the 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 the status quo in the years ahead, and to position itself as one of the dynamic and progressive departments in the Faculty of Social Sciences, the College of Art and Social Sciences and in the University at large.

## **SERVICE TO THE COMMUNITY**

### **DR. ALEXANDER YAO SEGBEFIA**

#### **Service**

- Head, Department of Geography and Rural Development, August 2013 to Date.
- Member, Ghana Geographical Association (GGA)
- Executive Member, KNUST Senior High School PTA, 2011 to Date

### **MR. KWADWO AFRIYIE**

#### **Service**

- Member, Ghana Geographical Association (GGA)
- Coordinator, Culture and Tourism Programme, February 2012 to Date.

### **FELIX ASANTE**

#### **Services**

- Executive member (KNUST Representative), Ghana Geographical Association (GGA)
- Faculty Examinations Officer, Faculty of Social Sciences, KNUST

### **MR KABILA ABASS**

#### **Service**

- Member, Ghana Geographical Association (GGA)
- Patron, Geography Students Association, KNUST
- Coordinator, Institute of Distant Learning (Sociology and Social Work)

### **DR. (MRS.) CHARLOTTE MONICA MENSAH**

#### **Services**

- 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)

### **MR. DIVINE ODAME APPIAH**

#### **Service**

- Fellow, the Energy Center, KNUST
- Member, Ghana Geographical Association (GGA)
- Chairman, Odum Methodist Church Co-operative Credit Union, Kumasi

### **MS. LAWRENCIA POKUAH-NIMO**

#### **Service**

- Member, Ghana Geographical Association (GGA)

**MR. EMMANUEL KOFI GARSONU**

**Service**

- Member, American Congress on Surveying and Mapping
- Member, British Cartographic Society

**DR. DACOSTA AKWASI ABOAGYE**

**Service**

- Member, American Association of Geographers (Student Member)

**DR. PRINCE OSEI-WUSU ADJEI**

**Service**

- Member, Ghana Geographical Association (GGA)

**DR. SETH AGYEMANG**

**Service**

- Member, Ghana Geographical Association (GGA)

**MR. FOSTER FREMPONG**

**Service**

- Member, American Association of Geographical
- Member, Ghana Geographical Association

**DR. GABRIEL ESHUN**

**Services**

- Member, Ghana Geographical Association, (GGA)

**DR (MRS) EVA TAGOE-DARKO (on Post Retirement Contract)**

**Services**

- President, Ghana Geographical Association (GGA) 2011 to Date

**MR. JOSEPH KOOMSON (PART-TIME LECTURER on Post retirement contract)**

**Services**

- Ghana Geographical Association – First Vice President, August, 2009 to Date
- Member of the Governing Board, Wesley Senior High School, Konongo

**MR. HENRY ASARE-BAAH (PART-TIME LECTURER)**

**Services**

- Founding Member of Afro Jazz Ensemble, Western Region, Ghana
- Association Director of Music, Abibigromma Theatre Company, School of Performing Arts, University of Ghana, Legon.

**PUBLICATIONS/CONFERENCES**

During the year under review, academic members of staff published sixteen articles in refereed journals. These can be found in the University's Quality Assurance for the year under review.

Besides these articles, some faculty members presented papers at various conferences.

## **DEPARTMENT OF HISTORY AND POLITICAL STUDIES**

### **INTRODUCTION**

The Department of History and Political Studies in the Faculty of Social Sciences, College of Art and Social Sciences, KNUST, organized a series of activities and hosted a few visitors in the course of the year under review.

The Department runs two undergraduate programs at present. These are:

1. B.A. Political Studies and
2. B.A. History

### **GRADUATE PROGRAMS**

The Department is poised to introduce an Mphil and MPA programs in Political Science this year, to be followed by a PhD program in Political Science next year.

The History section will introduce programs in Mphil and PhD next year.

The Department is in talks with the Ghana Police Service to allow police personnel to undertake degree courses in Political Science. Another initiative with the Ghana Police Service is for the Department to design and teach police personnel in the areas of human rights and constitutionalism. This initiative has engendered initial funding support from some international agencies. We hope to finalize work in this area by the end of the year.

### **STAFF MOVEMENTS**

Mr. Mohammed Abass has been granted study leave to pursue a PhD in Planning. The study leave will start at the beginning of the 2014/2015 academic year.

Dr. W. J. Donkoh just returned from the African Studies Association conference in Austin, Texas.

Mr. Kwasi Amakye-Boateng was also granted a three year study leave to undertake his PhD at the University of Ghana. He has asked for a one year extension for his studies.

Professor Charles Adom Boateng joined the Department on sabbatical leave from Kean University in New Jersey from January to the end of May. His arrival was timely as he eased the teaching load of many in the Department.

Dr. Bob-Milliar has been appointed Visiting Research Fellow to the Makere Institute of Social Research in Uganda from May 16<sup>th</sup> to August 15<sup>th</sup>, 2014.

### **RESEARCH ACTIVITIES**

Senior members in the Department undertook various research activities that strengthened their teaching and also provided information for the general public. Some of the research activities have already led to publications which are listed in the University's Quality Assurance Bulletin.

## **CONCLUSION**

The 2013/2014 academic year was a fruitful year for the Department.

## **DEPARTMENT OF MODERN LANGUAGES**

### **INTRODUCTION**

The Department of Modern Languages has 2 sections: French and Akan. The Department aims to achieve excellence in teaching and research and has an immense responsibility as the only Department that teaches French to a good number of students in the Faculty of Social Sciences and to 10 departments in the College of Engineering and 10 departments in the College of Science. Other departments including Publishing, Culture and Tourism, the School of Business, Disability and Rehabilitation also benefit from our French for Communication and French for Specific Purposes courses.

### **STAFF STRENGTH**

The Department of Modern Languages has thirty- three (33) members of staff made up of one (1) Professor, one (1) Associate Professor, one (1) Senior Lecturer, six (6) Full-Time Lecturers, two (2) Part-time Lecturers, six (6) Assistant lecturers, (2) Graduate Assistants, one (1) Lecturer on Study Leave, one (1) Visiting French coordinator, eleven (11) National Service personnel and one (1) Administrative Assistant.

### **STAFF DEVELOPMENT/RECRUITMENT**

Four Assistant Lecturers, two for French and two for Akan, were recruited this academic year. The Department has met with the France Volontaires outfit in Ghana for assistance to help ease the problem of heavy teaching load at the department. They have established the contact with “la Guilde du Raid” Association in France. Two Volunteers might come next August on a 12 month mission if the arrangements are finalized.

### **PROGRAMMES OFFERED: UNDERGRADUATE & POST-GRADUATE PROGRAMMES**

The department offers BA, MPhil and PhD programmes in French and the BA programme in Akan.

### **POST-GRADUATE PROGRAMMES IN FRENCH**

Having taught the MPhil (French) programme for several years, the Department has come to the realization that there is the need for amendments of the existing courses and the introduction of new courses to meet the demands of modern society.

These changes are principally motivated by the need to orientate courses to satisfy job markets and towards the developmental needs of Ghana, Africa and the world at large. This is in line with the vision of the University as couched in the Corporate Strategic Plan 2005-2014 (PLAN2K14): “advancing knowledge in science and technology for sustainable development in Africa”.

The areas of specialization are MPhil: French Translation and Interpreting, French Literature and Society, French Linguistics, Teaching of French as a Foreign Language, French for Specific Purposes. All the courses focus on opportunities in the following areas: Foreign Affairs, Science

& Technology (Medicine, Engineering, Environment, etc.), Education, Customs, Excise & Preventive Services, Immigration, Corporate Bodies & International Financial Institutions (Banks, Insurance Companies etc.), NGO's, Language Bureaus in and outside Ghana, jobs within ECOWAS, Africa & UN at large.

### **PHD FRENCH**

The areas of specialization are PhD: French Translation and Interpreting, French Literature and Society, French Linguistics and Teaching of French as a Foreign Language/French for Specific Purposes.

### **OTHER PROGRAMMES: CHINESE**

The Confucius Institute of China with headquarters, HANBAN, in collaboration with the Chinese Embassy in Ghana posted Ms. Zhou Song as a Chinese teacher to KNUST this year. Ms. Zhou Song comes from Harbin Financial University of China and has been teaching Basic Chinese. Part of her mandate is also to promote cultural exchange and mutual understanding between the two universities and countries. The objectives of the Department are to train students:

- a) To enable them understand and appreciate other cultures besides the already known ones.
- b) To be able to speak and write in order to fluently communicate in Chinese.
- c) To be more competitive for the job market both locally and internationally.

Plans are underway to establish a Confucius Institute at KNUST. The scope of activities of the institute will include teaching Chinese language and providing Chinese language teaching resources; training Chinese language instructors; holding the HSK examination (Chinese Proficiency Test) and tests for the Certification of the Chinese Language Teachers; providing information and consultative services concerning China's education, culture, etc., and conducting language and cultural exchange activities.

The Headquarters of the Institute will make available teaching materials, audio-visual materials, etc., 3,000 volumes of Chinese books in the first instance and also provide \$150,000 start-up fund and a set amount of annual funding according to needs.

### **VISITING STUDENTS**

The Department occasionally welcomes foreign students visiting the country for the first time. At their request, the department takes them through intensive courses on the Basics of Twi Conversation, Courses on Akan Culture as well as organizing cultural tours & activities. Specialized courses are also organized for those who have already taken Twi courses. This year the department welcomed 2 groups: students from the Savannah State University and students on a Study Tour from the Michigan University. We collaborate with the International Programmes Office in the orientation of study abroad students. Foreign students are introduced to the Akan Language (Twi) and its Culture.

### **STUDENT STATISTICS**

The Department has witnessed an increasing trend in student enrollment over the years in the BA, MPhil and PhD programmes in French and the BA in Akan. Student numbers for the



2013/2014 Academic Year are as follows:

**BA FRENCH**

YEAR ONE	Major and Minor	198
YEAR TWO	Major and Minor	189
YEAR THREE	Major	55
YEAR FOUR	Major	54

**TOTAL**

**496**

**MPHIL FRENCH**

**22**

**PHD FRENCH**

**11**

**BA AKAN**

YEAR ONE	Major and Minor	69
YEAR TWO	Major and Minor	75
YEAR THREE	Major	35
YEAR FOUR	Major	48

**TOTAL**

**227**

**YEAR ABROAD**

The one year abroad component of the BA French programme is an indispensable aspect of our training and has continued to occupy a central part in our policy. With the help of the Scholarships Secretariat this year, a group of 54 students were sent to the *Centre Béninois des Langues Etrangères* (CEBELAI) at the Université Abomey-Calavy, Cotonou, Benin. Candidates could not be sent to the *Centre International de Recherche et d'Etude de Langues (CIREL)*, Village du Benin in Lomé, Togo, due to the Scholarships Secretariat's unwillingness to bear the cost involved in sending students to Togo.

Arrangements have been made to resume sending some of our students to France from the next academic 2014/2015. Working in collaboration with Campus France, participants will have the possibility of going through modern language immersion programmes, among others, in France. There are 5 universities to which students can apply and for which Campus France can secure an accommodation. The institutions are the Université de Bordeaux 3, Université de Poitiers, Université d'Orléans, Université de Nancy and Université de Lille 3 Charles de Gaulle.

## **SERVICE COURSES**

The Department continues to provide Service Courses in French for Communication to other colleges and schools. This year a total number of one thousand eight hundred and thirty-two (1832) students enrolled as beginners and ninety-eight (98) students took intermediate courses. The breakdown of students enrolled is as follows:

- (a) Beginners - College of Engineering (453), College of Science (701), Publishing (25), Culture and Tourism (200), Business Administration (430), Disability and Rehabilitation (20), Pharmacy (3).
- (b) Intermediate - Publishing (13), Physics (60), Metrology & Climate (25).

## **LA MAISON FRANÇAISE**

La Maison Française houses the Department's state of the art language laboratory and the French Resource Centre. The language lab activity is compulsory for first year students in the Practising French class. The French Embassy provided 5 additional computers to the existing ones to meet the increasing student demand. At a meeting of the Steering Committee of the Maison Française in February 2014, the Embassy promised an allocation of five thousand Euros (5,000.00€) equivalent in Ghana cedis. I say a big thank you, ab imo pectore, to the Embassy for their support.

## **CULTURAL ACTIVITIES**

French movies, with English subtitles, are screened every Monday at the Maison Française. Two debates took place at the language lab. They were organized by the French Students Association (FRENESA) and the Maison Française awarded prizes to the winning team. Ashfoam sponsored the programme and provided the prizes.

The Francophonie Week, also sponsored by Ashfoam, took place from 15th March - 22<sup>nd</sup> March and was organized by the Maison Française, FRENESA, Alliance Française and the Francophone Students Association. Two students who represented KNUST at the national Francotonic Quiz Competition in Accra placed third.

On April 5<sup>th</sup> Maison Française organized the first international contest "les timbrés de l'orthographe" thanks to the Alliance Française. Thirteen students participated in the spelling and dictation contest.

## **AWARDS**

- Dr. Kofi Adu Manyah received a Travel Assistance Award of five hundred US dollars from the National Science Foundation grant for his presentation at the 45th Annual Conference on African Linguistics (ACAL 45) which took place at the University of Kansas, USA, in April 2014. The award was offered due to the merit of the research presented at the conference. The abstracts for his paper (ATR Vowel Harmony and Vowel Quality: Are They Related?) were among the top-rated abstracts received this year.
- Dr. Charles Ofosu Marfo won a DAAD Visiting Assistant Professorship at Potsdam in Germany. He will be away for a year at the Institute of English and American Studies, University of Potsdam.

## **PHD THESIS DEFENCE**

Mr. Melvin Nartey defended a PhD Thesis in French Literature (Francophone Africa) on the topic: *La spécificité artistique de Boubacar Boris Diop dans le temps de tamango, les tambours de la mémoire, et les traces de la meute*. The thesis was supervised by Professor K. Opoku Agyeman.

## **VISITORS TO THE DEPARTMENT**

The French Ambassador to Ghana, Monsieur Frédéric Clavier, paid a courtesy call on the Vice Chancellor. The visit was to discuss planned programs of mutual benefit to help strengthen the relationship between the French Embassy and KNUST. The Ambassador and his team, including Monsieur Paulo Pais, Head of Cooperation and Cultural Service, also visited the Maison Française. The Ambassador explained that 2014 was a packed year as far as the relationship between France and the universities in Ghana was concerned. He also hinted that there were plans by the French government to facilitate the movement of qualified teachers from Francophone West African countries into Ghana to help solve the chronic problem of lack of French teachers in the country.

## **SERVICE TO COMMUNITY**

### **In-service training for teachers**

On the 27<sup>th</sup> and 28<sup>th</sup> of March, 2014, the department organized in-service training for Basic Schools for thirty-one (31) French and Akan (Asante Twi) Teachers in the Kumasi Metropolitan area. The aim was to help enhance their students' performance in examinations. The topics addressed included: Making Language Teaching Interesting, Marking Students' work in accordance with the WAEC Marking Scheme and Some Grammatical Mistakes that Occur in the BECE. The Department will organize similar programmes for media practitioners on Language Usage.

### **Transbureau**

The Department continues to render translation and interpreting services. They involve documents in various domains: legal, economic, commercial, scientific, technological, cultural, literary, business, etc. Simultaneous interpretation was rendered to the target-language listeners at the 54th Scientific Conference of the West African College of Surgeons (WACS) that was held in Kumasi in February this year.

### **Enstoolment**

Professor Albert Owusu-Sarpong has been installed as Omanhene of Wenchi Traditional Area. His stool name is Osagyefo Ampem Anye Amoampong Tabrako II.

Mr. George Appiah has been installed as Gyaasehene of Anwiankwanta with the stool name Nana Barima Appiah Kubi I.

## **PUBLICATIONS/CONFERENCE ATTENDANCE**

During the year under review, some faculty members published papers in some peer reviewed journals details of which can be found in the University's Quality Assurance Bulletin.

Some faculty members also attended conferences at which they presented papers. These include:

- 6th Linguistics Association of Ghana Conference (LAG2013), University of Cape Coast, Ghana, July 28-31, 2013.
- International Conference on African Studies (*Revisiting the First International Congress of Africanists in a Globalised World*). University of Ghana, Legon, 24<sup>th</sup> – 26<sup>th</sup> October, 2013
- Akan Lexicon for Health Information Translation: The Translator's Ally UCC, Faculty of Arts Colloquium, 24-26 March, 2014.
- 45th Annual Conference on African Linguistics (ACAL 45), University of Kansas, USA, April 16-19, 2014.

## **CONCLUSION**

The Department of Modern Languages is working relentlessly to pursue the arduous task of training and equipping more students to meet the developmental demands of modern society especially satisfying job markets of Ghana, Africa and the world at large. In spite of the numerous challenges, the year has been fruitful and peaceful. We are determined to move the department to a higher status each passing year.

## **DEPARTMENT OF RELIGIOUS STUDIES**

The Department of Religious Studies, one of the newest Departments within the Faculty of Social Sciences, is growing steadily.

### **AIMS AND OBJECTIVES**

The Department equips students with requisite skills to identify problems of society and how to respond to them. It aims at exposing students to the religio-cultural dimensions of human development focusing attention on how norms of behavior are derived and applied. The department seeks to develop a systematic approach to religious and moral thinking and aims at introducing the major World Religions and the African Traditional Religions to students so as to foster in them a balance of thought and tolerance in respect of religious pluralism of the world. The Department further aims at critically examining faith and belief in the context of a world characterized with scientific modernity.

### **ACADEMIC STAFF**

The Department is staffed by sixteen (16) qualified persons who combine academic excellence with a strong sense of moral and religious commitment. Out of these (2) two are on contract and three (3) are part-time.

### **STUDENT POPULATION**

The Department has a total of 226 Students. The breakdown is as follows:

<b>UNDERGRADUATE</b>	<b>TOTAL</b>
YEAR 1	72
YEAR 2	42
YEAR 3	29

YEAR 4	36
<b>POST-GRADUATE</b>	
YEAR 1	15
WRITING UP STAGE	<u>32</u>
	<b>226</b>

The student lecturer ratio is 12:1

### **PUBLICATIONS/CONFERENCE ATTENDANCE**

In the year under review, some faculty members published papers in some peer reviewed journals, published chapters in books and also attended some conferences at which they presented papers. Details of these can be found in the University's Quality Assurance Bulletin.

The conferences included:

1. All Africa Conference of Churches Theological Institute, National Catholic Seminary, Ggaba, Uganda, May 26-June 9, 2013.
2. West African Association of Theological Institutions (WAATI) 40<sup>th</sup> Anniversary Celebrations and Conference, Great Hall Conference Room, KNUST, August 5-9, 2013.
3. 1<sup>st</sup> CASS International Conference on Emerging Oil and Gas industry in Ghana, International Centre for Innovative Learning, FANR, KNUST, August 28-31, 2013.
4. Centre for African and Cultural Studies Intercultural Dialogue Conference, KNUST, October 22-23, 2013
5. Annual Conference of the Ghana Association of Biblical Exegetes, Christian Village, Kumasi, January 20 to 25, 2014
6. 1<sup>st</sup> International Conference on the Bible, Cultural Identity and Missions, Valley View University, Oyibi, April 7 to 11, 2014
7. International Conference on Emerging Trends for Sustainable Development and Human Capacity Building in the Third World Nations, J.H.K. Nketia Conference Hall, The Institute of African Studies, University of Ghana, Legon, May 28-31, 2014.

## **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 (evenings). With the current student population of One Thousand Eight Hundred and Fifty (1850), the Department is one of the largest in the University.

## **GRADUATE PROGRAMMES**

The Department currently runs two postgraduate programmes in Sociology at M.A. and MPhil levels. The MPhil was introduced in the 2012/2013 academic year. The total number of postgraduate students currently stands at Twenty Eight (28) for both programmes.

The Department is submitting proposals for consideration by the School of Graduate Studies to offer 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**

The Department's Sociology and Social Work Students Association made donations of various consumable items to the Kumasi Children's Home on 1<sup>st</sup> February, 2014 during the Sociology and Social Work Association Week Celebration.

A member of the Department, Dr. Francess Dufie Azumah presented some relief items such tents and chairs to the DOVSU unit in the Kumasi Regional Police Headquarters in July, 2014. She also organized the National Women's Day on 8<sup>th</sup> April, 2014 to honour all female teaching staff who have served in the University for more than eight years.

Professor Emeritus Godwin Kwaku Nukunya, renowned anthropologist from the University of Ghana, Legon was invited to give a lecture on 'the role of the Sociologist and Social Worker in the 21<sup>st</sup> century' on 5<sup>th</sup> February, 2014.

## **SERVICE COURSES**

The Department continues to offer service lectures at Colleges, Faculties and Departments such as College of Health, Biological Sciences, Optometry, Horticulture, Publishing Studies, Geography and Rural Development and well as Integrated Rural Art & Industry.

## **ACADEMIC STAFF IN THE DEPARTMENT**

The department has fourteen full time academic members of staff. In addition to these it also has one (1) part-time lecturer and two (2) service lecturers from the Institute of Distance Learning.

## **SUPPORTING STAFF**

Academic members of staff in the department are supported by three (3) ancilliary workers made up one (1) Senior Administrative Assistant, one (1) Clerk and one (1) Head Cleaner.

## **COLLABORATION WITH OTHER UNIVERSITIES**

The Department is currently enjoying a collaborative relationship with the University of Utah, Salt Lake City, U.S.A. As part of the Department's collaboration with the College of Social Work, University of Utah, USA, two female students of the Department were awarded scholarships in 2011. They are currently pursuing their Masters Degree Programme in Social Work in the University of Utah and will graduate in June, 2014.

The Department has also initiated collaborations with other Universities such as Savannah State University, USA, University of Suny Geneseo, USA, University of Pennsylvania, USA,

University of Georgia and others. Efforts are being made to make these initiated collaborations a success.

### **INCOME GENERATION**

The Department is participating in the parallel B.A. Degree Programmes in the Faculty and Distance Learning Programmes.

### **PUBLICATIONS**

In the year under review, ten (10) publications were made by some faculty members in some peer reviewed journals. Details of these can be found in the University's Quality Assurance Bulletin.

### **CONFERENCES**

Some of the conferences attended by faculty members in the year under review included:

1. The 2013 Annual Meeting of the Population Association of America (PAA) in New Orleans, LA USA, April 10-13, 2013.
2. Emerging oil and gas industry in Ghana: Social Dimension conference. CASS – KNUST 28th – 30<sup>th</sup> August 2013.
3. International Journal of Arts and Sciences conference at the University of London, UK on November 3 -10, 2013

### **CHALLENGES**

The Department is one of the largest in the University but is faced with inadequate offices for teaching staff. As such lecturers have to share small cubicles which do not augur well for effective academic work, research and student project supervision. Some newly appointed lecturers do not have office spaces.

The Department also lacks bigger lecture rooms to contain the increasing number of student intake. Many students are forced to sit outside during lecture periods due to lack of space and lecturers sometimes have to move from one place to another in search of space when there is a crash at lecture rooms.

### **CONCLUSION**

In spite of these challenges, the Department is carrying out its duties with dedication. It is our hope that the above mentioned challenges would be solved to enable teaching staff to do their best to help students graduate and serve their community better.

# **FACULTY OF LAW**

## **INTRODUCTION**

The Faculty of Law is in its 11th year of existence and the 10th anniversary commemoration would climax in September this year with some special activities.

The Faculty continues to offer undergraduate degree programmes 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 also continues to admit students from jurisdictions other than Ghana with Nigerian students constituting the majority. For the 2013/2014 academic year, 6 (six) foreign students were admitted into the Faculty.

Students from the Faculty have been excelling at the Ghana School of Law. At the 2012 Enrolment and Call to the Bar of new lawyers, eight (8) out of thirteen (13) students who were awarded prices were from the KNUST Law Faculty. A team of students accompanied by a staff member from the Faculty participated in the 22nd All African Human Rights Moot Court Competition. The Competition was held at the University of Western Cape, South Africa, from 2nd to 7th September 2013, which was the Faculty's sixth appearance in an International Human Rights Moot Competition. The Faculty team had put up a splendid performance and adjudged one of the best out of 67 Law Faculties from Africa in terms of advocacy skills. The objective of the Moot Court Competition is to educate future African Lawyers on the African system of human rights protection. The Moot Court Competition equally offers an opportunity for exchange between African law faculties.

## **STAFFING**

### **Current staffing**

The Faculty of Law has very experienced academic and professional staff made up of eighteen (18) members. The staff consists of one (1) Full Professor, five (5) Adjunct professors, two (2) Senior Lecturers, nine (9) Lecturers, four (4) Assistant Lecturers, and three (3) Principal Research Assistants. Three more lecturers who are on study leave are expected to join the teaching staff for the next academic year. Five (5) lawyers and products of the KNUST Faculty of Law who were called to the Bar have been engaged as Teaching Assistants to support the teaching staff. With increase in the 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.

### **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. Stephen Sondem recently completed his PhD Programme at the University of Essex in the UK and rejoined the Faculty on 24 April 2014.



2. Mr. Ernest Owusu-Dapaa is pursuing his doctoral research at the University of Lancaster in England.
3. Mr. Richard Osei-Hwere is also pursuing PhD studies at Aberdeen University in Scotland.
4. Mr. Victor Chimbwanda will be commencing his doctoral research in London at the Institute of Advanced Legal Studies, School of Advanced Study, University of London in October this year.

### **ADMINISTRATIVE STAFF**

The Faculty administrative staff remain a dynamic and formidable team. The administrative team was recently complemented by a new Senior Administrative Assistant, Mrs. Gloria Gambrah, who was transferred at the beginning of this academic year from the Department of Bio-Chemistry to take over from Mrs. Doris Anim who left the Faculty on retirement after six years of dedicated service to the Faculty.

### **RECOGNITIONS AND AWARDS**

In recognition of his commitment to International Legal Education, the Dean has been re-elected to the Institute of Advanced Legal Study, London, as Senior Associate Research Fellow. He is also currently an elected member of the Council of University of Glasgow and a consultant on the laws of the South Pacific. The Dean also represents the KNUST Faculty of Law on the General Legal Council, the body responsible for legal education in Ghana.

### **10TH ANNIVERSARY CELEBRATIONS**

With the support of GIMPA Law School, KNUST Law Faculty successfully organised the Maiden Edition of *Georgina T. Wood Moot Court Competition* that took place on 28th February 2014 as part of the 10th Anniversary Celebrations of the establishment of the KNUST Law Faculty. The competition which is the first of its kind in Ghana, and for which Her Ladyship the Chief Justice had given her gracious blessing, was launched on 20th March, 2013 at the KNUST Law Students' Week Celebration which the Honourable Chief Justice attended. The competition is intended to bring the country's Law Faculties together for competitive mooting at the national level. It will subsequently be an annual event on the Ghanaian legal calendar. Participating law faculties in the Maiden Edition were the Kwame Nkrumah University of Science & Technology; the University of Ghana and GIMPA. The University of Cape Coast and the Mountcrest University College were unable to participate but attended the event as observers. The KNUST Faculty of Law mooters emerged as runners-up in the final round which was judged by Justices of the Supreme Court.

The Maiden Edition drew participants from the legal academia, the Ghana Bar, and Justices of the Supreme Court including: Justice S. Date-Bah, Justice N.S. Gbadgbe, and Justice Anin-Yeboah, who presided over the final round of the Competition and read the Chief Justice's speech. The Chief Justice was full of praise for the KNUST Law Faculty for instituting the first ever National Moot Court Competition and described it as "laudable initiative which is set to change the quality of legal training and education in the country."

As part of the 10th anniversary celebrations, a public lecture was held on 28 March, 2014. The speaker was an eminent retired Judge of the Supreme Court of Ghana, Justice S. A. Brobbey. He

spoke on the topic: “*Relevance of Chieftaincy Institution in the Democratic Governance and Sustainable Development*”. The patronage of the lecture by the University community was commendable.

### **DONATIONS**

The Lebanese business community in Ghana has awarded full scholarships to eight second-year students of the Faculty of law this academic year. The Scholarship package was presented to beneficiaries by the Lebanese Ambassador to Ghana, Mr. Ali Halabi, on behalf of the Lebanese business community. 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. The student-beneficiaries were selected based on their academic performance. The beneficiaries this year are: Ms. Araba Sikah Abaya, Ms. Gloria Amoah, Ms. Anita Osei, Ms. Henrietta Wontaga, Mr. Frederick Abu Bonsrah, Mr. Rockson Tabiri Boahen, Mr. Godfred Adjebeng and Mr. Nicholas Anane Adjei Lenin.

The Ghana Investment Fund for Electronic Communications (GIFEC) has donated Twenty (20) Computer Units accompanied with monitors, UPS, Servers and Net-pads to the Faculty to support the computer laboratory of Sir Arku Korsah Law Library. Donation of the items was facilitated by Justice S.N. Gbadegbe, a Justice of the Supreme Court. The computers are enhancing teaching, research and development of legal education in the Faculty since their installation.

### **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.

### **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 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.

### **STAFF RESEARCH ACCOMPLISHMENT**

A significant number of academic papers and textbooks have been published by senior members of the Faculty this academic year. Details of these can be found in the University's Quality Assurance Bulletin for the year under review.

## **KNUST SCHOOL OF BUSINESS (KSB)**

### **OVERVIEW OF THE SCHOOL**

The KNUST School of Business (KSB) was established in 2005 as an outgrowth of the 29-year old Department of Economics and Industrial management which began by offering a Post-graduate Diploma in Industrial Management, followed by an M.A. in Industrial Management and an MBA programmes since 2002. KSB has been established to fulfil the vision of KNUST to provide the environment for excellence in teaching, learning, and research in management and entrepreneurship in science and technology for the industrial and socio-economic development of Ghana and Africa. In effect, KSB seeks to attain global recognition as a centre of excellence in Africa for the development and the production of high calibre graduates with hands-on knowledge and expertise in management to support the industrial and socio-economic development of Ghana and Africa.

In order to attain its vision as a world-class School of business, KSB has the following as its thrusts: Integrating Business Courses into all University Programmes; Recruitment of Qualified, Experienced and Competent Staff; Excellence in Academic and Industry Research; Centre for Management Consulting and Business Research; Strong Links With The World Of Business, Government, and Society; International Partnerships: Strong Links With The World Of Learning; Developing The Leadership And Management Competencies Of Students; Professional Business Degree Programmes; A Modern Management Library; Modern ICT Resources; Performance & Quality Assurance.

The programmes of study available include:

- Full Time BSc & Masters in Business Administration
- Part-Time BSc & Masters in Business Administration, and
- Week-End Masters in Business Administration

The KNUST School of Business has five approved academic departments, the fifth, however, is not operational at the moment. The concentrations for Award of Bachelor of Science in Business Administration (BSc in Business Administration) and Master of Business Administration (MBA) degrees on offer at the various departments are as follows:

- I. The Department of Managerial Science:
  - a. BSc in Business Administration
    - i. Human Resource Management Option
    - ii. Management & Organisational Development Option
  - b. Master of Business Administration in:
    - i. Human Resource Management
    - ii. Management & Organisational Development
- II. Department of Accounting and Finance
  - a. BSc in Business Administration
    - i. Accounting Option
    - ii. Banking and Finance Option
  - b. Master of Business Administration in:
    - i. Accounting

- ii. Finance

III. Department of Marketing and Corporate Strategy

- a. BSc in Business Administration
  - i. Marketing Option
  - ii. International Business
- b. Master of Business Administration in:
  - i. Marketing
  - ii. Strategic Management and Consulting
  - iii. Entrepreneurial and Small Business Management

IV. Department of Information and Decision Science

- a. BSc in Business Administration
  - i. Business Information Technology Option
  - ii. Logistics and Supply Chain Management Option
  - iii. Procurement Management Option
- b. Master of Business Administration in:
  - i. Business Information Technology
  - ii. Logistics and Supply Chain Management
  - iii. Operations and Management Science

V. Department of Service Management

- a. Hospitality and Tourism Management

**ACTIVITIES OF THE SCHOOL IN GENERAL FOR 2013/14 ACADEMIC YEAR**  
**CONFERENCES ATTENDED**

The Dean, Prof. J.M Frimpong participated in the 16<sup>th</sup> Annual African Business Conference organized between 28<sup>th</sup> February and 2<sup>nd</sup> March 2014 at the Havard Business School in Boston, USA. The theme for the year was "Africa Accelerates: Equipping a Vibrant African Economy".

**SPECIAL RECOGNITION**

The Dean, Professor J.M. Frimpong has been nominated by the Board of Chartered Institute of Financial and Investment Analysts, Ghana to receive an award of Doctoral Fellow Membership to the institute at this year's Annual International Conference in Ontario, Canada.

**EDUCATIONAL TRIPS AND TOURS**

• **Educational trip to the United States of America**

Between the periods of 25<sup>th</sup> February to 9<sup>th</sup> March 2014, a group of MBA students of the KNUST School of Business led by Mr. Samuel Akomea, a lecturer at the Marketing Department travelled to the United States of America to partake in the Annual African Business Conference at Harvard University in Boston, USA.

The group also visited Delaware State University where they shared seminar platforms with the students of the host university on bilateral relations between Africa and America and on other relevant topics regarding business relations. They also visited the George Washington University where again they shared lecture sessions on relevant MBA topics in the students' respective specialization areas.

## **INFRASTRUCTURAL DEVELOPMENT**

### **Inauguration of an Ultra-Modern Auditorium**

Work on the Ultra-Modern Auditorium which began in May, 2011 was completed in October, 2012. The Auditorium was inaugurated on Wednesday, July 31, 2013 and has since then been used to host important programmes which include the following:

- 2013 RP Baffour Memorial Lectures which was delivered by Hon. Justice VCRAC Crabbe, an eminent Ghanaian Jurist, Former Supreme Court Judge and Consultant, Office of the Attorney General and Ministry of Justice, Republic of Ghana on the theme, “Thoughts on the 1992 Constitution”.
- Peristrofi World Honorary International Award Conference (PWHIAC)
- Night of Cultural Music and Display in honour of the Chancellor, Otumfuo Osei Tutu II during his 15<sup>th</sup> Anniversary of mounting the throne.

### **KNUST School of Business Students' Week**

The KNUST School of Business Students' Association launched and celebrated their Business Week in April, 2014. This is an annual event during which business students celebrate according to the theme of the week. This year's theme was: "Harnessing Graduate Employment Capacity Through Industry and Academic Collaboration: The role of the Alumni"

## **DEPARTMENT OF ACCOUNTING AND FINANCE**

Students from the Department of Accounting and Finance, KSB impressed the Institute of Chartered Accountants (Ghana) by sweeping most of the national prizes usually awarded to best candidates at their Graduation and Admission Ceremony. Some of the prizes won by KSB Accounting students include:

- Overall Best Candidate for Advanced Financial Reporting as well as for Advanced Taxation and Fiscal Policy at CA Part 4 Examinations
- Overall Best Candidate for First Attempt at CA Part 4 Examinations
- Overall Best Candidate for CA Part 4 Examinations, and
- Outstanding Female Candidate at Part 4 CA Examinations.

## **DEPARTMENT OF INFORMATION SYSTEMS AND DECISION SCIENCES**

The report covers the following areas:

1. Collaboration with Industry
2. Expansion of Academic Programmes
3. University Affiliation Activities
4. Staff Development Seminar
5. CIPS Accreditation
6. Collaboration/Mentorship of Polytechnics on MTech Programmes
7. Field Trips
8. Conference Attendance

### **COLLABORATION WITH INDUSTRY**

The Department has made contact with a number of companies in the industry to initiate collaborative efforts in the area of students' internship placements, research projects, consultancy, training and development. Through this collaboration, students from the Department and the Faculty would be granted internship opportunities in the companies whilst lecturers would be engaged in industry relevant research and consultancy.

In line with this, a team from the Department visited companies in Takoradi on the 23<sup>rd</sup> April, 2014, to establish such collaborations.

### **EXPANSION OF ACADEMIC PROGRAMMES**

In response to the changing needs of today's industry, the Department has introduced two (2) new academic programmes to meet these needs. The new programmes are the BSc. Procurement Management and MSc. Logistics and Supply Chain Management. This initiative would strengthen the Department and the University's position as a premier center of education in business and management.

### **AFFILIATION WITH CAMEROONIAN UNIVERSITY**

The Department has been actively involved in establishing and monitoring affiliations with other Universities. Members of the Department have sat on committee that evaluated the affiliation applications of Universities like Christian Service University and Ghana Telecom University.

In August 2013, the Vice Chancellor sent a visitation team of three including two (2) lecturers from the Department to meet with officials of a Cameroonian University (National Polytechnic, Bamenda) to structure an effective affiliation arrangement. This visit was successful and has been one of the KNUST's foremost attempts at affiliation with Universities outside Ghana.

### **STAFF DEVELOPMENT SEMINAR**

In an attempt to strength the research abilities of staff in the Department and Business School and also in support of the ongoing staff development PhD programme, ISDS Department organized a two day seminar on Quantitative Research Methods on the 16<sup>th</sup> and 17<sup>th</sup> April, 2014 . The resource person for the seminar was Dr. Nathaniel Boso an Assistant Professor from the University of Leeds, London. The seminar was well attended and participants were equipped with knowledge on Structural Equation Modeling (SEM) and the use of LISREL software package for data analysis.

### **CHATERED INSTITUTE OF PURCHASING AND SUPPLY (CIPS) ACCREDITATION**

The ISDS Department has been promoting professorial education since its inception. The Department has gained accreditation from various professorial bodies to run international certificate programmes. The latest development in this endeavor has been the recognition and accreditation of the Department by the Chatered Institute of Purchasing and Supply (CIPS-UK). By this accreditation, the Department is mandated to run all the CIPS examinations making ISDS/KSB the second organization after British Council to hold CIPS exams.

### **MENTORING OF POLYTECHNICS ON MTECH PROGRAMMES**

In an attempt at upgrading some of the polytechnics, MTechprogrammes have been introduced and ISDS has been tasked with supervising and mentoring Tarkoradi Polytechnic on the

implementation of the Mtech procurement programme. In line with this, a visitation team from the Department has been to these institutions to evaluate and provide the necessary support by way of curriculum re-structuring and capacity development.

### **FIELD TRIPS**

Various field trips were organized for the undergraduate and postgraduate students in the Department to enable the students acquire practical knowledge in their field of study. The third year students embarked on an industrial tour to Temaharbour and UT Logistics, Tema on the 10<sup>th</sup> of April, 2014. The Diploma in International Logistics and Transport (DILT) students embarked on an Industrial tour to Takoradi Harbour on the 27<sup>th</sup> - 28<sup>th</sup> of June, 2013.

### **CONFERENCE**

#### **CILT African Forum (2014)**

The Chartered Institute of Logistics and Transport (CILT) hosted the Annual African Conference at Alisa Hotel in Accra on the 4<sup>th</sup> – 6<sup>th</sup> March, 2014. About fifty (50) students from the Department and the professional classes attended the forum.

## **CENTRE FOR CULTURAL AND AFRICAN STUDIES (CeCASt)**

### **INTRODUCTION**

The Centre for Cultural and African Studies (CeCASt) is a Research Centre of the College of Art and Social Sciences (CASS). Established over four decades ago by the University, the Centre has been restructured a couple of times to reflect the contemporary perception of Cultural and African Studies programme, worldwide. Currently, it performs research, teaching and non-teaching roles which are carried out in three sections namely the Administration, the Musical Instrument Technology Workshop (MITW) and the Performing Arts Department. The MITW engages in the research and development of traditional musical instruments with accompanying literatures. In addition, research and training in piano and choral music are carried out in the Performing Arts Department.

Student groups have been formed on campus to offer periodic theatrical performances to entertain, inform and educate the University Public at large. The Centre also runs the Vice-Chancellor's (VC's) initiative elective courses in folklore, music dance, drama and African Studies.

### **STAFF STRENGTH**

The centre has an academic staff strength of seven (7) made up of six (6) research fellows and one senior lecturer. It also has one Visiting Fulbright Scholar who is a Professor in Musicology.

The teaching staff is supported by competent technical, administrative and ancillary staff.

### **TEACHING**

Staff undertake the teaching of theory and practical courses in mainly African Music, Dance and Drama, and African Cultural Practices as electives to students in line with the Vice-Chancellor's initiative courses in the first and second semesters of each academic year. An average of **2,000**

(two thousand) students subscribe to the fourteen (14) elective courses run apiece in the two semesters at the Centre as requirement for all bonafide undergraduates of the University.

Private tuition is organized for staff of the University, private individuals, groups, foreign students and school children in cloth wearing, traditional drumming and dancing, piano and atenteben playing, and also in sound/video engineering. Mr. Ernest Amparbin has been the trainer of matriculants for rendering, of the Guadianus and University Anthem and features as the Organist at KNUST Matriculation programmes on/off-campus at the Institute of Distance Learning.

## **ACADEMIC PROGRAMMES**

### ***Fundamentals of music theory***

The Centre as indicated currently runs the following in music eg. Staff Notation, Intervals, Key Signatures, Scales Basic Chord, Progression Transportation and Rhythms.

## **FUNDING OF RESEARCH ACTIVITIES**

The Centre continues to depend heavily on the Provost's Office of the College for funds since it does not have any budgetary allocation. Its other source, the small fee of **Ten (GH¢10.00)** per student to access the elective courses; plus the occasional psalterly sum from internally generated revenue through performances in the Arts is inadequate.

## **RESEARCH/PUBLICATIONS**

Academic members of staff are involved in research activities in various spheres. The strength of CeCAST lies in its multi, inter-disciplinary and holistic approach to the development of culture and African Studies and more so with the research and publications that 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. The Consortium consists of a Director, Chairman and nineteen (19) members.

## **AWARDS**

The Centre has won an ACP-EU Culture grant for the project "*Facilitating the Development and Growth of the Culture & Arts Sector under EU-ECOWAS Economic Partnership Agreement*". Anthony A. Aidoo is the Cultural Consultant of the Project, and CeCAST representing KNUST, is the Lead Partner for the project which would include Sierra Leone, Gambia National Centre for Arts & Culture and Nigeria as Partners and Arterial Network, Liberia Chapter, Plateforme Culturelle du Burkina Faso, as Associate Partners.

Anthony A. Aidoo attended an Information Meeting for all awardees of ACP-EU Cultures 1<sup>st</sup> & 2<sup>nd</sup> Call for Papers at Brussels in Belgium from 25<sup>th</sup> – 26<sup>th</sup> February, 2014.

Mr. Anthony A. Aidoo received a Citation for Exemplary Leadership from the St. Peter's Cooperative Credit Union (SPeCCCU), Kumasi at its 43<sup>rd</sup> Annual General Meeting in December, 2013.



## **SERVICE**

Messrs Anthony A. Aidoo and Henry-Asare-Baah were assigned 15 periods teaching engagements at the KNUST Branch of African Institute of Sanitation and Waste Management (KAISWAM) in Accra in February, 2014

## **COLLABORATIONS AND CO-ORDINATING ACTIVITIES**

- Kumasi Metro Brass Bands Association
- Agya Koo Nimo and Adadem
- Akan Film Producers Association
- Cultural Centre Folkloric Group
- Association of Ashanti Choral Groups
- Springverve Drama Group

Prof. Royal J. Hartigan, an acclaimed American Musicologist and a Fulbright Scholar is on attachment to the Centre for one (1) year to help promote research and documentation of traditional musical types and concepts and notation of drumming.

The Centre submitted a Proposal to Chanade Consultancy in the Netherlands on “Facilitating the Development and Growth of the Culture & Arts Sector under EU-ECOWAS Economic Partnership Agreement” and has been selected making the 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 partner.

## **CHALLENGES**

As mentioned earlier, finance is the greatest challenge of the Centre. The production of drums and other musical instruments for academic and commercial purposes has been suspended due to the fire outbreak at the Musical Instrument Technology Workshop. The Centre is yet to source funds to rehabilitate the workshop and replace or repair the machines, equipment and electrical gadgets which were burnt down in April 2007.

## **PUBLICATIONS AND CONFERENCES**

In the year under review, four (4) papers were published by academic members of staff. The titles can be found in the University’s Quality Assurance Bulletin for the year under review.

Staff also attended and presented papers at some conferences. These are:

1. 2<sup>nd</sup> Applied Research Conference in Africa (ARCA). 1<sup>st</sup>-3<sup>rd</sup> August 2013. College of Science Auditorium, KNUST, Kumasi, Ghana.
2. CeCAST 1<sup>st</sup> International Conference, 2014

## **THE WAY FORWARD**

The 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 research works and other relevant information on Arts, Culture, and Science and Technology.

## **COLLEGE OF ENGINEERING**

### **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 now organized under a two-tier system under the leadership of the Provost who provides among other things, leadership in the College to achieve this vision.

### **DEPARTMENTS AND PROGRAMMES**

The College of Engineering comprises nine (9) Teaching Departments and two (2) Research Centres as listed below. Among the teaching Departments in the College are the Department of Chemical Engineering which runs three (3) undergraduate programmes, Mechanical Engineering, Electrical and Electronics Engineering, Computer Engineering and Materials Engineering, which run two undergraduate programmes each. The remaining five departments

run one (1) undergraduate programme each. The Departments and the programmes on offer are as follows:

<b>Departments</b>	<b>Undergraduate Programmes</b>
Department of Agricultural Engineering	+ B.Sc. in Agricultural Engineering
Department of Chemical Engineering	+ B.Sc. in Chemical Engineering + B.Sc. in Petrochemical Engineering + B.Sc. in Petroleum Engineering
Department of Civil Engineering	+ B.Sc. in Civil Engineering
Department of Computer Engineering	+ B.Sc. in Computer Engineering + B.Sc. in Biomedical Engineering
Department of Electrical and Electronics	+ B.Sc. in Electrical and Electronics Engineering + B.Sc. in Telecommunication Engineering
Department of Geological Engineering	+ B.Sc. in Geological Engineering
Department of Geomatic Engineering	+ B.Sc. in Geomatic Engineering
Department of Materials Engineering	+ B.Sc. in Materials Engineering + B.Sc. in Metallurgical Engineering
Department of Mechanical Engineering	+ B.Sc. in Mechanical Engineering + B.Sc. in Aerospace Engineering
<b>Research Centers</b>	
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 seven hundred and thirty seven (4,737) undergraduate students and two hundred and sixty three (263) postgraduate students during the 2013/2014 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, 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. Benjamin Boampong Owusu
College Research Manager	Ms. Barbara Gyapong-Korsah

Work in the College is also supported by Administrative Assistants, Accounting Assistants, Library Assistants and a Transport Officer.

### **KEY COLLEGE LEVEL ACTIVITIES**

During 2013/2014 Academic Year, the College undertook a number of activities, some of which are detailed below:

#### **College of Engineering Research Retreat (CERR-10)**

The 10<sup>th</sup> College of Engineering Research Retreat (CERR 10) took place at the ELMINA Beach Resort, Elmina from 2<sup>nd</sup> – 5<sup>th</sup> July 2013. The event like the previous ones sought to provide Senior Members of the College the opportunity to share their research and Development activities and findings with colleagues and also to build linkages with industry. The theme for the Retreat was “*Engineering and Sustainable Environment for Improved Quality Life*”. Following the format for CERR 9, CERR 10 featured Scientific and Technical Sessions and Industrial presentations with the participation of industrial collaborators including the Ghana National Petroleum Company (GNPC), Zoomlion Ghana Limited, Cargill, Environmental Protection Agency (EPA), the Ministry of Environment Science and Technology and Tullow Oil. The College is grateful to these companies for the sponsorship they provided for the Research Retreat.

#### **College Awards Day**

The College of Engineering has as one of its set objectives, the continual improvement in the quality of students who graduate from the College. One strategy that the College has been pursuing over the past few years to achieve this, is the institution of awards to high performing students and staff. As part of activities for the 2013/14 academic year and for the second year in a row, the College held the Awards’ Day on Friday, 28<sup>th</sup> February 2014 in honour of its outstanding students. The ceremony was supported by the following companies which honoured the students with various cash prizes: Vodafone Ghana, Baker Hughes, Genser Power Ghana Limited, Toyota Ghana Limited, Kingdom Books & Stationery, Total Petroleum, esyllabus for Africa and Educational Pathways International.

#### **Career Fair**

The College organised a three-day Career Fair from 27<sup>th</sup> February to 1<sup>st</sup> March 2014 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. Some of the companies that participated in this year’s event include GNPC-TECHNIP, SCHLUMBERGER. These firms took turns to address students on their operations, career opportunities and what is expected of employees. Students were interviewed by participating firms and some selected to first serve their national service with them before formally employing them.

#### **Visitors to the College**

During the academic year under review, the College hosted officials of the University of Strathclyde, Glasgow. There were also visitors from industry which included the CEOs and officials of G & J Technical Services of Ghana and AJ Power UK. Also during the period, Alumni of the College (Civil Engineering Class of 1998) visited the College. Donations of equipment were made during the visits.

### **Donations**

The College of Engineering received the following items from the following entities:

**Electricity Company of Ghana:** High Voltage Laboratory for the Department of Electrical/Electronic Engineering;

**G&J Technical Services/AJ Power:** 10 KVA In-Canopy Generator Set

**Civil Engineering Class of 1998:** Assorted Laboratory equipment for Soil Engineering

**Ghana Institution of Engineers:** Sponsored the repairs of handrails on all buildings in the College as part of their support towards promoting awareness of occupational health and Safety issues

## **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 Agricultural Engineering Department is currently organised into **four sections** including Agricultural Machinery Engineering, Soil and Water Engineering, Food and Postharvest Engineering and Agro-Environmental Engineering. Staff members are actively engaged in the three areas of research, teaching and service to the community in various capacities. Presently, the academic staff of the Department consists of seven associate professors, six senior lecturers, two lecturers and one assistant lecturer as shown below with their respective areas of competences.

### **ACADEMIC MEMBERS OF STAFF**

The department has seven (7) Associate Professors, six (6) Senior Lecturers, two (2) Lecturers and one (1) Assistant Lecturer.

## **ACADEMIC ACTIVITIES**

During the period under review, the Department continued to run the BSc Agricultural Engineering Degree Programme as well as offer service courses in Agricultural Mechanisation and other courses to students 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, and Water Resources Engineering at Civil Engineering Department.

### **Graduate Degree Programmes**

The ninth batch of graduate students was admitted this academic year since the graduate programme started in 2004/2005 academic year. Currently, there are eight (8) PhD students and twenty-three (23) MSc students in the following areas of specialization:

- Soil and Water Engineering,
- Food and Postharvest Engineering,
- Agricultural Machinery Engineering, and
- Agro-Environmental Engineering.
- Bioengineering

Four (4) MSc students and two PhD students went through a successful viva and will graduate this year.

### **Extension Services**

The Department produced the following services to the University and other organisations as well:

- Production of Skip Containers for the University
- Production and installation of metal Grates for Unity Hall, KNUST
- Production of Ago-Processing machines under the APERL Project being executed by IRNR in collaboration with the University of Guelph and funded by CIDA, Canada.
- Production of hammer mill and feed mixer for Ahmadiya Muslim Missions, Winneba.

## **RESEARCH PUBLICATIONS AND CONFERENCE PROCEEDINGS**

In the year under review, academic members of staff published in several peer reviewed journals and attended several conferences at which they presented papers. These publications can be found in the Quality Assurance Bulletin for the year under review.

## **DEPARTMENT OF CHEMICAL ENGINEERING**

### **INTRODUCTION**

#### **TEACHING**

The Department of Chemical Engineering offers three four-year degree programmes leading to the award of BSc. (Chemical Engineering), BSc. (Petroleum Engineering), and BSc. (Petrochemical Engineering). Graduate programmes leading to the award of MSc, MPhil or PhD in Chemical Engineering are also offered in the Department.

## STUDENT POPULATION

The student population has increased steadily over the recent years. The undergraduate student population in the year under review academic year stood at around 830.

### Statistics

#### BSc Chemical Engineering Programme

	<b>Ghanaian Regular</b>	<b>Ghanaian Fee-Paying</b>	<b>Foreign</b>	<b>Total</b>
Year 1	59	17	10	86
Year 2	68	3	13	84
Year 3	93	3	12	108
Year 4	88	3	13	104
<b>TOTAL</b>	<b>308</b>	<b>26</b>	<b>48</b>	<b>382</b>

#### BSc Petroleum Engineering Programme

	<b>Ghanaian Regular</b>	<b>Ghanaian Fee-Paying</b>	<b>Foreign</b>	<b>Total</b>
Year 1	46	16	8	70
Year 2	45	2	7	54
Year 3	40	3	11	54
Year 4	53	9	9	71
<b>TOTAL</b>	<b>184</b>	<b>30</b>	<b>35</b>	<b>249</b>

#### BSc Petrochemical Engineering Programme

	<b>Ghanaian Regular</b>	<b>Ghanaian Fee-Paying</b>	<b>Foreign</b>	<b>Total</b>
Year 1	54	19	7	80
Year 2	38	1	12	51
Year 3	23	4	6	33
Year 4	22	4	9	35
<b>TOTAL</b>	<b>137</b>	<b>28</b>	<b>34</b>	<b>199</b>

#### MSc/MPil/PhD Chemical Engineering Programme

	<b>Total Number</b>
Year 1	9
Year 2	5

## **STAFFING**

Currently there are 16 full time, 1 part time, and 2 visiting lecturers at the Department.

## **PROJECTS**

The Department is involved in a large number of funded projects. These projects were initiated by Dr. M. Y. Mensah, a lecturer of the Department. 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. The project sum is **2 million US dollars** dedicated for 6PhD's and 8 MSc's out of which 4 PhD's and 6 MSc's are to come from Ghana.
- Biobased electricity production and nutrient recirculation from wastewater using Microbial Fuel Cells (MFC). This project is funded by Danida Fellowship Centre with a project sum of **US\$500,000**. 2 MSc students from KNUST have been offered a scholarship on this programme.
- Optimization of a pilot plant for the production of biochar from agricultural residue
- Optimization of pilot plant (batch and continuous) for the production of activated carbon from palm kernel shells.
- Preliminary studies on design and construction of biofilters for waste gases.
- Pilot project on integrated waste management for the College of Engineering in collaboration with GIZ (NRW) – Germany.
- Integrated waste management with recycling and composting in the Busunutownship in collaboration with GIZ (NRW) – Germany.
- Pilot plant for the production of biodiesel on KNUST campus

## **RESEARCH**

The following research projects initiated by academic staff are also in progress:

### **Mrs. Zs. Momade (Senior Lecturer)**

- Chemical activation of used activated carbon.
- Color removal of fluorescein dye from engine coolant liquid.
- Design of a plant to produce stoneware from local raw materials.
- Plant design to produce  $\text{MnO}_2$  and  $\text{MnSO}_4$  from  $\text{MnCO}_3$  ore.
- Characterization of iron ore deposit in the Western Nimba range in Liberia

### **Dr. M. Y. Woode (Senior Lecturer/Head of Department)**

- Refining of used auto lubricating oils using local bleaching earths.
- Design, build and study the characteristics of a continuous action clarifier of specified duty.
- Plant design for the production of Vinyl Acetate from Casing-head gas stock of any of the ghanaian oilfields.
- Plant design for the production of Potassium Bicarbonate from local resources.

### **Dr. B. Afotey (Lecturer)**

- Feasibility studies for landfill gas recovery and use systems in Ghana. It is a collaborative research project between UT Arlington geoenvironmental faculty members and Dr. Benjamin Afotey. The project is funded by the United States EPA with a total amount of \$18,535



- Biochar production from coconut husk and cocoa pod husk and comparing with other feed stocks
- Feasibility Studies to support Landfill gas Recovery and use systems in Ghana
- Plant design for the production of acetylene from petroleum feedstock
- Plant design for the production of acetylene from calcium carbide
- Plant design for the production of NaOH

**Dr. E.G. Ankudey (Lecturer)**

- Assessment of local materials for the development of ultra-filter medium for drinking water
- Development of membrane for the electrolysis of brine from local materials (Continuation)
- Optimization of heat transfer in palm kernel shell-fired boiler, case study at an oil mill
- Process development for the production of reflexive paint (Road markings)
- Removal of phenols from wastewaters by peroxidase enzyme extracted from locally grown beans (Continuation)
- Plant design for the production of ethylene from hydrocarbon fractions
- Plant design for the production of ethylene from natural gas
- Plant design for the production wine from local fruits
- Production of gluco-amylase from isolated *Aspergillus* Sp. grown on local substrates for the hydrolysis of polysaccharides

**Mr. N. Y. Asiedu (Lecturer)**

- Development of bio-detergent for the abattoir industry
- Process development for recycling waste vehicle tyres for other applications
- Process development for the extraction of plant nutrients for the fertilizer industry
- Modeling Kinetics of acetic anhydride reaction in adiabatic environment using temperature as a measured variable
- Estimating thermodynamics and equilibrium information of etherification process using temperature as a measured variable
- Experimental simulation of 3-dimensional attainable region for the synthesis of ethylacetate process
- Plant design for the production of calcium carbide, carbon dioxide, and caustic soda from limestone.
- Plant design for the production of glycerine and fatty acid from beef tallow
- The dimerization of propylene to 2-methyl-1-pentene

**Mr. E. K. Baah-Ennumh (Lecturer)**

- Mitigating the impact of non-isoprene constituents of latex on product degradation and process emission-(an MPhil. thesis, draft submitted)
- Optimization of industrial energy efficiency: case study of APM, Coca Cola, Fares Timbers and Golden Web Ltd.
- Simulation of process system using radiotracer/electrical resistance tomography technologies
- Quantitative analysis and characterization of the impact of fuel quality and combustion technology on ambient air

- The confluence of micro reactor technology and computational fluid dynamics in process system design for control
- Optimal operations demand analysis of a vegetable oil mill using resource tracking technique
- Effect of mechanical extraction on thermal kinetics and storage ageing of processed dry rubber
- The role of fermentation on the organoleptic (SLO/ recaptans) and physiochemical characteristics of the natural rubber during processing
- Analysis of fuel quality and temperature compensation of ex-pump delivery systems in Ghana
- Designing of a database management system for process monitoring application in an oil mill
- The “GREEN” production a rubber processing plant model
- The oil and gas industry: Ghana’s competitive strategy in terms of technology
- Product Engineering of blended refined edible indigenous vegetable oil
- Efficient pathway for the improvement of plasticity retention index (PRI) of partially dried rubber
- Effect of coagulation regimes on natural rubber quality

**Dr. L. Darkwah (Lecturer)**

- Bioremediation of Petroleum-Products from Contaminated Sites (Continuation)
- Construction of Solar Reactor for Adinkra Ink Production
- Extraction of active ingredients from Badie
- Local Production of Tiles Adhesive
- Plant design for the production of Ceramic/Porcelain Tiles Adhesive in Ghana

**Mr. D. A. Anang (Assistant Lecturer)**

- Chemical analyses of leachate and gases from Ogbolo No.1 landfill and their ramification on the environment
- Extraction, characterization and use of tamarind oil in liquid soap production
- The use of water melon seed as fortifier in some Ghanaian foods
- Plant design for the production of isooctane from isooctene
- Plant design for the production of phosphoric acid
- Plant design for the production of Ethylenediaminetetraacetic acid (EDTA)

**Dr. Stephen KudomDonyinah (Senior lecturer)**

**Conferences Attended with dates:**

- 1) South African/ West African Oil and Gas 2013 Summit, Cape Town, South Africa, October 8<sup>th</sup>-9<sup>th</sup> 2013.
- 2) Africa Maritime Ndaba, 2013, Johannesburg, 24<sup>th</sup>-25<sup>th</sup> October, 2013
- 3) 4<sup>th</sup> Ghana Summit on Oil and Gas, Conference and Exhibition, Accra Ghana, 23<sup>rd</sup>-25<sup>th</sup> April, 2013; participated as a Speaker and Moderator of Sessions.

**Short Course**

Applied Reservoir Engineering: 17-28 June 2013 Houston, USA.

## **PUBLICATIONS**

Publications and conference proceedings by academic members of staff of the Department for the period under review can be found in the University's Quality Assurance Bulletin for the year under review.

## **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 2013/2014 Academic Year in relation to teaching and research.

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:

- 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.
- Develop the ability to make rational civil engineering decisions on the basis of available relevant evidence.
- Appreciate the conceptual and creative aspects of civil engineering design.
- 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.
- Develop clarity and style in professional communication and to develop simple skills of management, planning, organization and teamwork.
- Appreciate the impact of various civil engineering activities on the quality of the environment.

### **ACADEMIC AND SENIOR SUPPORT STAFF**

#### **Academic Staff**

The academic staff strength in the Department during the reporting year was 23. Four out of this number are on study leave pursuing their PhD's and two on sabbatical leave. They are made up of two (2) Professors, four (4) Associate Professors, seven (7) Senior Lecturers and ten (10) Lecturers.

Over the period, the student: lecturer ratio for the Department, based on undergraduate student enrolment has seen significantly deplorable performance compared with the previous year of 21:1 to 26:1. This was due to both the engagement of some of our faculty members on national assignment and an increase in enrolment of students. Currently, more than half of academic staff are above the rank of lecturer while the Professorial rank has improved from 24% the previous year to about 26%.

### Support Staff

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.

## ACADEMIC PROGRAMMES

### Undergraduate Programme

The Department continues to run the four-year undergraduate B.Sc. degree programme in Civil Engineering. The enrolment in the BSc. Civil Engineering programme for the academic year is 610 as shown in the table below.

<i>Year</i>	<i>Number</i>		<i>Year</i>	<i>Number</i>
Year 1	169		Year 4	119
Year 2	183		Year 5	17
Year 3	121		Year 6	1
<b>Total</b>				<b>610</b>

Admission to the Department continues to be highly competitive and the “cut-off” depends on the number and caliber of candidates applying in a particular year. The overwhelming majority of students enter from the SSS stream in accordance with the entry requirements. A small percentage of students entered as mature students who satisfied the minimum conditions for that category of applicants.

Locally, there has been an expressed need for the upgrading of HNDs obtained from the country’s Polytechnics to degree status. Such upgrading is expected to improve the professional fortunes of HND holders and enhance their ability for further studies. The Department, having completed the preparatory works for mounting a Top-Up Course in this direction, is still awaiting the necessary approval from the Academic Board. The course is designed to be delivered on modular basis during the vacation periods and is supposed to last a total of two (2) years.

The Department has introduced a parallel programme in BSc. Civil Engineering and BSc. Environmental Civil Engineering programme at KNUST Institute of Sanitation and Waste Management, Accra, starting in the 2014/2015 Academic Year.

In accordance with the University’s regulations, the main undergraduate programme was also subjected to a review process. Consultations were made with key industry players and other stakeholders and a revised course structure has been approved by the Departmental Board for implementation in the 2014/2015 Academic Year.

### Post Graduate Programmes

The Department currently runs three taught MSc courses in addition to MPhil and PhD programmes in all the major sub-disciplines of Civil Engineering. In collaboration with UNESCO-IHE, in The Netherlands, a joint MSc Programme in Water and Sanitation has been introduced where students would spend six months of the course programme in The Netherlands. The total enrolment in post graduate programmes currently stands at 92 at the Second Semester of the academic year. The breakdown of the enrolment in the individual programmes for the

2013/2014 academic year is shown in Table 2. Enrolment in postgraduate programmes now accounts for about 14% of total enrolment in the Department.

For the coming Academic Year (2014/2015) the Department plans to activate the Masters Programmes in Geotechnical Engineering and Structural Engineering, both of which have had long-standing approval from Academic Board.

**TABLE 1: POSTGRADUATE PROGRAMMES AND ENROLMENT**

<b>Post graduate Programmes</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Total</b>
MSc, Water Supply and Environmental Sanitation	16	10	-	26
MSc, Water Resources Engineering and Management	5	5	-	10
MSc, Road and Transportation Engineering	12	6	-	18
MPhil, Road and Transportation Engineering	2	-	-	2
MPhil, (Civil Engineering)	2	2	-	4
PhD, (Civil Engineering)	2	5	-	7
MPhil, (Geotechnical Engineering)	2	1	1	4
PhD, WASCAL Climate Change and Land Use Programme	10	11	-	21
<b>Total</b>				<b>92</b>

The Department continues to benefit from the implementation of major internationally sponsored programmes of research and training, which bring in vital resources for postgraduate research and training of key professionals active in the sanitation sector and climate change research and management.

The five-year UNESCO-IHE supported project titled *Stimulating Local Innovation on Sanitation for the Urban Poor in sub-Saharan Africa and South-East Asia (Smart Sanitation)* is one of these strategic projects. The project is funded by the Bill and Melinda Gates Foundation (BMGF) to the tune of Three Hundred and Eighty-five thousand US dollars (US\$385,000). Overall, and aims to:

1. Increase the number of sanitation professionals in developing countries.
2. Provide adequate research education and training for the new generation of “all-round” sanitary engineers.
3. Make (Post-Graduate) education in sanitation engineering more accessible to individuals from developing countries.
4. Further strengthen the pro-poor sanitation component at the academic institutions involved.

These outputs shall be achieved through specially packaged research programme involving faculty members and the enrollment and successful graduation of Three (3No.) PhDs and Fifteen (15No.) MSc students. Through an internationally competitive process the three PhD students were selected and they are currently in the second year of study, having made significant progress.

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 and Research (BMBF) for the first five-year term. KNUST and WASCAL jointly sponsored the construction and establishment of the WASCAL Climate Change and Land Use Centre. The construction is complete and the facility is awaiting the necessary furnishing to be fully functional before the end of this academic year. The Centre, through the PhD projects being carried out by a diverse international student group is already making significant contributions to knowledge about climate change and land-use interactions and management in Africa.

For the initial five (5) year period the programme will focus on capacity building at the PhD level to help develop the necessary knowledge for sustainable land use and management in the face of Climate Change. The programme is on its second year now and the initial group of twenty one (21) students admitted from West African countries to pursue the PhD programme are in the final stages of their research. The first year students are currently going through the taught course stage while those in second year are on the field for data acquisition and analysis, interpretation of spatial data using of remote sensing, GIS and mathematical modelling tools as related to climate change and land use. The ultimate objective is to develop 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 system of postgraduate education in KNUST.

African Centres of Excellence Project at KNUST, Kumasi, is to establish a **Regional Water and Environmental Sanitation Centre, Kumasi (RWESCK)** is hosted by the Department of Civil Engineering and seeks to offer post graduate training and research programmes for the public and private sectors in the West African Region. The project is supported by National, Regional and International partners and KNUST Departments of Mathematics, Planning and Theoretical and Applied Biology. This four-year project officially starts from June 2014 with a funding of Eight Million Dollars (US\$ 8,000,000.00) by the World Bank under the African Centres of Excellence Project. The main aim of the Centre is to achieve excellence through training and research of international standard in water, environmental sanitation and environment to create the needed critical mass of human resources and knowledge for influencing and directing national and regional policies.

The activities of the Centre include the following;

- Establish a secretariat for the Regional Water and Environmental Sanitation Centre, Kumasi (RWESCK)
- Develop new post graduate programmes in collaboration with National, Regional and International partners
- Develop and build capacity for research and innovative technology development in collaboration with National, Regional and International partners

- Build industry and academic partnerships for outreach through students/faculty exchange, networking, conferences and workshops to bridge the gap between academic and industry to solve the developmental challenges
- Position the Centre of excellence to be financially sustainable beyond the project duration.

The Centre will train over 40 PhDs, 120 MScs and 650 short course participants within the four years.

The SNOWS Consortium aims to build African capacity for interdisciplinary research in Water supply, Sanitation and Environmental health/hygiene. Within the last year, the following activities have been realised;

Item	Activity	Remarks
Research	<ul style="list-style-type: none"> <li>• Water Point mapping study</li> </ul>	This research is being conducted by all southern partner institutions aimed at tracking the evolution of rural water supply in order to measure the progress made towards the MDG goal of improving access to water. Each SNOWS partner received £5000 for the research. The research is completed and a joint publication is being written up. In KNUST, a master of science student was supported with the funds to conduct the research. A thesis on the research has already been defended and submitted to the Graduate school.
Capacity building Training	<ul style="list-style-type: none"> <li>• Administrative</li> </ul>	The SNOWS manager benefitted from a career enhancement training programme in project management and administration in August 2013 upon invitation by the Wellcome Trust, UK (SNOWS' funders) and SNOWS Northern partners LSHTM and UEA.
	<ul style="list-style-type: none"> <li>• Training for academic staff and postgraduate students</li> </ul>	On 11 <sup>th</sup> February 2014, academic staff and postgraduate student were given training on LaTeX, a document markup language and preparation system that enhances scholarly writing. Over 60 participants were present.
Grants	<ul style="list-style-type: none"> <li>• One year costed extension</li> <li>• Public engagement Award</li> </ul>	<ul style="list-style-type: none"> <li>• SNOWS received a one year extension of its current award. The total award is £167035. This amount will cover the cost of organising capacity building trainings for academic staff/postgraduate students in Research Methodology, PhD supervision and Mentorship as well as a scientific conference.</li> <li>• SNOWS KNUST, Egerton, and MUST together with the Centre for Science and Health Communication, Ghana have jointly received a grant of £29,989 towards Public engagement between scientists and Journalists. This award</li> </ul>

		will seek to educate scientists on how to communicate their research output to the media and also how journalists can in turn communicate research findings in a coherent manner.
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It is our desire that SNOWS will continue to contribute to the WASH sector through research and capacity building.

## RESEARCH

For the purposes of organizing teaching and research, the Civil Engineering Department is organized into five main sections with specialization in 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

### STAFF:

Prof. C.K. Kankam	Structural Analysis, Structural Design, Concrete Structures
Dr. M. Adom-Asamoah	Earthquake Engineering, Structural Design
Dr. G. Sossou	Structural Design
Dr. J. WiafeAmpofo	Structural Design

The research focus has not changed. Research is 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 prestressed 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 concrete, 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 research into the numerical simulation of the seismic behaviour of existing reinforced concrete frame buildings subjected to earthquake loads in Ghana.

## GEOTECHNICAL ENGINEERING DIVISION



**STAFF:**

Prof. S.I.K. Ampadu	Geotechnical Engineering, Development Engineering
Mr. V.K.A. Acquah	Rock Mechanics and Engineering Geology
Dr. F. Owusu Nimo	Geophysics, Environmental Geotechnics, Geotechnical Engineering
Dr. S. K. Ahiamadi (on study Leave)	Geotechnical Engineering

During the period, 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. The 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 an alternative surfacing technology for feeder roads in view of the high life cycle costs of gravel and earth surfaced feeder road as the high initial construction cost of “chip sealed” feeder roads. The section continued its research collaboration with the GHA into the use of the DCP to determine the resilient moduli of subgrade through a correlation with the Falling Weight Deflectometer.

**HIGHWAY AND TRANSPORTATION ENGINEERING  
STAFF**

Prof M. Salifu	Traffic and Highway Engineering Road Safety
Dr. Y.A. Tuffour	Asphalt Technology, Highway Eng. Development Engineering.
Dr. C.A. Adams	Traffic, Pavement Management, Maintenance, Transport Economics
Dr. D. A. Obeng	Transportation Planning, Investment Appraisal, Road safety

**RESEARCH**

The division continued its research into traffic operations and road safety engineering and management in Ghana. Considerable work was done on the capacity analysis of signalized intersections as well as roundabouts. The safety records of rotary intersections with truck aprons were assessed relative to conventional designs and recommendations made for improving performance. Various studies were also carried out on the quality, availability and affordability of public transport services in Accra and Kumasi. Driver behavior and attitudes towards seatbelt use and motor-cyclist use of crash helmets were also evaluated and recommendations made to inform policy, road safety strategy formulation and enforcement.

During the period under review the group carried out seminal research on retro-reflectivity of longitudinal road-line markings for Ghana Highway network. This research resulted in the determination of minimum retro-reflectivity to be provided for effective night-time guidance.

The next phase of the project is to develop degradation models for the markings for more cost-effective maintenance management.

## **WATER RESOURCES ENGINEERING**

### **STAFF**

Prof. S. N. Odai	Irrigation & Hydraulics, Hydro-informatics
Dr. F.O.K. Anyemedu ( <i>on post retirement contract</i> )	Hydraulics & River Engineering
Dr. G.K. Anornu	Irrigation & Hydraulics
Dr. F.O. Annor ( <i>on study leave</i> )	Water Resources
Dr. K. Amanin Agyei	Water Resources

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

## **ENVIRONMENTAL QUALITY ENGINEERING**

### **STAFF**

Prof. Esi Awuah ( <i>on sabbatical leave</i> )	Environmental Microbiology, Pollution Control, Water and Sanitation
Dr. K. Biritwum Nyarko	Water Supply & Utilities Management
Dr. S. Oduro Kwarteng	Water and Sanitation
Mrs. Helen Essandoh	Water and Sanitation
Dr. Richard A. Buamah	Biochemist, Water Treatment
Emmanuel A. Donkor ( <i>On study leave</i> )	Sanitary Engineering

1. Water Quality Assessment of selected surface water bodies in the Kumasi metropolis
2. Rain water harvesting
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. Water Quality fluctuations in distribution lines of GWCL—causes, effects and repercussions.
6. Wastewater treatment and re-use in aqua-culture
7. Municipal solid waste management
8. Energy generation from combustion of plastic waste bags and sachets
9. Pathogen removal mechanisms in macrophyte and algal waste stabilization ponds.

10. Life cycle costing of water, sanitation and hygiene services
  - a. Cost and functionality of community managed piped systems –
  - b. Cost of water service delivery for various technological options
  - c. Cost and services received from various water technologies
11. Water pricing, subsidies and cost recovery for sustainable water service delivery.
12. Public private partnerships and regulation for water supply service delivery
13. Public private partnerships for solid waste management

The section has received the following research grants:

SN	Source of funds	Description of project	Amount
1	Grand Challenges, Canada	Improving rural water service delivery using mobile phone technology	CAD \$ 113,000.00
2	Bill and Melinda Gates Foundation (BMGF)	Stimulating Local Innovation on Sanitation for the Urban Poor in Sub-Saharan Africa and South-East Asia	US \$ 385,000.00
3	ASI/DFID	Use the life-cycle cost approach to determine the cost of providing sustainable water, sanitation and hygiene (WASH) services in Sierra Leone for sector planning, implementation and monitoring of sustainable WASH service delivery.	£ 199,000.00
4	UNICEF	Sanitation Knowledge Management Initiative. The focus is on: <ul style="list-style-type: none"> <li>• <i>CLTS effectiveness, sustainability and cost studies</i>, the main objective of this study is to measure the cost and effectiveness of implementing CLTS and to determine the cost-benefit.</li> <li>• Impact of WASH in school activities</li> <li>• Assessment of Latrine Technologies</li> </ul>	GH¢400,000.00

## SUPPORT FROM BENEFACTORS

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 Transportation	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.
8	WASCAL	Support for PhD research work on land 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 Services	Support for Transportation Design Project course in the MSc. Road and Transportation Engineering Programme

The Ghana Highway Authority, Department of Urban Road and the Department of Feeder Roads of the Ministry of Road 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 by staff of the department during the year under review can be found in the University’s Quality Assurance Bulletin.

## **DEPARTMENT OF COMPUTER ENGINEERING**

### **INTRODUCTION**

#### **PROGRAMMES**

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

The B.Sc. Degree programme in Biomedical Engineering is 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 Programme in Computer Engineering

The programmes continue to enjoy high patronage from both Ghanaian and foreign students. Current undergraduate student population is 364, out of which are 46 foreign students. The population of graduate students is 15.

#### **STAFFING**

As a result of arrangements to improve quality of teaching staff, three members of the academic staff of the Department are on study leave. One senior member is on Sabbatical leave and one has gone on retirement. In their place the University has hired two people, who will assume duty next semester. Meanwhile we are in the process of engaging part-time lecturers to help while waiting for the return of members on leave. Also, member of staff is working on his PhD under the Vice-Chancellor’s Special Initiative on Staff Development. Two former National Service Personnel enrolled on the Initiative are doing well. The population for academic staff now stands at 7 (to be 9 next academic year). The drive to further increase the Department’s strength to the required levels still continues.

#### **PROFESSIONAL TRAINING**

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

#### **RESEARCH**

Active Research areas during the year under review include optimisation of efficiency of earth electrodes, applications of ANN to power systems, application of RNS in bioinformatics, digital signal processing, logic test economics, sensor networks, surface plasmon resonance, smart metering, 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.

### **DETAILS OF LINKS WITH OTHER UNIVERSITIES AND INDUSTRY**

The Department maintained its links with Texas Instruments Inc. (TI). Under this linkage programme, the Department has enhanced its VLSI curriculum powered by a VLSI laboratory, which is equipped with industry standard VLSI design software tools generously supplied and maintained with the support of TI and National Instruments. The laboratory is actively used in teaching and research. This completes the first (capacity building) phase of the linkage.

Again this year, Texas continued to support two final year students to do their final year first semester studies at Texas A & M University. Plans are also under way for some students to be encouraged to take the VLSI course here in the final year next year. These students are to be awarded scholarship to study at the graduate level at Texas A & M University after their National Service.

The Department continued its collaboration with the VRA, ECG and GRIDCO.

The Department took delivery of instruments from Denmark. Additionally, a training workshop on embedded systems has been organized for our third-year students, and two more are in the offing. All these are being actively supported by Aarhus School of Engineering Student Chapter of Engineers without Borders in Denmark and Professor Carl Jakobsen. Also planned under this linkage is a three-month training for one laboratory technician.

### **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 electrical, electronic, computer and telecommunication engineering. Three members of the academic staff are currently serving as moderators and/or external examiners for a few universities. 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-two Thousand US Dollars (US\$22,000) has been received from TI to support various activities of the Department and its sister department—Department of Electrical and Electronic Engineering.

### **PUBLICATIONS**

During the year under review, some journal and conference papers arose out of the research activities conducted by academic members of staff. These can be found in the University's Quality Assurance Bulletin.

# **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 almost their entire 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 MSc programme in Telecommunication Engineering. 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 676, about twelve per cent (12%) of them being females. The foreign students constituted about ten per cent (10%) of the student population.

## **STAFFING**

The drive to further increase the staff strength to the required establishment levels still continued. In the year under review, two Technicians were employed to bring the technical staff strength to eleven (11). The processing of three applications for faculty positions is also underway.

### **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) Three (3) academic staff members are pursuing PhD programmes in Electronic and Telecommunication Engineering at the University of Electronic Science and Technology of China (UESTC) under KNUST/UESTC sponsorship.
- (2) One (1) Teaching Assistant from the Department is pursuing MSc programme in Electronic Engineering at the University of Electronic Science and Technology of China (UESTC) under KNUST/UESTC sponsorship. He is expected to complete his studies by September, 2014.
- (3) One (1) member of staff is pursuing PhD programme in Radio Science and Engineering at the Chungnam National University, South Korea under KNUST/Korean Government sponsorship. He should be graduating by September, 2014.
- (4) Two (2) Teaching Assistants from the Department have completed PhD programme in Electrical Engineering at North Carolina Agricultural and Technical State University

- (NCAT), USA under an MOU signed between KNUST and NCAT. They are awaiting their appointment as lecturers.
- (5) Three (3) academic staff members are pursuing PhD programme in Electrical Engineering at KNUST under a special VC's Staff Development Initiative.

## **RESEARCH**

The year under review witnessed a remarkable improvement in research activities evidenced by nineteen (19) 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) 4<sup>th</sup> generation network deployment

## **SERVICE TO COMMUNITY**

The Department continued to render laboratory services to the Kumasi Polytechnic and a member of academic staff served as Electrical Services Consultant to the University. Other services rendered to the nation by members of staff were mainly through membership on NABPTEX Board and 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. The institutions and units of the University which made use of our public address facilities were the University for Development Studies for a Special Congregation, West Africa College of Surgeons for their conference in Kumasi, KNUST Quality Assurance & Planning Unit, and KNUST School of Business.

## **INTERNATIONAL LINKS**

Under a partnership agreement signed between Texas Instruments Inc (Dallas TX) and the University in February, 2007, Texas Instruments Inc (Dallas TX) this year also supported two (2) final year students of the Department to do their Final Year First Semester studies at the Texas A & M University.

## **BENEFACTORS**

We are indebted to many organizations for their support which has made it possible for the Department to effectively discharge its functions. The organizations and the nature of their support are shown in the table below:



No.	Organization	Nature of Support
1	The Electricity Company of Ghana (ECG)	Donation of laboratory instruments and equipment from the second and final part of ECG's US\$500,000.00 pledge to the University to retool the Electrical & Electronic Engineering Laboratory. ECG used the first part of the amount to set up High Voltage Laboratory for the Department.
2	Schweitzer Engineering Laboratories, Inc, USA	Donation of microprocessor-based power protective relays and automatic controllers (One each of SEL 451, SEL 2411, SEL 351, SEL 587 and SEL 3530) worth US\$2,257.70
2	TIGO	Cash donation of Gh¢5,876.08 for the purchase of research equipment.
3	Vodafone, Ghana	Scholarships to five (5) final year female students.

### CONFERENCES ATTENDED

Academic members of staff attended several conferences; some of which are:

1. 40<sup>th</sup> IEEE Photovoltaic Specialist Conference (PVSC), June 8-13, 2014 in Denver, Colorado, USA
2. 5<sup>th</sup> IEEE Power Electronics for Distributed Generation (PEDG) Conference, June 24-27, 2014 in Ireland, UK
3. 5<sup>th</sup> IEEE Conference on Industrial Electronics and applications (ICIEA), June 9-11, 2014 in Hangzhou, China.

### PUBLICATIONS

During the year under review, some journal and conference papers arose out of the research activities conducted by academic members of staff. These 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 programme with emphasis in Groundwater 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 to begin 2014/2015 academic year. It is a flexible programme cutting across engineering and geoscience disciplines such that students from varying backgrounds can be accommodated.

## ENROLMENT

Student membership for the academic year stands at three hundred and eighty-two (382), the details of which are indicated below:

### UNDERGRADUATE PROGRAMME

Year	Male	Female	Total Number of Students
One	107	17	124
Two	77	15	92
Three	56	8	64
Four	84	11	95
<b>Total</b>	<b>324</b>	<b>51</b>	<b>375</b>

### POST GRADUATE

Year	Male	Female	Total Number of Students
One	4	-	4
Two	1	1	2
Three	1	-	1
<b>Total</b>	<b>6</b>	<b>1</b>	<b>7</b>

## ACADEMIC AND SUPPORTING STAFF

The Academic Staff strength of the Department is nine (9), out of which two (2) are part-time lecturers and one (1) is on study-leave. The current average staff-student-ratio is 1:56. Efforts are being made to recruit more academic staff.

The department has two supporting staff who help in the day to day running of the office.

## 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 during the year under review 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.

## RESEARCH ACTIVITIES

During the period some modest research work continued to be carried out by members of staff in various areas from which some journal and conference publications were made. Please refer to the University's Quality Assurance Bulletin.

## DEPARTMENT OF GEOMATIC ENGINEERING

### BACKGROUND

The Department of Geomatic is one of the six 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, and 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.

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 has an academic staff strength of fifteen (15) (out of which one is on post retirement contract and two on study leave) made up of two (2) Associate Professors, four (4) Senior Lecturers, seven (7) Lecturers and two (2) Assistant Lecturers. The efforts of the teaching staff are complemented by an Administrative Assistant, a Secretary, a Clerk and Survey Assistants.

## **VACANCY**

The Department is unable to attract a PhD holder to fill the position of a Photogrammetrist.

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

1. Doctor of Philosophy (PhD) –3-4 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 programmes are research-based, the MSc comprises of taught course components and a project whiles 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:

### **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.

### **Undergraduate BSc degree programmes**

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

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.

## **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.

Last year the Department graduated five MSc. Students in Geomatic Engineering for the **Government of Liberia.**

## **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). 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.

For the year under review, the Department undertook the following tasks as:

### ***Service to the University***

1. Infrastructural map for the College of Engineering
2. Utility Mapping on Campus

## **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, without your benevolent support our training would not be complete.

The Department is grateful to Quest Consolidated Limited, Accra for donating one Total Station to enhance students' practical work.

The Department also received 20 computers from the University for the GIS Laboratory.

## **PUBLICATIONS**

During the year under review, a few publications were made by academic members of staff.

# **DEPARTMENT OF MATERIALS ENGINEERING**

## **INTRODUCTION**

The Materials Engineering program (formerly Materials Science and Engineering) was established in 1984 as a section under the Department of Mineral Processing, Extractive Metallurgy/Materials Science and Engineering, at the then Institute of Mining and Mineral Engineering, KNUST. The program remained as a section until October 2002, when it was transferred to the College of Engineering as a full-fledged Department.

## **PROGRAMMES OFFERED BY THE DEPARTMENT**

### **Undergraduate Programs**

The department currently runs two undergraduate programs, that is, the B.Sc. Materials Engineering and B.Sc. Metallurgical Engineering.

### **Post-Graduate Programs**

The department currently runs **three (3)** post graduate programs: PhD in Materials Engineering which is based on research, M.Phil in Materials Engineering which is also based on research and

MSc./MPhil in Environmental Resources Management which is a combination of taught courses and research. The department is actually drawing up a curriculum for a Master of Science in Materials Engineering.

## STATISTICS

The student membership currently stands at **four hundred and seventy-three (473)** undergraduate students and **thirty-one (31)** post-graduate students. The breakdown is as indicated below:

### *B.Sc. Materials Engineering*

<b>a.</b> Year one (1)	-	76
<b>b.</b> Year two (2)	-	90
<b>c.</b> Year three (3)	-	69
<b>d.</b> Year four (4)	-	63

### *B.Sc. Metallurgical Engineering*

<b>a.</b> Year one (1)	-	67
<b>b.</b> Year two (2)	-	64
<b>c.</b> Year three (3)	-	44

### *M.Sc. Environmental Resources Management*

<b>a.</b> Year one (1)	-	10
<b>b.</b> Year two (2)	-	16

### *M. Phil Materials Engineering*

- 2

### *PhD Materials Engineering*

- 3

## STAFF MEMBERS (ACADEMIC/TEACHING)

The department currently has an academic/teaching staff of two (2) Associate Professors out of which one (1) is on contract, one (1) Senior Lecturer, four (4) Lecturers and two (2) Assistant Lecturers.

These teaching staff are supported by five (5) non academic staff.

## **DEPARTMENT OF MECHANICAL ENGINEERING**

### **INTRODUCTION**

The primary responsibility of Department of Mechanical Engineering is to produce mechanical and aerospace engineers capable of designing, manufacturing, installing, operating, servicing and maintaining mechanical machinery and systems, and aero craft and systems, respectively. The wide scope of mechanical machinery and systems means the training we offer to our students needs to be broad yet thorough and focused, in-depth, and of high quality in order to equip them with the requisite knowledge, preparation, and confidence they need to effectively practice as mechanical and aerospace engineers, and solve industry's problems efficiently toward national development.

Enormous challenges face the Department in its efforts to discharge the above responsibilities. The chief among these is the lack of resources to upgrade the supporting infrastructure comprising the machine shop, the welding and fabrication shop, the foundry, the Heat Engines Laboratory, the Mechanics of Machines Laboratory, the Metrology Laboratory, and the Strength of Materials Laboratory. These facilities, almost all of which are now over aged, have underpinned the practical aspects of our training over the years. A huge injection of capital is needed to enable acquisition of new and modern equipment that would reflect current trends in both academia and industry in the more progressive societies. This will position the Department to provide quality training and do intensive research in the areas listed above, and in other areas such as integrated circuit boards manufacturing, computer numerically control (CNC) machining and 3-D Printing systems.

### **TEACHING**

Currently, the Department offers two four-year undergraduate programmes leading to the award of a B.Sc. Mechanical Engineering degrees and a B.Sc. Aerospace Engineering degree. The Department also runs a two-and-a-half year top-up programme for HND holders leading to the award of the same BSc. Mechanical Engineering degree as above.

Two new programmes are currently under consideration in the Department. They are:

- i. Automobile Engineering and
- ii. Industrial Engineering

At the post-graduate level the Department offers graduate studies that lead to the award of PhD and MSc degrees in Mechanical Engineering in the following areas: *Applied Mechanics, Design and Manufacturing Engineering*, and *Thermodynamics and Energy Systems Engineering*. Our post-graduate programmes produce high-level professional manpower able to support teaching, research and outreach activities in universities, research institutes, and polytechnics. In addition the Department also runs an 18-month MSc programme in Renewable Energy Technologies (RETs). Two batches of students are currently on the programme with the total student population of 60.



## STAFFING

The Department is grateful for the appointment of Mr Edem Dzebre as Lecturer in the Aerospace Engineering Programme to strengthen the Academic Staff of the Department. The current staff strength, now standing at twenty-four (24), is explained below. Two (2) members are currently on sabbatical leave and study leave, respectively.

Sn.	Status	Number
1.	Associate Professors	1
2.	Visiting Professor	1
3.	Senior Lecturers with PhD	3
4.	Visiting Lecturer	1
5.	Lecturers with PhD	8
6.	Lecturers without PhD	4
7.	Assistant Lecturers	4
8.	Research Fellow	1
9.	Technical Instructor	1
	<b>Total</b>	<b>24</b>

## CURRENT STUDENT POPULATION

### UNDERGRADUATE (Mechanical Engineering)

Sn.	Year	Total Registered Students
<b>1</b>	First	144
2	Second	141
3	Third	81
4	Fourth	90
	<b>Total</b>	<b>456</b>

### Undergraduate (Aerospace Engineering)

Sn.	Year	Total Registered Students
<b>1</b>	First	33
2.	Second	36
3	Third	22
4	Fourth	22
	<b>Total</b>	<b>113</b>

### MSc and PhD Mechanical Engineering

Sn.	Year	Total Registered Students
1.	First	13
2.	Second	4
	<b>Total</b>	<b>17</b>

### **MSc Renewable Energy Technologies**

<b>Sn.</b>	<b>Year</b>	<b>Total Registered Students</b>
1.	First	16
2.	Second	19
	<b>Total</b>	<b>35</b>

### **PhD Mechanical Engineering**

<b>Sn.</b>	<b>Year</b>	<b>Total Registered Students</b>
1.	First	3
2.	Second	2
	<b>Total</b>	<b>5</b>

The total student population is 626, and with this a staff strength of 35 is required to achieve the ideal staff to student ratio of 1:18, as required by the National Accreditation Board.

### **DEVELOPMENT OF PROGRAMMES AND COURSES**

Our strategy in the long term is geared towards embracing emerging trends in industry. Consequently, our Action Plan calls for some new programmes and courses to be developed. These requirements in industry and national development are creating considerable needs for specialists who have been given in-depth training in specific areas of mechanical engineering to be able to meet current challenges. Ghana needs to be able to manufacture various simple tools and machines to remove physical drudgery in the everyday activities of artisans in the informal sector. These challenges can only be addressed with focused training and the creation of new programmes such as Energy Systems Engineering, Industrial Engineering and Automobile Engineering to focus on design of machinery, development of processing technologies, and creation of mechanisms for infusion into design and manufacture of machinery in to the society. Notwithstanding the above, a proposal is being finalised for consideration in the near future by the College Board for the introduction of 4-year BSc programmes in Industrial Engineering and Automobile Engineering to meet national needs

### **OTHER INTERNAL DEVELOPMENTS**

During the period under review, the following other developments took place:

1. The automobile workshop was given a facelift using the Department's own internal resources. This involved decongesting the shop, repairing and patching up gaping holes in the large sliding doors, painting all the internal walls and the sliding doors, and painting and marking out the floor for direction.
2. The machine shop was given partial facelift by painting its floor, parts of its walls and relaying to top of the main bench-fitting workbench.
3. The postgraduate students' office was similarly given a facelift and, in addition, enlarged by adjoining the former drawing office to it so that both the Department's Master's and PhD students could share the same room space. Here the facelift involved fitting a new water closet and sink, as well as procuring brand new furniture (swivel chairs). A new air

conditioner and four-way workstations will be added in the near future to make the works complete). These developments would raise standards by affording each student higher personal comfort and privacy in terms having their own workspace.

4. Procurement of six low-price PLCs, one variable frequency, and one capacitive sensor to support the creation of a future Mechatronics and Automation and Controls Laboratory.
5. The Department purchased one 12-seater minivan for itself with funds generated through its HND Top-up programme.
6. The procurement process to purchase Computer Numeric Control milling, turning, and drilling machines have been set in motion.
7. After exerting a great deal of effort, the HoD, working in collaboration with the Lecturers-in-Charge (LICs) of the Department's workshops and laboratories (Dr Agyei Agyeman and Dr Y. A. K Fiagbe), were able to enforce a significant level of discipline in the workshops and labs in terms of income generation from external jobs performed in the workshops and laboratories, something that had eluded the Department for over twenty years. Two technicians working on the ground, Mr Kwadwo Budu-Diabene and Mr Ernest Kwadwo Adomako, as well as the Department's Administrator, Mr Oppong Gibridu, deserve special mention in this regard for being instrumental in helping the Department to achieve this success.
8. The Department teaches a large number of service courses to students in other departments. In an attempt to reduce the teaching load of academic staff to free time for research, the Departmental Board set up a committee to look into ways to reduce the number of service courses the Department teaches to students in other departments of the university, especially those in the College of Engineering. As of the time of reporting the committee's work was still on-going.

## **EXTERNAL FUNDS MOBILISATION**

During the period under review (i.e. 2013-2014), a team in the Department led by Dr Richard Opoku submitted a proposal to COTVET to solicit external funding to support a collaboration with SMIDO.

## **COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY**

- a) Prof. F. K. Forson serves as an External Examiner for University of Education, Winneba
- b) Dr. A. Sunnu is the Chairman of the Programme Advisory Committee (PAC) of the HND Automotive Engineering, Koforidua Polytechnic. He is also the Moderator of the Mechanical Engineering Programme at the Ho Polytechnic.
- c) Dr. Gabriel Takyi serves as the representative of the KNUST Academic Board on the Faculty Board of the Faculty of Automobile Engineering of Ho Polytechnic, an affiliate of KNUST.
- d) Dr S. M. Sackey, serves as the KNUST's representative on the EU-Africa Tuning Project, which seeks to harmonise higher educational structures across Africa.

## **INTERNATIONAL LINKAGES AND OTHER EXTERNAL COLLABORATIONS**

During the period under review the Department signed MOUs with four entities (one foreign university, two international firms and one Ghanaian firm). These, respectively, are Lappeenranta University of Technology of Finland, Bopp & Reuther Messtechnik of Germany, PHI Century Limited of USA and Ghana, and Process and Plant Automation Ltd. of Ghana. Existing links have also been maintained between the Department and the following institutions:

- North Carolina Agricultural and Technical University NCA&T, USA
- Southern University, USA
- University of Michigan, USA
- Embry Riddle Aeronautical University, USA
- 2IE International Institute for Water and Environment, Ouagadougou University.

Prof F. K. Forson remained on sabbatical leave at the Kumasi Polytechnic during the period, while Dr. A. K. Sunnu, Senior Lecturer, returned to post from the University of Mines and Technology, Tarkwa, where he had served out the second leg of a two-year sabbatical leave.

## **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 Machetes Ghana Limited, Tema; Volta River Authority; Aluworks Limited, Tema; Takoradi Naval Base; Tema Lube Oil; Tema Oil Refinery; and Ghacem, Tema; for their continuing support for our yearly students' industry visits.
- Toyota Ghana, for fulfilling a pledge to support brilliant but needy Mechanical Engineering students with an amount of GH¢5000.00.

# TECHNOLOGY CONSULTANCY CENTRE

## INTRODUCTION

The Technology Consultancy Centre (TCC) of the College of Engineering was established in 1972 with a mandate to work in collaboration with KNUST's academic departments to research, develop and transfer sustainable technologies to support small and medium-scale industries in Ghana. To realize this objective, the TCC operates the following program units:

- Suame Intermediate Technology and Transfer Unit (ITTU)
- Food, Agriculture and Natural Resource Development (FAND) Unit
- Applied Industrial Ceramics and Rural Enterprise Development (AIC-RED) Unit
- Entrepreneurship Development Unit
- Consultancy

The TCC focuses on applied and field-based research, development and training aimed at enterprise development and poverty reduction.

## RESEARCH AND DEVELOPMENT

### **Suame Intermediate Technology Transfer Unit (ITTU)**

The ITTU continues to provide technological expertise and equipment through prototyping and product development. The ITTU also provides workshop facilities for KNUST students to apply classroom learning in the workshop during their final year project work. During the academic year 2013/2014, the ITTU carried out the following activities:

- Installation of complete Jatropha Energy Facility (decorticator, oil expeller, diesel engines) for processing of Jatropha oil, training as well as enterprise development in Jatropha-based products at Kparigu in West Mamprusi district, Northern region.
- Production of three (3) Jatropha decorticators for de-husking Jatropha fruits into seeds. These machines have all been tested and will be used for training in the extraction of oil and production of Jatropha-based products in 3 rural communities of Nasia, Wungu and Yama, all in West Mamprusi district, Northern region of Ghana.

### **Food Agriculture and Natural Resource Development (FAND) Unit**

In collaboration with students and faculty members of Chemistry Department, Department of Agricultural Engineering and Department of Agricultural Economics and Extension the FAND Unit continued working in various research areas including:

- Oil extraction
- Bio-charring unit
- Briquettes development
- Study of bee keeping technology at the 10-hive apiary (bee-farm).

### **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, bio-briquettes and bio-char for clean smokeless stoves, 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 unit is developing an idea to use the Vice Chancellor's impact

programme to promote the improved institutional cookstoves in some communities. The 10-20kw biomass gasification power plant is in operation and has four (4) KNUST students working on it.

### **Entrepreneurship Development Unit**

This Unit focuses on collaborative work in international development and graduate entrepreneurship training. During the 2013/14 academic year,

- The unit supported seven (7) KNUST students from various departments to join with thirteen (13) students from University of Pennsylvania, USA to participate in the International Development Summer Institute (IDSI) 2013.
- The unit assisted in the placement of seventeen (17) 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 training programme with ADE, Olin College, USA on new product design and business opportunity for 16 small enterprises in Kumasi.

### **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)**

- Technology and Innovation Services for Setting up Science & Technology Parks
- Food processing and gender-related issues
- Science, Technology and Innovation Systems and Policy

#### **Dr. George Y. Obeng (Director)**

- Waste vegetable oil (WVO) as a potential feedstock for biodiesel production
- Study of extraction, blending, quality improvement and price analysis of Jatropha oil
- Solar 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
- Community Needs Assessment, Environmental Impacts and Apportionment

#### **Mr. Donald Amrago**

- Institutional stoves, kilns and furnaces
- Design and construction of institutional cookstoves
- Students entrepreneurship development
- Community Needs Assessment, Environmental Impacts and Apportionment

#### **Mr. Michael K. Adjaloo**

- Study of the pollination system of the cocoa tree
- Spatial distribution of insect communities in Ghanaian cocoa farm
- Evaluation of breeding substrates of cocoa pollinators
- Development of beeswax-based products

- Study of Jatropha-based products: methods of extraction, quality improvement and price analysis
- Community Needs Assessment, Environmental Impacts and Apportionment

**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 plastics 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 bee-hives on internal hive temperature

**TRAINING, TEACHING AND SUPERVISION OF STUDENTS**

***Training Workshop on Processing of Jatropha oil as Alternative Fuel***

Four communities in the West Mamprusi District of the Northern Region of Ghana are beneficiaries of a European Union (EU) sponsored Ghana Jatropha project (GHAJA). In the project, TCC is required to set up a local cooperative-managed oil extraction facility for transformation and commercialization of Jatropha and Jatropha-based products and training of beneficiary communities. Pursuant to the project objectives, the following were achieved:

- The first facility which was established at Kparigu, a farming community in the West Mamprusi District, was made up of a decorticator produced by TCC, diesel engines, and an imported oil expeller.
- A 3-day training workshop on installation, operation, processing and maintenance of equipment was organized for 12 participants from the various communities at Kparigu from 11<sup>th</sup> to 13<sup>th</sup> November 2013. It consisted of theoretical presentation, demonstrations and hands-on sessions. Each participant operated the equipment to ensure that they were confident and capable of using the equipment effectively. The participants found the training programme to be very useful.

***Training Workshop on Design and Development of Mini Cassava Grater***

The training workshop, which was organized in collaboration with the Affordable Design Entrepreneurship programme of Olin College-USA, was held in Suame ITTU workshop from 9<sup>th</sup> to 10<sup>th</sup> January 2014. The goal of the training was to build the capacity of machine fabricators and welders in Kumasi. The following were achieved:

- 16 small entrepreneurs were provided with hands-on training at the Suame ITTU workshop and certificates were given at the end of the 2 days' training.
- The training was divided into two modules: new product design and business opportunity; and production process using spot welding machine.
- Olin College faculty member Prof. Ben Linder donated a spot welder worth US\$ 1100 to the Suame ITTU for use during the hands-on training. The targeted consumers of the product were gari producers, restaurant operators and domestic users.

### ***Teaching and Supervision of Students Work***

- **Dr. George Yaw Obeng** taught the following postgraduate MSc/Mphil/PhD courses: PL 553 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 Renewable Energy Applications for Rural Development at the Department of Agricultural Engineering, KNUST.
- **Mr. Donald Amrago** co-supervised 5 final year students of Department of Integrated Rural Art and Industry and 3 final year students of Department of Industrial Art (Ceramic Section).
- **Mr. Michael K. Adjaloo** is currently teaching Apiculture at the Department of Agricultural Economics and Extension, Faculty of Agriculture, KNUST. He co-Supervises MPhil students' projects in the Department of Chemistry on the topic -investigation into pesticides in honey, and Department of Geography on value chain analysis of beekeeping in Ghana.
- **Mr. Michael Commeh** co-supervised 3 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-supervised 2 final year students who are working on the ceramic activities at the Kumasi Cultural Centre and its impact on economy and culture of Ghana at the Department of Industrial Art, KNUST.

### **NATIONAL COLLABORATIONS**

#### ***TCC-Energy Commission Stove Testing and Expertise Center at KNUST***

During the period under review, the TCC won a competitive bid organized by the Energy Commission of Ghana to establish a Testing and Expertise Centre for improved stoves and heat retention devices at KNUST. The US\$ 90,000 facility which includes supply of equipment, installation and training is being sponsored by UNDP.

- The Testing and Expertise Centre will carry out efficiency, performance, technical and emission level tests on cookstoves produced locally or imported into Ghana. This will facilitate the successful and effective implementation of standards. With standards and labels in place, cookstoves will be labelled as “improved” to differentiate them from ordinary cookstoves.
- The Testing and Expertise Centre will also create an avenue for R&D to facilitate continuous technological improvement and innovation in the design and manufacture of improved cookstoves in Ghana and Africa.

#### ***TCC-Environmental Protection Agency (EPA) Community Assessment Work at Chirano Goldmine Catchment Communities, Western Region.***

As a result of an EPA contract won by TCC to provide consultancy services on community needs assessment work, a final report was presented on November 19, 2013 at Coconut Grove Regency Hotel in Accra. The stakeholders' workshop was attended by representatives of Bibiani-Anhwiaso-Bekwai and Sefwi Wiawso District Assemblies, Traditional Council and Community Chiefs, EPA, National Liaison Group (NLG), Forestry Commission, Ghana Chamber of Commerce etc. The Terms of Reference for the consultancy services specified a major challenge facing the NLG in terms of apportionment and utilization of funds accrued for future developmental projects in the Chirano Goldmine catchment communities in Western region.

- A total of 20 communities were surveyed for needs prioritization and apportionment.



- To determine the criteria for apportionment, the team of experts carried out risk assessment, which was based on factors including social, economic, health, environmental, bird's flight distance and population.
- A 130-page report was presented to the EPA in Accra at the end of the consultancy assignment.

#### ***TCC- Netherlands Development Organization (SNV) Biomass Gasification Development***

The Netherlands Development Organization (SNV), in partnership with the TCC, KNUST has constructed a 10 kW gasification plant to produce electricity from charcoal. The gasification technology is the first of its kind in Sub-Saharan Africa. It was built from readily available materials such as cement, sand, iron rods and chicken wires (Ferro-cement). A key objective of the project is to create interest in the gasification technology. It was transferred to Ghana by Biomass Technology Group (BTG) of The Netherlands. It is expected that Master's and Doctoral students of KNUST will further develop the technology while private sector practitioners will develop business interest.

### **INTERNATIONAL COLLABORATIONS**

#### **Ghana Jatropha Research Project (GHAJA)**

In collaboration with the Nucleo Ricerca Desertification (NRD), University of Sassari, Italy, the TCC is working with Savannah Agriculture Research Institute (SARI), Ministry of Food and Agriculture (MOFA), Tamale and New Energy, Tamale, on an EU eligible funding of €169,000 for TCC action in a project titled - Use of Jatropha plant to improve sustainable renewable energy development and create income-generating activities: an integrated approach to ensure sustainable livelihood conditions and mitigate land degradation effects in rural areas of Ghana. This project will end in December 2014. The TCCs main activities are design and manufacture of Jatropha decorticator, expeller; study of Jatropha-based products with focus on extraction methods, quality improvements, and alternative uses and market analysis and training. Among the products so far delivered include:

- Development of four (4) Jatropha decorticators for processing of Jatropha fruits into seeds and technical design;
- Importation of four (4) oil expellers, diesel engines and accessories
- Installation and field testing of one (1) oil expeller, two (2) diesel engines and accessories for setting up energy facility at Kparigu
- Submission of 19 quarterly reports with data.
- Publication of training manual on operation, maintenance and installation of Jatropha equipment.

#### **TCC-MIT INTERNATIONAL DEVELOPMENT INNOVATION NETWORK (IDIN) PROJECT**

The International Development Innovation Network (IDIN) programme is a 5 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 has achieved the following:

- Supported final year projects of one (1) female post-graduate student and three (3) undergraduate students of Department of Agricultural Engineering, KNUST with IDIN funds to undertake research projects that will improve the lives and livelihoods of people living in poverty.
- IDIN-MIT had provided US\$8100 to support Ghana Engineering Students Association (GESA) and Creativity Group all of the College of Engineering, to organize Engineering Students' Competition in September 2014.

#### **TCC-UNIVERSITY OF PENNSYLVANIA (UPENN) INTERNATIONAL DEVELOPMENT SUMMER INSTITUTE AFRICA PROGRAM (IDSIA-AP)**

In collaboration with Penn-Engineering and the Africa Center of University of Pennsylvania (PENN), the TCC co-hosted for the fourth (4th) time the International Development Summer Institute (IDSIA) class of 2013 from May 13 to June 9, 2013. In this programme,

- Seven (7) KNUST undergraduate students (5 females and 2 males) were competitively selected and given stipends to join 14 UPENN undergraduate students.
- Since its inception about 30 KNUST students have been provided with the opportunity to have applied classroom learning and cross-cultural experience in the field of International Development for 4 weeks on KNUST campus.

#### **SERVICE TO COMMUNITY**

**Dr. George Yaw Obeng** served as a Member of 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).

**Mr. Donald Amrago** is a Member of the College of Engineering Guest house management board and a member of the College of Engineering maintenance committee. He serves on the KNUST United protestant Committee. He also served as KNUST representative on AGI INDUTECH Kumasi Exhibition Committee and a member of Career Fair Exhibition Committee, College of Engineering.

**Mr. Michael K. Adjaloo** served as a Local Organizing Committee Member for International Development Summer Institute (IDSIA) for students of University of Pennsylvania (USA) and KNUST, College Representative on the Development Research Uptake in Sub-Saharan Africa (DRUSSA), Technical Advisor, to Beekeeping project of Rural Development and Youth Association (RUDEYA), a Ghanaian NGO, Team **partner**, Bobri Step Site for the Conservation and Management of Pollinators for Sustainable Agriculture through an Ecosystem Approach etc.

**Mr. Michael K. Commeh** is a member of the Mirror Committee (MC) of the ISO/TC 285 Cookstoves and Clean Cooking Solutions.

## **PUBLICATIONS**

During the year under review, some members of staff published articles in some peer reviewed journals. Please refer to the Quality Assurance Bulletin of the year under review.

## **THE ENERGY CENTER**

### **INTRODUCTION**

The Energy Center (TEC) commenced activities in 2006 and was 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. TEC pulls resources from the various Departments of the College of Engineering (CoE) as well as other Colleges of the university. Thanks to these activities TEC's vision to become "a globally-recognized center of excellence for energy in Africa" is fast becoming a reality and this report highlights achievements over the last academic year, from about April 2013 to March 2014.

### **RESEARCH AND CONSULTANCY**

The Center is currently embarking on several projects, all of which have seen tremendous progress. They are as follows:

#### **Potential of distributed grid-connected solar – PV systems in rural electrification in Africa (AU Grid Solar)**

The Africa Union project dubbed "Potential of distributed grid-connected solar Photovoltaic (PV) systems in rural electrification in Africa" which is supported by Africa Union with an amount of €934,056.60 is still on-going and will be completed in March 2015. This project seeks to demonstrate the potential of distributed grid-connected solar PV systems in rural electrification schemes/projects for improved affordability and sustainable energy access. As part of its activities, the project has installed an Automatic Weather Station in Walewale (Northern Ghana) for monitoring solar radiation and other parameters. Procurement process is underway for the installation of 30 kWp grid-connected systems in the same area. Mr Emmanuel Anto of the Department of Electrical Engineering is Coordinator of this project. 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

The AU-2iE CSP4Africa Project is supported by African Union with an amount of €743,096 and focuses on technology development.

### **Solar Export Potential Study**

The Ghana Solar Export Potential Study (SEPS) which is supported by United Nations Environment Programme (UNEP) has successfully completed the first phase and presented the initial findings on solar electricity trade for stakeholder comments and input. The next phase of the project is currently under preparation. This study was coordinated by Dr. Lena Mensah with support from Mr. David Ato Quansah both from the Mechanical Engineering Department. SEPS is one of UNEP's initiatives on Green Economy and Trade and is supported with an amount of US\$50,000.

### **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) is being led by Kumasi Institute of Technology, Energy and Environment (KITE) with support from TEC and Universitat Politècnica de Catalunya in Spain and is being supported with an amount of €8,283.

### **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 which will build a pilot biogas plant at the Kumasi Abattoir is being supported with an amount of €1,280,000 and will last for 3 years. Prof. Ahmad Addo, The Acting Director of TEC, has recently been appointed as the National Project Director of this project.

### **Biofuel Production from Lignocellulosic Material (2GBIONRG) Project**

The DANIDA-2GBIONRG Project is an academic project for the training of postgraduate students. The project is supporting Mr. Francis Kemausour with an amount of €68,079. This project is to develop sustainable technologies for production of 2nd generation biofuels (biogas, bioethanol and biodiesel) from Lignocellulosic waste material in developing countries in Africa.

### **Action-Oriented Monitoring and Evaluation of Energy Access in Ghana**

The UNDP (United Nations Development Programme) project on Sustainable Energy for All (SE4All) is currently running and will be concluded in December this year. The project is coordinated by Miss Gifty Serwaa Mensah (PhD Student) on behalf of TEC and funded with an amount of US\$ 139,700. This project focuses on sustainable energy access for all.

### **Energy Efficient Rural Food Processing Utilising Renewable Energy to Improve Rural Livelihoods**

The Renewable Energy for Food Processing project is still in progress and support with an amount of 824,069. The lead partner on this project is New Castle University (UK) with The Energy Center-KNUST (Ghana), Njala University (Sierra Leone), Jomo Kenyatta University of Science and Technology (Kenya), Stellenbosch University (South Africa), Kassel University (Germany) as implementation partners. This project is coordinated by Dr. Lena Dzifa Mensah of

the Mechanical Engineering Department on behalf of TEC. The project focuses on energy efficient food processing and utilizing renewable energy to improve rural livelihoods.

### **Support to the African Climate and Development Society Convening Workshop**

The National Renewable Energy Laboratory (NREL) is sponsoring a consultancy with TEC which provided support to the African Low emission Development Strategies Partnership (AfLP) Convening Workshop which was organised in Democratic republic of Congo (DRC) in April 2014. This consultancy is supported by NREL to the tune of \$37,099.00. This project focuses on developing low emission development strategies and climate change resilience in Africa.

### **Consolidation of the ECOWREX GIS over ECOWAS Member States/Development of Energy Access maps**

The Consolidation of ECOWREX GIS project just kicked off this April and will be completed in two years. The project is spearheaded by ECREEE and with the following partners: TEC-KNUST, NOLVETIS S.A.S, University of Geneva, and Ministry of Energy, Cape Verde. This project focuses on promoting sustainable energy access through the use of geospatial technologies in West Africa. Mr. Daniel Ladzagla of Geomatic Engineering Department is coordinating this project on behalf of TEC. The project is supported with an amount of € 1,090,878.71 from the European Union.

### **Promotion of National Renewable Energy Policies and Incentive Schemes in ECOWAS Member Countries**

This consultancy project was awarded by the International Renewable Energy Agency (IRENA) following an international competitive bidding process to TEC and its consortium partners - RENAC Renewables Academy (Germany), 2iE (Burkina Faso) and IFOK (Germany). This contract was worth US\$72,500 and was for the training of energy policy makers, regulators and utilities in the ECOWAS Sub-region on instruments and mechanisms to strengthen renewable energy development and investments. Mr. David Ato Quansah (Department of Mechanical Engineering) and Dr. George Obeng (Technology Consultancy Center) ensured successful implementation of this contract.

### **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 providing state-of-the-art studies, advisory services to public and private bodies and serves as a show-room for environmental technologies. Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH is contracted by the State Chancellery of NRW to facilitate this project. The cooperation involving Westfälische Hochschule Gelsenkirchen and Technische Universität Dortmund focused Renewable energy, Energy efficiency, Waste management and Resource recovery.

An amount of €34,041 was released by GIZ for the first phase of this cooperation which has just ended. 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.

In relation to this project, TEC is currently hosting Mr. Andreas Ahrenbog a bioenergy expert as a Research Fellow. The Center is grateful to the University for facilitating his appointment.

Work is currently underway for phase 2 of the project. Prof Ahmad Addo coordinates this project.

### **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 focussed on energy access in Ghana ended in May 2014. TEC executed the project with an amount of € 90,923.

### **Agro-Processing and sawmill wastes, a Biomass- Based Assessment for Grid Connected Electricity Generation**

The Ghana Energy development and Access Project (GEDAP) is currently ongoing. This project is coordinated by Mr. John Ayer of the Department of Geomatic Engineering and is supported with an amount of GH¢ 136,887.50. TEC is the main beneficiary with Trama TechnoAmbiental (TTF) of Spain, Centre Tecnologic Forestal de Catalunya (CTFC), Solsona, Spain lending support to the fruition of the project.

### **International RE Training Expert and RE Curriculum Developer**

United Nations Industrial Development Organization (UNIDO), Vienna, Austria is sponsoring a project which is aimed at 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 also seeks to facilitate the process of developing robust renewable energy curricula for possible integration into the existing curricula at Gambia Technical Training Institute (GTTI) University of The Gambia (UTG) and possibly Ministry of Basic and Secondary Education. This will be done in consultation with key institutions in Gambia. This project is expected to end in July, 2014 and the project amount is US\$ 46,115.48. The project is coordinated by Dr. Lawrence Darkwah of the Chemical Engineering Department.

### **TEACHING AND RELATED ACTIVITIES**

The MSc Renewable Energy Technologies (RETs) programme 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 third batch of students. The first batch of students from this programme is expected to graduate in June 2014.

The Energy Center in collaboration with the African Network of Solar Energy organized a workshop at KNUST in April 2014.

The annual short-courses on renewable energy technologies were organized by TEC in May/June of 2013 and 2014.

### **ORGANISATIONAL RESOURCES**

The Energy Center-KNUST has operated to date as a virtual center with a lean office staffing structure consisting of the Acting Director, Prof Ahmad Addo, and a Principal Administrative Assistant supported by a Communications and Publications Assistant and six (6) National Service Personnel.

TEC currently has about sixty (60) Fellows drawn from practically every College of KNUST and almost fifty (50) Associates of which a good number are graduate students in various disciplinary areas across the university.

TEC has a Management Board which is chaired by the Provost of the College of Engineering and has representatives from all five other Colleges of the university as well as the four main disciplinary areas in the CoE.

TEC activities have been funded from projects undertaken by TEC Fellows and Associates. Over four (4) million Euros has been received or approved for payment during the period under review; approximate amounts for each project are summarized in the table below.

### **PROPOSALS UNDER CONSIDERATION**

TEC has a number of projects and related consultancy services pending commencement. A consortium including TEC, Centre for Business Development (CBD) KNUST and some Danish Consultants have submitted a proposal in response to an Expression of Interest to host Ghana Climate Innovation Center (GCIC) Project to the World Bank and DANIDA. The announcement of the shortlisted consortia is expected in May 2014.

TEC together with the University of Petroleum and Energy Studies in India have received a grant from the International Association of Universities for exchange of visits under its LEADHER programme for leadership development for higher education improvement.

TEC is currently in discussion with a consortium of universities in the United States for the establishment of Industry/University Collaborative Research Center under the USAID Power Africa Project on the theme, “Energy and Power for Sustainable Development in West Africa”. The purpose of this Center is to foster industry/university relationship in solving industry problems through research.

Under this same project, TEC has submitted three (3) joint proposals with partner universities in the United States to the National Science Foundation for funding. These include: PV Module Degradation and Reliability, Capacity Building and Research in Biomass Gasification, and Assessing the Potential of Renewable Energy in Sustainable Water Supply in Ghana.

## ON-GOING PROJECTS AT THE ENERGY CENTER AS AT MAY 2014

<b>Focal Area</b>	<b>Project Title, Coordinator and Sponsor</b>	<b>Partners</b>	<b>Project Budget</b>	<b>Start of Project and Project Duration</b>
Solar PV	Potential of distributed grid-connected solar Photovoltaic (PV) systems in rural electrification in Africa–Mr Emmanuel Kwaku Anto– African Union	Lead Partner-TEC-KNUST Supporting Partners -University of Botswana and University of Flensburg	€ 934,056.60	29 <sup>th</sup> March 2012 – 3 years
Solar Thermal	Development of a Cost-effective, modular and Dry Concentrating Solar Power for Africa; Design and Test of Components. – Dr. Emmanuel Ramde – African Union	Lead Partner - 2iE Supporting Partners - TEC-KNUST + SireaEnergie + ECREEE	€81,686.00	29 <sup>th</sup> March 2012 – 3 years
Biomass	Feasibility Study and detailed Engineering of small scale Biomass Gasification Mini Grids for Electricity Services in Rural communities in Ghana. EREF Project – Dr Lawrence Darkwah - ECREEE	Lead Partner - KITE Supporting Partners - TEC-KNUST + Universitat Politècnica de Catalunya	€ 8,283.00	May 2013 - 2 years
Biogas	Supporting green industrial development in Ghana: Biogas technology and business for sustainable growth – Mr Edward Awafo – UNIDO and Korean Government	Lead Partner - UNIDO Supporting Partners - TEC-KNUST	€ 1,280,000.00	Sept 2013 – 3 years
Energy Access	Building a Reliable Energy Access Database to promote sustainable energy expansion in Ghana – Miss Gifty Serwaa Mensah – Renewable Energy and Energy Efficiency Partnership (REEEP) + Energy Commission, Ghana	Lead Partner - TEC-KNUST	€ 90,923.00	1 <sup>st</sup> May 2013 – 1 year
Bio Process Engineering	Biofuel Production from Lignocellulosic Material (2GBIONRG) Project- Mr Francis Kemausour - DANIDA	Lead Partner - TEC-KNUST	€ 800,000.00	June 2012 – 4 years
Solar PV	Solar Electricity Export from Ghana – Dr Lena Mensah – UNEP	Lead Partner - TEC-KNUST	US\$ 50,000.00	June 2013 - 9 months



Renewable Energy Training	International RE Training Expert and RE Curriculum Developer - Dr Lawrence Darkwah - UNIDO	Lead Partner - TEC-KNUST	US\$ 46,115.48	27 <sup>th</sup> September 2013 - 31 <sup>st</sup> July 2014 - 9 months
Renewable Energy Training	Promotion of National Renewable Energy Policies and Incentive Schemes in ECOWAS Member Countries- David Ato Quansah-IRENA	Lead Partner - RENAC Renewables Academy, Germany -	US\$ 72,500.00	June 2013- September 2013- 4 months
Biomass	Agro-Processing and sawmill wastes, a Biomass-Based Assessment for Grid Connected Electricity Generation --Mr John Ayer-Ghana Energy development and Access Project (GEDAP)	Lead Partner - TEC-KNUST, CTFC, Solsona, Spain	GH¢136,887. 50	30 <sup>th</sup> June – Dec 15 - 5 and half months
Energy Access	Action-Oriented Monitoring and Evaluation of Energy Access in Ghana- Miss Gifty Serwaa Mensah-United Nations Development Programme	Lead Partner - TEC-KNUST	US\$ 139,700.00	1 <sup>st</sup> July 2013 to 31 <sup>st</sup> Dec 2014– 18 months
Renewable Energy, Energy Efficiency / Climate and Resource Protection	Climate and Resource Protection for Sustainable Economic Development in Ghana Project – Prof Ahmad Addo – German state of NRW	Lead Partner - TEC-KNUST	€ 34,041.00	15 <sup>th</sup> November 2013 – 28 <sup>th</sup> February 2014 - 4 months
Renewable Energy for food processing	Energy Efficient Rural Food Processing Utilising Renewable Energy to Improve Rural Livelihoods – Lena Dzifa Mensah + Joseph Akowuah - University of Newcastle	Lead Partner - New Castle University	€ 824,069.00	1 <sup>st</sup> July 2013– 3 years
Climate Development	Support to the African Climate and Development Society Convening Workshop - Mr Edward Awafo-National Renewable Energy Laboratory(NREL)	Lead Partner - TEC-KNUST	\$37,099.00	8 <sup>th</sup> Nov-15- 15 <sup>th</sup> Mar 2014 – 5 months
Energy Access	Promoting Sustainable Energy Access Through the use of Geo-spatial Technologies in West Africa -Ladzagla Daniel Kwame - ECREEE	Lead Partner - ECREEE Supporting Partner - TEC-KNUST	€ 1,090,878.71	2 years- 18months

## ACRONYMS

2iE	International Institute for Water and Environmental Engineering
CoE	College of Engineering
DANIDA	Danish International Development Agency
ECG	Electricity Company of Ghana Limited
ECREEE	ECOWAS Regional Centre for Renewable Energy and Energy Efficiency
EREF	ECOWAS Renewable Energy Facility
GEC	Ghana Energy Commission
GRIDCo	Ghana Grid Company
KITE	Kumasi Institute of Technology and Environment
KNUST	Kwame Nkrumah University of Science and Technology
NEDCo	Northern Electricity Distribution Company
TEC	The Energy Center
UNEP	United Nations Environment Programme
UNIDO	United Nations Development Organisation

## THE COLLEGE OF ENGINEERING LIBRARY

### INTRODUCTION

The College of Engineering Library is one of the six college libraries of the Kwame Nkrumah University of Science and Technology, Kumasi. It provides physical and digital access to materials, on Engineering to support the research and teaching in the College. The library has been automated and thus linked up to the Main University Library. As a result information about the resources of the library can be accessed anywhere with internet connectivity via this web address: *libcat.knust.edu.gh*. To access KNUST E-Resources off campus, Staff should log in to *ocl.knust.edu.gh* with their university email address and password as well as students logging in with their ID and password

Library space though small, services are designed to foster collaboration among students and faculty. Library staff are assigned as liaisons to facilitate discovery, retrieval, and integration of information. The service priority of the Library staff is to assist patrons to use efficiently the reference and research materials that are professional tools of successful engineers.

The College library seeks to be a leading academic library that provides access to all relevant, pertinent and timely engineering information to users. The library is dedicated to bringing clientele and information together within the engineering community. As one of the largest college, the library is committed to providing value through its outstanding services, comprehensive access to information, relevant educational programs, the latest technologies, and a hospitable place to work and visit. The College of Engineering Library is located on the last floor of the **Block B** building.

### STAFF

The Library which is headed by an Assistant Librarian has five members of staff.

### BASIC INFORMATION

The patrons of the library are Students, Staff, Alumni, Engineers and Visiting Scholars

**The opening hours are:** *General* Monday to Friday: 9:00am-5:00pm. However, after mid semester examination, the library operates extended opening *hours from* Monday-Friday: 9:00am-10:00pm and on Saturday: 9:00am-2:00pm.

## **BASIC FACILITIES AND SERVICES**

### **Seating Capacity**

Currently, it has a seating capacity of one hundred and six (106) but after the expansion, it would be more than two hundred.

### **Information /Reference Services:**

The Library is mainly for reference, no material is borrowed from the library. They circulate within the Library. The Library has a team of highly skilled staff at the Reference Desk during most hours when the library is open. They are to primarily serve patrons (students, faculty and alumni etc), they are also available to assist other members of the engineering profession who wish to use the library facilities.

### **On line and Photocopying Services**

**Photocopying Services:** There is also one copier; requests should be made ahead of time to provide this service. **Online Public Access Catalogue (OPAC):** There are three computers. **One** for OPAC - provides access to library items physically located in the library. It offers services such as ability to search by author, series, title, subject and or combination of any two bibliographical information of item. It gives the opportunity to access other libraries' (within KNUST) items when item searched for is not available within this library. The other two computers are for processing of materials and office use.

**Reserve Materials:** Reserve materials are located behind the Reference Desk. All reserve materials circulate within the Library. They include past examination questions and materials (photocopied or personal copies) requested for reserve by faculty members for specific classes.

## **STOCK/COLLECTION/HOLDINGS**

The Library has a total stock of **thirteen thousand, three hundred and one** (13,301) which are made up of the following.

- **Volumes of Books:**
  - Textbooks, - 8,092
  - Encyclopedia:- 1
  - Dictionaries:- 3
  - World books: - 24
  - Britannica: - 32
  - Atlas -1
- Journals /Periodicals: 169
- Project Reports: - 4,910
- Thesis/ Dissertations: - 160
- Past Questions:-
- Newspapers:- up to date
- Compact Disks:-

### Challenges of the Library

1. The MAJOR need of the Library is its **expansion**: This is underway which will lead to its refurbishment. The place would be fully air conditioned and equipped with modern facilities. There would be space for an office, group study/discussion, an electronic resources, processing and washroom(s).
2. Plans are being made to purchase ten (10) computers, four (4) air conditioners, five (5) staff furniture, one (1) office cabinet, Thirty (30) (close and open) shelves, one hundred (100) furniture for students, a notice board, counter(s) for security person(s) and fire extinguisher.
3. The library is developing its database and intends to purchase e-journals to upgrade the existing standard.

### Future Services

The expansion would help the Library to include

- i. **Printing and Scanning Services**: 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 you are looking for is not readily available in the Library collections, the Document Delivery Service may be able to obtain it for you. This service would be available to only our patrons. But before making your first request you will need to complete a registration form. That would also go with service charge.

# **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 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. George Sarfo
Ag. College Librarian	-	Mr. Victor K. Teye

## **ACTIVITIES**

### **Infrastructure/Projects**

- Plans are far advanced to put up a College Classroom and Laboratory Complex.
- Work on the School of Veterinary Medicine Complex is in progress.

### **Conference**

The College organised the 5<sup>th</sup> Annual Scientific Conference in November, 2013

### **Human Resource Development**

- Three (3) former students who were sponsored to pursue postgraduate programmes have successfully completed their programmes and have been offered lectureship appointment in the following Departments:
  - i. Department of Sports and Exercise Science
  - ii. Department of Medical Laboratory Technology
  - iii. Department of Anatomy
- Two (2) persons are being sponsored to pursue the following programmes abroad:
  - i. PhD in Sound and Vibration
  - ii. MChD (Oral Pathology)

## **VEHICLE**

A 32-seater Toyota Coaster bus was donated by the United Nations Population Fund in support of the BSc Midwifery programme.

## **FACULTY OF PHARMACY AND PHARMACEUTICAL SCIENCES**

### **INTRODUCTION**

The Faculty of Pharmacy and Pharmaceutical Sciences has six Departments namely, Pharmacognosy, Pharmaceutics, Pharmacology, Pharmaceutical Chemistry, Clinical and Social Pharmacy and Herbal Medicine; and offers degrees in pharmacy and herbal medicine. The last batch of B Pharm students will be in their final year of studies in the next academic year. The programme will be expunged when the students graduate from the University. It will be replaced with the Doctor of pharmacy (Pharm D) degree programme which is in its second year of inception. The introduction of the Pharm D programme has become necessary to equip pharmacy graduates with the requisite knowledge and skills to enable them provide contemporary pharmaceutical care.

In addition, the Faculty offers graduate programmes leading to the award of MSc., MPhil and PhD degrees in the pharmaceutical sciences. This year the Faculty started the MSc. Pharmaceutical Technology Programme to build capacity for the pharmaceutical industries. It hopes to start another MSc. programme in Regulatory Affairs to feed the regulatory bodies in the country and the sub-region. 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 academic year.

### **CAPACITY BUILDING**

During the year under review, the USAID|DELIVER PROJECT sponsored an orientation course in Logistics and Supply Chain Management of Health Commodities for a section of Lecturers at AKROMA PLAZA, Takoradi, to enable them orient the final year students in the subject area. They also regularly monitored and participated in the implementation of the orientation of the students. They again generously facilitated and provided the necessary logistic support for the programme. We also had Food and Drugs Authority (FDA) facilitating a workshop in Clinical Trials for our Final Year students, a course that the pharmacy graduate must have knowledge of before leaving school.

The Faculty's graduate training continues to improve. During the year under review, the Faculty organised two seminars for its graduate students on the significance of graduate training and literature sourcing. It was facilitated by some of our academic staff and staff of the University Library.

During the year under review, Mr. Stephen Gbedema, a Senior Lecturer in the Department of Pharmaceutics, who has been on a split site doctoral programme in the United Kingdom, successfully defended his PhD thesis. Mr James Oppong Kyekyeku, an Assistant Lecturer in the Department of Pharmaceutical Chemistry, also gained a DAAD scholarship to commence a split site PhD programme in Germany. This increases to three the number of staff who are currently on DDAD scholarship.

### **INFRASTRUCTURE**

During the year under review, the Old Block of the Faculty which houses the Departments of Clinical and Social Pharmacy, Herbal Medicine and the Provost's Office, was painted with

resources from internally generated funds. The faculty is looking forward to the University's approval for the construction of a 4-storey lecture theatre to cater for the increase in the number of students on the programmes.

### **VISITS**

During the year under review, the National Accreditation Board sent a team to examine our Pharm D and Herbal Medicine Programmes for the purpose of accreditation. Similarly, a team from the Pharmacy Council visited the Faculty for the same purpose.

Another delegation from Sierra Leone led by the Registrar of the Pharmacy Board of Sierra Leone, Mr. Wilshire Johnson, visited the Faculty to acquaint themselves with the teaching, examinations and quality assurance practices in the Faculty. The team included the Acting Provost of the College of Medicine and Allied Health Sciences (COMAHS), Dr. Mohamed Samai, and some members of staff of the Pharmacy Faculty. We were also visited by Dean Emeritus of the Mylan School of Pharmacy of Duquesne University, Dr Bruce D. Martin, who had spent a sabbatical year at the Faculty in 1969.

### **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 Plant Medicine Research, and their technical committees.

### **INTERNATIONAL COLLABORATION**

During the year under review, the Faculty maintained its links with Universities and international organisations abroad. Staff of 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.

### **CHALLENGES**

The Faculty continues to grapple with large student numbers. The need for the construction of larger lecture theatres and laboratories ought to be addressed with some urgency. There is also the need to employ new faculty to improve the staff situation. Various steps have been taken to tackle these issues but the processes are rather slow. It is hoped that the processes involved will be hastened to facilitate the take off of the projects and the appointment of the staff.

### **BENEFACTORS**

We are grateful to the USAID|DELIVER PROJECT for sponsoring the training of the lecturers in Logistics and Supply Chain Management and facilitating the training of the students in the

subject. We also express our gratitude to the Mrs Mimi Darko and her team from FDA for facilitating the workshop on the Clinical Trials to our final year students

## **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.

### **PROGRAMMES OFFERED**

**PhD in Clinical or Social Pharmacy:** Currently Ten (10) students have enrolled into our PhD programme and are researching on various topics including economic impact of antimicrobial resistance in Ghana, medicines used in the elderly, hypertension, diabetes, HIV/AIDS, malaria and other important topics of public health relevance in Ghana. Three of the PhD students have their work currently under review by external assessors.

**MSc in Clinical Pharmacy:** The department also offer MSc courses in Clinical Pharmacy for practising Pharmacists, in addition to a residential MSc programme in Clinical Pharmacy. The idea is to train a significant number of clinical pharmacists in the country who will contribute efficiently to improve patient care management in all the major hospitals in the country and also serve as clinical mentors for Pharm D students during their field orientation.

In the undergraduate Pharm D and B.Pharm programmes, Clinical and Social Pharmacy courses are thought as part of a composite degree offered. Students in the third year of both PharmD and B.Pharm programmes also undertake a minimum of 6 weeks' vacation training to gain some practical experience on the field.

### **ACADEMIC SENIOR MEMBERS IN THE DEPARTMENT**

The Department has one (1) Professor, one (1) Associate Professor, two (2) Senior Lecturers and two (2) Lecturers.

### **TEACHING AND RESEARCH**

The full time academic senior members are assisted by part-time lecturers from Komfo Anokye Teaching Hospital, Korle-Bu Teaching Hospital and Suntreso Government Hospital. Efforts are also advanced to employ adjunct lecturers from Police Hospital and Cocoa Clinic to support the practical training of Msc Clinical Pharmacy students and Pharm D/B.Pharm students during their field orientation. Senior Members are actively involved in researching to improve drug use in hospitals and at the community level. Other areas of research are antibiotic use and resistance, quality improvement in pharmacy practice in hospitals and communities, society's attitude and health-seeking behaviours that impact on patient and population health.

### **CONFERENCES ATTENDED**

Members of staff attended various conferences in the country in the year under review.



## **SERVICE TO COMMUNITY**

Senior Members in the Department have been actively involved as facilitators in workshops for practicing pharmacists on health systems and pharmacy practice research. Others have been engaged as consultants to various projects including access to medicines for hypertension, diabetes and cancer, and also as research consultants to pharmaceutical society of Ghana and the Ministry of Health.

Some senior members are also involved as technical committee members in developing policies for the containment of Anti-microbial resistance in Ghana.

Service by senior members to the University has improved remarkably with all the senior members serving on various committees in the College of Health Sciences, the Faculty of Pharmacy and Pharmaceutical Sciences and the University at large.

## **BENEFACTORS AND INTERNATIONAL AFFILIATIONS**

Co-operation with the Faculty of Health Sciences, School of Pharmacy, University of Eastern Finland in Kuopio is still ongoing and has resulted in several students and faculty exchange between the two institutions with the latest being the visit of two pharmacy students from the University of Eastern Finland to KNUST. Plans are advanced to receive further three students who will visit next year, and also have some faculty members visit the University of Eastern Finland to explore possibilities of collaborative research and joint post graduate programs.

# **DEPARTMENT OF HERBAL MEDICINE**

## **INTRODUCTION**

The Department produces healthcare professionals who 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.

## **DEPARTMENT MEMBERS AND THEIR RANKS**

The Department has four academic members of staff; three full time and one on contract. The full time staff are made up of one (1) Associate Professor, one (1) Senior Lecturer and one (1) Lecturer. The contract member is an Associate Professor.

The Department also enjoyed the services of Herbalist Kofi Asare Osafo who assisted with the practical orientation of students during their training.

## **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 included the Ghana Atomic Energy Commission, Global Institute for BioExploration (GIBEX-Africa) and Agribusiness in Sustainable Natural African Plant Products (ASNAPP), Department of Botany, University of Ghana, Legon and 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' 6<sup>th</sup> Scientific Conference 2013, held at the Central Classroom Block (CCB) of KNUST, Kumasi. Some members also attended the Annual General Meeting of the Pharmaceutical Society of Ghana. 6<sup>th</sup> Scientific Congress of Traditional Medicine Practitioners and Conventional Medicine Practitioners. Ouagadougou-Burkina Faso, 2<sup>nd</sup> – 3<sup>rd</sup> December, 2013. Papers presented included 'The Importance of Sound Herbal Formularies in Traditional Medicine'.

## **WORKSHOP PRESENTATION**

Mensah, M. L. K. (2014) Traditional and Alternative Medicine-Complementing Orthodox Medicine? A presentation made at the First Private Health Sector Summit held at the La-Palm Royal Beach Hotel, Accra, under the Theme: Strengthening Partnerships with the Private Sector to improve Health Outcomes. January 29-30, 2014

## **MAJOR 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 served on the College Board, the Academic Board and some of their sub-committee.

Members continued 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 Plant Medicine Research (CPMR), all under the Ministry of Health, the Ghana Standards Authority (GSA) and the West African Health Organization (WAHO).

## **VISITS TO THE DEPARTMENT**

During the year under review, the Department received a number of visitors who came to learn about our degree programme and how they can implement same in their Institutions. They included a 3-member delegation from the United States, a 2-member delegation from the University of Westminster in the UK and a 4-member ministerial delegation from the Federal Republic of Nigeria.

## DEPARTMENT OF PHARMACEUTICAL CHEMISTRY

### INTRODUCTION

The Department of Pharmaceutical Chemistry teaches Organic, Inorganic and Physical Chemistry such as is relevant to the understanding of

- i. molecular interactions at receptor sites in the body which result in effects and side-effects of drugs.
- ii. stability of drug molecules.
- iii. formulation of drug products i.e. dosage forms.
- iv. analysis of drugs and their products.
- v. synthesis of drug molecules and inter-drug interactions.

Students are therefore equipped to apply such knowledge in diverse areas of the Pharmacy profession.

### RESEARCH

The Department of Pharmaceutical Chemistry researches in the Chemistry of drug molecules as they apply to interactions in body receptor sites, stability of drug molecules, pharmacokinetics, drug identification and quantification. Research also covers phytochemicals of medicinal interest, such as *Blighia Unijugata*, *griffonia simplicifolia* and *Xylopia aethiopica*. The department has the following resources, which facilitate research and teaching: two liquid chromatographs, a UV and an IR spectrophotometer, a centrifuge among others.

The department has been collaborating with Action Medeor a German Medical NGO with a view to acquiring consumables and other research inputs.

### ACADEMIC MEMBERS OF STAFF IN THE DEPARTMENT

The Department has four (4) Associate Professors, one (1) Senior Lecturer, five (5) Lecturers and two (2) Assistant Lecturers.

### SERVICE TO THE NATIONAL AND INTERNATIONAL COMMUNITY

The Department continues its traditional role in providing analytical services to some hospitals and pharmaceutical companies in the country. Senior members serve on various University, national and international bodies.

Prof. R. K. Adosraku was a member of a West African Health Organization (WAHO) committee of experts who were tasked to develop medicines in the West African region. He is also a member of a national committee with the responsibility of establishing a Bioequivalence Laboratory in Ghana.

Dr. I. Ayensu is currently a member of a national technical committee on standardization of cosmetics under the auspices of the Ghana Standards Authority (GSA).

### INCOME GENERATION

The Department earned some income from analytical services rendered to the public. Graduate bench fees have also provided some income that tremendously promoted postgraduate training in the Department.

## **TEACHING**

The Department teaches the following courses, among others, in the B. Pharm, Herbal Medicine programmes and at School of Medical Sciences: 'Basic Pharmaceutical Chemistry', Organic Chemistry, Physical/Analytical Chemistry, Medicinal Chemistry and Spectroscopy. This Department is probably the foremost in the country in the application of high performance liquid chromatography (hplc) in the analysis of drugs and other chemicals. It has developed the ability to put together components from different makes in assembling functional hplc systems for use in research and teaching. This has enhanced the ability of the Department to carry out its teaching and research with minimal disruption.

The Department also teaches its postgraduate students on the Pharmaceutical Analysis and Quality Control and Pharmaceutical Chemistry Programmes. Currently there are twelve (12) M.Phil and two (2) PhD students working on various research topics.

## **CONFERENCES/WORKSHOPS**

Samuel Oppong Bekoe made an oral presentation on "Quality and use of antibacterial agents purchased from formal and informal medicine suppliers in Ghana" at the West African Post-graduate college of Pharmacists, Accra, Ghana. March, 2014.

John Addotey participated in the training of Quality Control Personnel on Good Laboratory Practices and Acquisition of Safety, Productivity, Accuracy, Credibility and Education – "SPACE". Bobo-Dioulasso, Burkina Faso, September, 2013.

## **DEPARTMENT OF PHARMACEUTICS**

### **INTRODUCTION**

Pharmaceutics is concerned with the scientific and technological aspects of the design and manufacture of dosage forms. It encompasses physical pharmacy, biopharmaceutics, dosage form design, compounding, pharmaceutical technology and pharmaceutical microbiology. Pharmaceutics is the basis of Pharmacy and is associated with steps and processes used to convert a drug into a medicine.

Pharmaceutics has two sections, namely: General Pharmaceutics and Pharmaceutical Microbiology. General Pharmaceutics deals with subject areas such as dispensing, drug delivery Systems, packaging and storage science, formulation of dosage forms, rheology, pharmacokinetics, biopharmaceutics and physical pharmacy. Pharmaceutical Microbiology offers in-depth information on all 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.

### **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. In the Bachelor of Pharmacy/Doctor of Pharmacy (PharmD) programme The department offers Orientation and Dispensing, Dispensing laboratory I, Physical Pharmacy, Dispensing laboratory II, Sterilization and Disinfection, Pharmaceutical Microbiology laboratory I, Pharmaceutical Technology I, Pharmaceutical technology laboratory I, Applied Pharmaceutics, Pharmaceutical technology laboratory II, Chemotherapy, Immunology, Pharmaceutical Microbiology laboratory II and Industrial Pharmacy are taught.

The Department also runs 3-year PhD and 2-year MPhil programmes in General Pharmaceutics and Pharmaceutical Microbiology.

### **SENIOR MEMBERS IN THE DEPARTMENT**

The Department has ten (10) senior members (Academic) of staff. These are one (1) Associate Professor, five (5) Senior Lecturers, two (2) Lecturers of which one is on study leave and two (2) Assistant Lecturers.

### **RESEARCH IN THE DEPARTMENT**

Dr Christian Agyare won a World Intellectual Property Organisation (WIPO) Fellowship to undertake research at the Centre for Discovery and Innovation in Parasite Diseases (CDIPD), Department of Pathology, University of California, USA, from 6 August - 3 December, 2013.

The Department intensified its research activities in Pharmaceutical Technology, Formulation Science, Medicinal Plant Research and Quality evaluation of pharmaceutical products on the Ghanaian market. Some of the research topics currently under investigation in the Department are the following:

1. Effects of methanol extracts of the leaves and bark of *Voacanga africana* on the antibacterial activities of some antibiotics
2. Anthelmintic activity of the leaves and bark extracts of *Voacanga africana*
3. Antimicrobial activities of some Ghanaian medicinal plants
4. Search for anti-parasitic and antimicrobial agents from medicinal plants and natural products
5. Antibiotic resistance in humans and poultry
6. *In vitro* efficacy of some anti-boil herbal preparations on the Ghanaian market
7. Antibacterial, resistance modulation and wound healing activities of *Etandrophragma angolense* (Melicaceae)
8. Evaluation of antifungal activity of tablets made from the stem bark of *Magnifera indica*
9. Evaluation of antimicrobial activity of tablets made from the roots of *Paulina pinnata*
10. Development of fast disintegrating tablets and films of drugs
11. Formulation of yoghurt from melon seeds
12. Development of rectal suppositories of selected antimalarial drugs

During the year under review, Paul Salo Lambon and Eric Tuffour graduated from the Department with M. Phil. (Pharmaceutics).

### **CONFERENCES, WORKSHOPS AND SEMINARS**

Senior Members in the Department attended and actively participated in local and international conferences, workshops and seminars during the year under review.

They were active participants at the Annual General Meeting of the Pharmaceutical Society of Ghana (PSGh) which was held at the CCB Auditorium, KNUST, Kumasi, from 11 – 18 August, 2013 on the theme ‘Responsible use of medicines: Saving lives, saving money’.

Senior members were participants at the 5<sup>th</sup> Annual Scientific Conference of the College of Health Sciences held on the theme ‘Trends in cancer research and management’ at the CCB Auditorium, KNUST from 14 – 15 November, 2013. **Prof. Ofori-Kwakye** was a chairperson for Scientific Session IV of the 5<sup>th</sup> Annual Scientific Conference.

Members of staff also attended the Pharmacy Council organized continuing education program for Pharmacists in the Northern Sector held at the Miklin hotel in Kumasi.

**Dr Christian Agyare** attended the following conferences:

3rd International Conference for Young Scientists & General Assembly 2013 of the Global Young Academy, Halle, Germany, 15 - 18 May, 2013;

5<sup>th</sup> International Conference on Drug Discovery and Therapy, Dubai, United Arab Emirates, 18-21 February, 2013;

Ghana Biomedical Convention, University of Cape Coast, Cape Coast, 29th July to 2nd August, 2013; and

Young Researchers’ Workshop at the International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research (GA), 1st September, 2013, Muenster, Germany.

### **SERVICE TO THE COMMUNITY**

Senior Members of the Department continued to serve on various Boards and Committees of the University and other National Boards/Committees. Some members served as reviewers and editorial board members for local and international peer-reviewed journals.

**Prof. Ofori-Kwakye** and **Dr. Noble Kuntworbe** were part of a team of academics from the University that spent two weeks in Nigeria as Visiting Lecturers at the Faculty of Pharmacy, Madonna University, Elele, Nigeria.

**Dr Christian Agyare** was appointed as an External Examiner in the Department of Pharmacy and Complementary/Alternative Medicine at Kenyatta University, Nairobi, Kenya.

The Department offered consultancy services in drug formulation, stability studies and quality control of pharmaceutical products to various pharmaceutical companies, 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. It 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 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.

### **PROGRAMMES OFFERED BY THE DEPARTMENT**

The Department of Pharmacognosy offers various courses as part of the 6 year undergraduate Doctor of Pharmacy (Pharm D) and the 4 year Bachelor of Science in Herbal Medicine (BSc. Herbal Medicine) degree programmes. The courses cover areas in Botany and Phytochemistry of medicinal plants, 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. Currently there are nineteen (19) post graduate students: nine (9) MPhil and ten (10) PhD students.

### **FACULTY MEMBERS**

During the year under review, Mr Gustav Komlaga continued with his PhD research work at the L'Universite Paris Sud XI, France with a KNUST Scholarship. The Department was happy to welcome Dr Edmund Ekuadzi to add to the staff strength. Altogether the Department has six (6) Senior Members made up of one (1) Emeritus Professor, one (1) Associate Professor, two (2) Senior Lecturers and two (2) Lecturers.

### **MAJOR RESEARCH BY STAFF**

The Department continued with its research on standardization of Ghanaian medicinal plants, phytochemical evaluation of medicinal plants with respect to essential oil constituents and other secondary metabolites and validation of indigenous Ghanaian plant remedies. Particular emphasis is now on plants with hypoglycaemic, anti-inflammatory and wound healing activities. Other research areas include veterinary medicine where anti-tick agents from indigenous Ghanaian plants are also being investigated. Anti-infective and antioxidant agents from less explored medicinal plants and endophytic fungi inhabiting them are other areas which are currently being investigated by researchers in the Department.

### **WORKSHOPS ATTENDED BY SENIOR MEMBERS**

During the year under review, the following workshops were attended by Senior Members of the Department:

- i. USAID/ DELIVER PROJECT sponsored Workshop on "Supply Chain Logistics for Commodity Security Course", Akroma Plaza 29<sup>th</sup> July to 6<sup>th</sup> August 2013, Takoradi
- ii. Workshop on "Process of Graduate Supervision" organised by the office of the Dean Of Faculty of Pharmacy & Pharmaceutical Sciences, KNUST on the 17<sup>th</sup> of January 2013

## **MAJOR SERVICE TO THE COMMUNITY**

Senior Members continued to offer services to the University in various capacities, serving on the Academic Board 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).

**Prof Abraham Yeboah Mensah** was appointed as the Coordinator to see to the implementation of the Vice-Chancellor's new centralised laboratory project. He was ably assisted by Dr Edmund Ekuadzi.

**Dr. (Mrs.) Rita Akosua Dickson** continues to serve as Council member of the Ghana Baptist University College.

**Emeritus Professor Kwame Sarpong** continued to serve as the Chairman of the Arch-diocesan Health Services Board, Kumasi and a Member of the Diocesan Health Services Board. He was also elected as the President of the Ghana College of Pharmacists. At the international level, Emeritus Professor Kwame Sarpong served as the Chairman, Drug Advisory Committee of the West African Postgraduate College of Pharmacist.

The Department has been collaborating with the Food and Drugs Authority in analysing and characterising herbal products prior to the issuing of license for sale on the market.

## **DEPARTMENT OF PHARMACOLOGY**

### **INTRODUCTION**

The Department of Pharmacology plays 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:

- B Pharm (Hons)
- BSc. Herbal Medicine
- BSc. Human Biology for Medicine & Dentistry
- BSc. Nursing (General, Emergency, Midwifery)
- BSc. Medical Laboratory Technology
- B.Sc. Physician Assistant (Anaesthesia)



- Doctor of Pharmacy
- Doctor of Veterinary Medicine
- Doctor of Optometry

In addition, staff of the department undertakes postgraduate teaching for students on the 2-year Master's and 3-year Doctorate programmes in natural products pharmacology and toxicology.

### **ACADEMIC MEMBERS AND STAFF DEVELOPMENT**

The pursuance of a vigorous staff development programme aimed at training PhD students locally has begun to yield dividends. We are pleased to announce that one of our PhD graduates, Dr. Priscilla Kolibea Mante joined the teaching staff of the department during the year under review.

### **ACADEMIC SENIOR MEMBERS OF THE DEPARTMENT**

The Department has two (2) Associate Professors, two (2) Senior Lecturers and seven (7) Lecturers.

Mr. Felix Amissah who was on study leave at the Florida A & M University successfully defended his PhD thesis and is expected to rejoin the Department by the end of the academic year. Also progress reports on two other lecturers, Mrs. Cynthia Amaning Danquah and Mr. George Kwaw Ainooson who are pursuing Ph.D programmes in the United Kingdom and Germany, indicate very good progress.

### **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 in Kumasi during which Prof Eric Woode was elected a Fellow of the Society for his contribution to pharmacy education. Prof. Eric Woode also participated in the 26<sup>th</sup> Annual General Meeting/Scientific Symposium of the West African Postgraduate College of Pharmacists Conference held in Accra, Ghana in March 2014.

Rev. Prof Charles Ansah attended the 2014 Annual Review Meeting of Traditional Medicine Practitioners and Technical Experts in Ouagadougou, Burkina Faso.

### **POST-GRADUATE TRAINING**

The Department is actively involved in the training of post-graduate students. During the period under review one (1) of our PhD students and one (1) M.Phil student graduated. Three of our M.Phil students' programmes have been transferred to Ph.D programmes. Presently, the department can boast of forty (40) graduate students researching into various aspects of natural product Pharmacology and Toxicology.

### **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 those that enhance learning and memory.

The Department has research links with these departments of the University: Theoretical and Applied Biology, Molecular Medicine, and Medical Laboratory Technology. It has also 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 anti-cancer agents from plant sources and is currently developing a laboratory to breed zebra fish (*Danio rerio*) for research. This will not only solve ethical issues in *in vivo* experiments but will also conform to contemporary trends in life sciences research.

### **CELL/TISSUE CULTURE LABORATORY**

The equipment received under TALIF to enhance graduate teaching and learning have been installed in the new cell culture facility and is up and running. However, to make it fully functional, a few items need to be purchased. Orders have been made for these, and some others which were lacking have been compensated by the newly established Central Laboratory of the University. We are very grateful to the Vice Chancellor for this facility.

### **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.

**Prof. Eric Woode** is an examiner of the West African Postgraduate College of Pharmacists and for the School of Medicine & Allied Health Sciences, University of The Gambia, Banjul, The Gambia. He is also the Chairman of the Faculty of Clinical Pharmacy, Ghana College of Pharmacists.

Prof Woode is also a Member of the African Medicines Regulatory Harmonisation (AMRH) Technical Working Group (TWG) on Regulatory Capacity Development in Africa – an initiative of The New Partnership for Africa's Development (NEPAD).

**Rev. Prof. Charles Ansah** is a technical expert in toxicology of traditional medicines to the West African Health Organisation (WAHO) and Dr. David Darko Obiri is an academic auditor for the National Accreditation Board.

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 reviewers for scientific journals. Some members of the Department also served as resource persons for programmes organized by the Pharmacy Council for Pharmacists.

## **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 Community Health, Molecular Medicine, Clinical Microbiology, and Anatomy. The Department of Eye, Ear, Nose and Throat also runs Masters Programmes in Audiology and Speech Science. We are currently working on proposals from the Ghana Health Service for the training of various paramedical at Bachelor level.

Within the University, 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.

### **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 George Bedu-Addo –Vice- Dean

Mr. Kofi Appiah-Koranteng - Senior Assistant Registrar and School Secretary

There are fifteen (15) Academic Departments in the School; 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. Teaching and learning in these departments is organized by the Heads of Department.

### **ENROLMENT**

Currently there are 1,210 undergraduate students on the Human Biology, 133 on the Disability and Rehabilitation and 25 on the Physician Assistantship (Anaesthesia) programmes respectively. The Human Biology programme which continues to be oversubscribed yearly has

about 10% of foreign students who come from Nigeria, Togo, Benin, 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 110 which include six (6) Professors, thirteen (13) Associate Professors, twenty nine (29) Senior Lecturers, forty four (44) 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.

### **INITIATIVES FOR USE OF GHANA HEALTH SERVICE FACILITIES FOR TEACHING**

The School has successfully dialogued with the Ghana Health Service for the use of some of its facilities for teaching. Currently we use the Manhyia, Kumasi South, Maternal and Child Health and University Hospitals as affiliate teaching sites. Adjunct faculty with relevant qualifications and experience working 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. It is hoped that with these specialist activities on offer at the sites, this will lead to a decongestion at the Komfo Anokye Teaching Hospital which has served and will continue serving as our main teaching hospital.

We will in future work towards the use of other health facilities in the region and beyond to support student teaching. These will include non-Governmental and private facilities with the necessary infrastructure.

### **INFRASTRUCTURE**

During the academic year under review, some infrastructure to support teaching and learning were completed and also started. With funding from the GetFund, the Clinical Simulation Centre, an adjunct to the teaching of clinical skills was completed. Our students can thus practice what they are taught on the wards in this centre as well. Further, together with the College of Science, KNUST, we have refurbished 4 teaching laboratories for student teaching. We have expanded and created classrooms for our graduate students. We have begun the installation of power inverter systems in all classrooms which will lead to no interruption of teaching during periods of utility power outages.

A utility commercial area away from the academic area, where our students will purchase snacks and also photocopy academic documents is nearing completion. We are also currently seeking National Tender Board approval to build a classroom complex at the Komfo Anokye Teaching Hospital to take in our large classes proceeding to clinical teaching soon. The current

classrooms some of which have been expanded to take in more students are still inadequate for use. We hope to get the support of the Government and industry for this.

The School is also converting its old stores into a 150 seater ICT/e-learning centre. 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 the University 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.

### **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 MVI and 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 has 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 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. We are very grateful to Genser Energy for the recent signing of a MOU to support the school over the next five years. Ghana-Reinsurance has consistently over 10 years been of support to us. The School is currently looking at other strategy to gain support from Corporate Ghana.

## **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 ANAESTHESIOLOGY AND INTENSIVE CARE**

### **INTRODUCTION**

The Department of Anaesthesia and Intensive Care of the School of Medical Sciences doubles as the Directorate of Anaesthesia and Intensive Care at the Komfo Anokye Teaching Hospital.

The Department has three (3) main sub specialties:

1. Anaesthesia
2. Intensive Care
3. Pain Relief

### **AIMS AND OBJECTIVES**

- A. Undergraduate training in basics of anaesthesia, intensive care and acute and chronic pain management. The training include practical training in the anaesthesia clinic, the theatres, post anaesthetic care units (PACU) and intensive care units.
- B. Postgraduate training of surgeons and obstetricians/gynaecologist in the basics of anaesthesia, intensive care and pain management.
- C. Postgraduate training of physicians in airway management, artificial ventilation and invasive monitoring.
- D. Training of medical and non-medical personnel in Basic Life Support and Advanced Cardiac Life Support.
- E. Training of undergraduate students in anaesthesia and emergency medicine.

### **MEMBERS OF STAFF**

The department has one (1) senior lecturer, seven (7) lecturers and one (1) technical instructor. These are assisted by eight (8) members of staff from the Ministry of Health who help in the teaching of Medical students.

## **STUDY LEAVE**

Dr. Sanjeev Singh has been offered a study leave by the University to undertake a 2-year subspecialty fellowship in Cardiac Anaesthesia in India. Dr. Singh is due to return in September, 2014.

Dr. Jacob Fofie-Siaw is offering a 2-year subspecialty fellowship in Intensive Care in Rotenburg, Germany.

## **ACTIVITIES**

1. The department collaborates with the University of Ulm, Germany to train postgraduate doctors and do joint research.
2. There is an affiliation with the University of Utah's Department of Anaesthesiology. Prof. Jeff Peters with four assistant professors visited twice last year, spent two weeks during each visit working and teaching in the theatres and ICU. The University donated medical equipment and items to the department.
3. In collaboration with the International Association for the study of Pain (IASP) and the University of Utah, USA, a national conference on "Update of Pain Management" was organized in Kumasi on 22<sup>nd</sup> March, 2013. The Dean of the S.M.S. gave a speech and remarked about the need to improve the training of medical students in pain management.
4. In collaboration with the University of Utah's Department of Anaesthesiology and the Ministry of Health, a conference on Update of "Modern Trends in Anaesthesia" was organized by the department for anaesthesiologist and physician assistants (anaesthesia) from the whole country from 23<sup>rd</sup> to 24<sup>th</sup> March, 2013.
5. Anaesthesia interest group has been formed by medical students in the SMS. The group presently has forty five (45) members. The aim of the group is to stimulate and expand the interest of medical students in the practice of anaesthesiology as a specialty after completion of their medical education. The mentors of the group are all lecturers in the Department Of Anaesthesiology KNUST and two (2) Anaesthesiologists from the University of Utah. Last year three (3) members of the group had opportunity to do elective training in anesthesiology at the University of Utah
6. A new curriculum for special subjects was introduced this academic year. This curriculum gave more time for teaching anaesthesia. The students also wrote their exams in anaesthesia immediately after the rotation instead of taking it in the final year.

## **RESEARCH**

1. Anaesthesia Teaching in Ghana, a ten year experience (published).
2. Percutaneous dilative tracheostomy performed by anaesthesiologist in the ICU. Published
3. Orally formulated IV Ketamine for premedication in children at Komfo Anokye Teaching Hospital (ongoing).
4. Epidural Analgesia in Labour: Ghanaian obstetrician attitude and knowledge (ongoing)

5. The incidence of Post discharge Nausea and vomiting among day case surgical patients at Komfo Anokye Teaching Hospital (ongoing).
6. Anaesthesia and post-operative agitation (ongoing).
7. Outcome of Paediatric admissions to KATH Intensive Care Unit.

### **POSTGRADUATE TRAINING**

The department obtained partial accreditation by the West African College of Surgeons for the training of doctors in Anaesthesia it however obtained full accreditation by the Ghana College of Physicians and surgeons for the training of doctors in the anaesthesia.

### **PROJECTIONS**

The department wishes to pursue the following activities in the ensuing years:

1. Recruitment of teaching staff to augment the existing staff strength.
2. Repackaging of the existing syllabus for Medical students to make the profession more attractive to young doctors.
3. Expand the anaesthesia clinic to enable members of the public to check their levels of fitness in order to reduce the incidence of sudden death in the community.

### **ACHIEVEMENTS**

1. The department started a Bsc (Physician Assistant – Anaesthesia) Programme in 2011/2012 academic year. Ten (10) students were admitted to Level 300. The first batch of students admitted will graduate this year.
2. The Department has established a pain clinic which is run by the consultants in the in the department to take care of patients with chronic pain.
3. Three young doctors have been recruited as adjunct lectures to support the existing teaching staff.
4. The department has been selected by the World Federation of Societies of Anaesthesiologists (WFSA) as a center for Training in Regional Anaesthesia. One doctor from Ethiopia was trained from March, to June 2014.

## **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 continues to depend on the support of the technical and supporting staff for the day- to-day running of the Department. 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 four (4) PhD 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. In recognition of her outstanding contribution to Tertiary Education in Ghana, the Ghana Women of Excellence Award has been conferred on Dr. Chrissie Stansie Abaidoo.

## **TEACHING**

Staff continue 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 students' 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, 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.

The Department offers courses at the undergraduate level in areas including Medicine, Dentistry, Medical Laboratory Technology, General Nursing, Emergency Nursing, Midwifery, Sonography, Sports Science, Herbal Medicine, Veterinary Medicine, Top-up programmes in Midwifery, Emergency Nursing, Physician Assistant programme in Anaesthesia and to Optometry students in the College of Science. The Department also provides courses at the M.Phil. 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.

In addition, the Department runs MPhil programmes in Human Anatomy and Cell Biology, Human Anatomy and Forensic Science, Mortuary Science and Management and a PhD programme in Human Anatomy and Cell Biology. These programmes combine research with taught courses in Gross, Microscopic and Developmental Anatomy, Cell Biology, Cytogenetics, Molecular Biology, Neuroscience, and Anatomical Techniques employed in the preservation and preparation of human material for teaching and research. 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. The Human Anatomy and Forensic Science programme is to provide training in anatomically-based forensic

anthropology, comparative forensic osteology and exposure to human form and function with direct relevance to the identification process.

### **RESEARCH AND COLLABORATION**

The Department has research links with the Departments of Anatomy, Obstetrics and Gynaecology (SMS), Pharmacology, Pathology (SMS & UGMS) and Biological Sciences, KNUST, Department of Biomedical Science, University of Sheffield, UK and the Department of Anatomy and Neurobiology, University of Utah.

We have also made progress on student thesis supervision and are currently supervising nine (9) final year Medical Laboratory Technology students and twenty three (23) MPhil students and five (5) PhD students.

### **BODY DONATION FOR MEDICAL EDUCATION**

The department administers a body donation programme for Medical Education. The programme which started about 11 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.

## **DEPARTMENT OF BEHAVIOURAL SCIENCES**

### **INTRODUCTION**

The Department is primarily concerned with the observation, understanding, prediction, and control of behaviour. This department has been in existence in the Medical School since 1982 under the able and dedicated leadership of Dr Yaw Osei currently a retired Consultant Psychiatrist.

As a department, it has over the years aimed to:

- help fulfill the general School of Medical Sciences' vision of training of all round, high calibre 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, cause 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:

One (1) Associate Professor, two (2) Senior Lecturers and three (3) Lecturers. These are supported by other personnel who are full time employees of the Komfo Anokye Teaching Hospital as well as other administrative staff from the University.

## **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.

In addition to the above, the department teaches students in the following departments:

Nursing, Sports and Exercise Science, Medical Laboratory, Disability (CEDRES) and Optometry.

### **Clinical Teaching**

The psychiatric clinicians within the department, Drs Frimpong-Manso Addo and Gordon Donnir, contribute towards the award of the MBChB by teaching 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. The recruitment of Dr Frimpong-Manso Addo has been a big relief in empowering the department in terms of human resource. Prior to this, Dr Donnir a young brilliant psychiatrist was teaching the clinical students on part time basis.

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.

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 and the Provost of College of Health Sciences. Our students in the past had excelled with first position in the debate but unfortunately in this last one, we placed third out of four schools. We hope to improve on our performance in subsequent ones.

In collaboration with the Dean of the Medical School, 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.

Prof Oye Gureje of University of Ibadan and Prof Appiah Poku of the Department of Behavioural Sciences are leading an International Focus Group Discussion which is looking into Partnership between Orthodox and Alternative Mental Health Practice and how Mental Health could be developed in Africa.

### **STAFF IMPROVEMENT**

In the year under review, Dr. (Mrs) Emma Sethina Adjaottor graduated from University of Ghana, Legon with a PhD in Clinical Psychology. The thesis title was “Attitudes toward Suicide: A Comparative study between Ghanaian and Western Foreign Students in Ghana and among Ghanaians”.

### **UN - EXECUTED DEPARTMENTAL PROJECT**

Staff of KNUST are often beset by psychosocial/ behavioral (drugs, alcohol, marital, job stress and dissatisfaction, staff – staff conflicts, rape, children) problems that take awful amount of time and psychological energy to deal with. These go against the university by way of lost man - hours with absenteeism and lack of concentration on the job. Our department planned to undertake a project in collaboration with the Human Resource Department of KNUST to offer special psychological services to take care of these needs. Unfortunately however, this could not

be done in the year under consideration because of pressure of work. Hopefully, this could be pursued in the next year.

### **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 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.

### **ACHIEVEMENTS**

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.

The year 2013/14 has been an exciting and proud one for the department. We applied for accreditation to train postgraduate students and successfully achieved the same. Thanks to Dr Yaw Osei for his hard work towards this achievement.

We supervised two resident doctors who successfully passed the membership part one in Psychiatry of the Ghana College of Surgeons and Physicians.

For the first time in the history of the University, we set up a Mental Health Service 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 afar by their families or carers with a lot of inconveniences.

## **OUR NEEDS**

- We still need additional staff (Consultant Psychiatrists, Clinical Psychologists and Social Workers) to ease up pressure on us to be able to do more research and continuous professional development activities.
- We need individual offices on campus for our senior members. The lack of it hampers research, teaching and even service provision as most students and staff needing psychological services often come to us for help on campus.

## **DEPARTMENT OF CHILD HEALTH**

### **INTRODUCTION**

The Department of Child Health runs undergraduate medical training programme in the School of Medical Sciences, KNUST for the MB ChB Programme in Child Health and Paediatrics. It also provides tertiary care service in Paediatrics and Child Health to the Ashanti and Brong Ahafo Regions and indeed, the whole of Northern Ghana.

The department has five main wards namely the Mother-Baby Unit (MBU) which serves as the neonatal wing of the department, the Paediatric Emergency Unit (PEU), and three General Wards; ward B4, B5 and C5.

Since 2005, the department has been organized into clinical sub-specialties namely chest/pulmonology, cardiology, haematology/oncology, neurology, nephrology, endocrinology, infectious disease, neonatology, paediatric emergency, and malnutrition. A paediatric intensive care is soon to become operational following the successful completion of training in paediatric intensive care by one of its Specialist.

The department is also accredited by the Ghana and West African Colleges of Physicians (GCP, WACP) to train post-graduate Medical Doctors in Paediatrics towards the award of Membership and Fellowship degrees.

### **STAFF**

The department currently has six full time Lecturers, all Fellowship holders of either the West African College of Physicians or the Ghana College of Physicians & Surgeons, or both. It has two part-time Lecturers and sixteen Adjunct/Assistant Adjunct Lecturers.

It has one Senior Administrative Assistant but currently has no messenger since the exit of Mr Paul Oduro.

### **SERVICE DELIVERY**

The department is organized along clinical sub-specialties. Each sub-specialty is headed by a Consultant or Lecturer who also doubles as an honorary consultant to Komfo Anokye Teaching Hospital.

Besides the provision of in-patient care, the department runs out-patient's sub-specialist clinics in the following areas: Sick Cell Disease, Asthma Clinic, Renal Clinic, Endocrine Clinic Cardiac Clinic, HIV Clinic, Chest Clinic, Cleft Palate Clinic, Dental clinic, Malnutrition clinic

## TEACHING

The large student numbers in recent years poses serious challenge to effective student teaching. This, the directorate responded by advocating for the appointment of Adjunct Lecturers both within and outside Komfo Anokye Teaching hospital.

The department is happy to report of the successful take off of its External teaching site programme this year. Under this programme, a third of our students undergo clinical rotation in Child Health and Paediatrics at Suntreso Hospital, Kumasi South Hospital and Maternal and Child Health Hospital during their senior clerkship rotation.

To ensure adequate contact time with students for effective bedside clinical teaching, each unit has drawn up bedside teaching time table along which bedside teachings are taught. This innovation makes it possible for any lost time on bedside teaching to be re-scheduled in the event of absence of lecturers e.g. during travels.

## RESEARCH

The Department prides itself as a leading research center in clinical medicine in Ghana and Africa. It has been involved in several collaborative researches with outside institutions. Previous collaborative research studies include:

1. Severe Malaria in African Children (SMAC Network); NIH sponsored Multi-Center Clinical Research into Malaria in African Children.
2. Malgene; a KCCR sponsored genomic research into severe malaria
3. Artesunate Quinine randomised controlled trial (Aquamat); a Multi-Center Randomised Controlled trial of injection artesunate and injection quinine.
4. WHO sponsored multi-center clinical trial of the safety and effectiveness of plasmotrim suppository in the treatment of children with severe malaria
5. WHO-sponsored multi-center Amoxicillin-Penicillin Pneumonia Study (APPIS)

This position has endowed its academic staff with research experience and has contributed to several publications to their names and subsequent credit to the University. Currently, its academic staff are involved in various levels of research as follows:

### Dr Sampson Antwi

1. Pharmacokinetics of anti-tuberculosis and antiretroviral drugs in children; **a 5-year NIH-sponsored collaborative research between Brown University, USA, and Komfo Anokye Teaching Hospital, Kumasi. Started July 15<sup>th</sup> 2012 and ongoing.** Position: Co-PI
2. A Bioecological Paediatric HIV disclosure HIV intervention in Ghana-“SANKOFA”; **a 5-year NIH-sponsored collaborative research between Yale University, USA, and Komfo Anokye Teaching Hospital, Kumasi. Started September 2012 and ongoing.** Position: Co-PI
3. Psychosocial influences on clinical outcomes in HIV infected adolescents in Kumasi, Ghana: **a 1-year collaborative pilot study between Brown University, USA, and Komfo Anokye Teaching Hospital, Kumasi.2013.** Position: Co-Investigator

4. H3 Africa Kidney Disease Research Network; a **5-year NIH sponsored multi-center genomic research into kidney diseases in Africa. Started 2013 and ongoing.** Position: Co-Investigator

#### **Dr Daniel Ansong**

1. Falciparum malaria candidate vaccine trial; a GSK sponsored study of candidate vaccine trial in children. Started 2007 and ongoing Position: Co-Investigator
2. Barekuma Community Collaborative Project (BCCDP) –collaboration with University of UTAH started 2004 and ongoing
3. WHO/Ministry of Health/EPI Ghana Surveillance for pneumonia, meningitis and diarrhoeal disease. Started 2003 and ongoing
4. Intusuccption surveillance with department of surgery, diagnostics and Pathology Started 2012 and ongoing

#### **STAFF PUBLICATIONS FOR 2013-2014**

These can be found in the Quality Assurance Bulletin for the year under review.

#### **CHALLENGES**

##### **SHORTAGE OF ACADEMIC STAFF**

The department is faced with huge challenge of shortage of academic staff. With the increasing number of students into the clinical years, it has to fall on adjunct lecturers to meet the demands of bedside teaching. It is hoped that the persuasion on these Adjunct Lecturers to enroll as Full time Lecturers in future will yield results and that any such application for Lectureship appointment will be given priority attention.

The department regrets the lack of progress in the application process of Dr Samuel Blay Nguah who applied for appointment as Senior Lecturer a year ago. It is hoped that his application can be sorted out to motivate other young consultants in the department to enroll as full time Lecturers

##### **LACK OF MESSENGER**

Since the exit of the departmental messenger-more than a year ago, it has not seen any replacement despite several appeals to the Human Resource department. This situation poses great challenge to the department in connecting with the main SMS administration on KNUST campus.

## **DEPARTMENT OF CLINICAL MICROBIOLOGY**

#### **INTRODUCTION**

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 and Midwifery, 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 of Clinical Microbiology has staff strength of nine (9) full-time Senior Members, no part-time academic staff, and two (2) Technical staff, and supported by a secretariat manned by an Administrative Assistant. One Graduate assistant and two national service personnel support practical lessons and assist in seminars and other activities in the Department.

Dr Alex Owusu-Ofori, a medical officer with a PhD in bacteriology has joined the department this year. Dr Tay has been promoted Associate Professor with effect from 2012. Dr. Patrick Feglo is now a Senior Lecturer

### **TEACHING ACTIVITIES**

The breakdown of, the undergraduate student population for the Department for 2013/14 are; two hundred and sixty (260) medical students, thirty five (35) dental students, two hundred and five (205) medical laboratory students, one hundred and sixty (160) nursing and midwifery students and twenty two (22) students of sonography.

The Department also runs PhD, MPhil and MSc programmes in Clinical Microbiology. Currently there are five (5) PhD Students, twenty five (25) MPhil students, and ten (10) MSc students enrolled.

Completed Graduate Studies for 2013: PhD-2; MPhil-12, MSc-3

The Department continues its projects in Hepatitis B virus with funding the University.

### **PUBLICATIONS**

The Department produced fifteen (15) peer-reviewed publications this year. Details can be found in the University's Quality Assurance Bulletin for the year under review.

### **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. Dr Owusu-Ofori is the Infection Control Doctor.

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 senior members are Expert Committee members of various disciplines of the Ministry of Health, acting as resource persons in seminars/workshops and consultants on projects and policy formulation.

### **ON-GOING PROJECTS**

- Antimicrobial resistance in Enterobacteria.
- Effects of climate change on infections and infestations.
- Studies on bacterial meningitis in adults and children in Ashanti
- Antibiotic resistance in Staphylococci.
- Studies on improving detection of Buruli ulcer.
- Studies on opportunistic infections on HIV/AIDS.
- Studies on mosquito ecology and malaria transmission dynamics and control
- Studies on drug treatment adjunct to surgery in filariasis complications.
- Studies on rotavirus diarrhea in children in Ashanti.
- Efficacy of herbal extracts as antimicrobials
- Syphilis in Ghana
- Aetiological agents in diabetic ulcers in Kumasi.

### **RESEARCH COLLABORATION**

Our Research collaborators include the following:

- 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
- University of Cape Coast, School of Medical Sciences, Cape Coast.
- University of Ghana Medical School, Accra

## **DEPARTMENT OF COMMUNITY HEALTH**

### **INTRODUCTION**

The Department of Community Health is a dynamic and vibrant department in the Medical School, very active in teaching, research and service to the community. The Department provides training in community health in five of the six years of the undergraduate medical programme. In the 4<sup>th</sup> year of the undergraduate programme students work in groups on selected field research projects as a practical exercise in research methods. In the 5<sup>th</sup> year, the students spend 6 weeks in a rural district undertaking field practice in community health. They eventually collect field data for their final year dissertations.

In addition, the Department runs three highly successful and competitive Public Health graduate programmes in Health Services Planning and Management, Health Education and Promotion,

and Population and Reproductive Health. A fourth programme, Masters in Disability and Rehabilitation Studies has been added and has since successfully graduated two classes. All these postgraduate programmes have been structured to run for 13 calendar months to attract foreign residents. The Department also runs a PhD programme that targets students who demonstrate exceptional academic qualities and are heading towards a career in university teaching and/or health research.

Since 2004 the Department has started to run 8-week short courses in the following disciplines: Epidemiology & Biostatistics, Community-IMCI and, Contraceptive update and counselling. The Department has a large research portfolio in family planning and reproductive health, malaria prevention and control in pregnant women and children under 5, improving quality of obstetric care, improving childhood immunization coverage, tuberculosis susceptibility, HIV/AIDS and community-integrated management of childhood illness.

### **STAFF**

The department has five (5) Senior Lecturers, three (3) Lecturers, one (1) Research Fellow and four (4) Assistant Lecturers. In addition to these full time academic members of staff, the department has seven (7) part time academic members of staff and three (3) support staff.

### **ACTIVITIES TEACHING**

The Department continues with its three-part training programme in the School of Medical Sciences, the School of Graduate Studies and other departments within KNUST.

- a. Undergraduate medical training in Community Health
- b. Postgraduate training in Health Services Planning and Management; Health Education and Promotion; Population & Reproductive Health, Disability, Rehabilitation and Development.
- c. Undergraduate teaching on the BSc Disability and Rehabilitation Studies
- d. Teaching on programmes outside KNUST-SMS including:
  - I. BSc (Human Biology), MB ChB
  - II. BSc (Nursing)
  - III. BSc (Medical Laboratory Technology)
  - IV. BSc (Herbal Medicine)
  - V. BSc (Sports and Exercise Science)
  - VI. BSc (Engineering)
  - VII. DVM (Veterinary Medicine)
  - VIII. Doctor of Optometry
  - IX. Distance Learning Programmes

The Department has received commendations from the UNFPA, WHO and UNICEF for the introduction of short courses in reproductive health.

### **New Programmes**

The Department has introduced leadership training for health transformation into the curricula for both undergraduate and postgraduate training programmes. The need to produce health managers who lead has become more important now than ever before. This introduction will

give products of the School of Medical Sciences a competitive advantage over the peers from other similar schools.

## **PROJECTS**

Three departmental projects are on-going:

- The SMS-JHU linkage project, and the MCDC project. The SMS-JHU Linkage project has a focus on population and reproductive health. The project continues to train postgraduate students at the Department and offers small grants to our MPH students for their research.
- The Johns Hopkins Bloomberg School of Public Health is providing funds for the building of offices for the school of public health.
- The Malaria Capacity Development Consortium (MCDC) project seeks to enhance malaria research capacity in Africa. The project currently has four (4) PhD candidates who are at various stages of the training programme. MCDC and the University of Cheikh Anta Diop (UCAD) hosted a PhD supervisors' workshop for academic staff engaged in postgraduate supervision for UCAD and other partner institutions of the MCDC. The project has been visited by two directors of MCDC.

## **COMMUNITY SERVICE/CONTRIBUTION TO SOCIETY**

The Department through its undergraduate medical programme places students in rural Ghana where the students undertake community health activities such as community diagnosis and community-based operational research. The postgraduate training programmes offer similar services to rural communities. The results of such community health activities are fed back to community-based agents, the Ghana Health Service, traditional authorities and local government for health action at the community level. Senior members of the Department serve in various capacities to contribute meaningfully to society.

Senior members serve as external examiners, moderators and teachers in various universities and colleges in Ghana. The Department with support from UNICEF is collaborating with the Ghana Health Service and the Ghana Red Cross to implement High Impact Rapid Delivery (HIRD) interventions in the three northern regions of Ghana.

## **CONFERENCES/SEMINARS**

Senior members of the Department are frequent participants at seminars and meetings either as resource persons or facilitators and/or participants. The Department has been involved in policy formulation seminars in family planning and reproductive health, malaria control in pregnancy and the malaria drug policy change for Ghana.

## **INNOVATIONS**

The Department has proposed the establishment of a KNUST-School of Public Health that will use the latest teaching and learning technologies (web-based approach and virtual teaching methods) to run graduate public health programmes that can be accessed from any part of the African continent and beyond.

## **PROJECTIONS**

Despite the popularity and the demand for the current postgraduate programmes and the proposed short courses, the courses have been disadvantaged through underfunding. The Department is of the opinion that the introduction of fees to meet the cost of running the various programmes will greatly enhance programme delivery and will place the name of KNUST on the international map of training centres for health issues.

The Department continues to mobilize additional resources from local and international sources to meet the requirements of running such training programmes.

## **INTERNATIONAL AFFILIATIONS**

The Department has links with the health-related United Nations Agencies such as WHO, UNICEF, UNDP and UNFPA. The Department also has close contact with DANIDA, the World Bank, DFID, USAID and JHU-CCP. The Department together with the Department of Obstetrics and the Gates Institute, Johns Hopkins University School of Public Health has been running a collaborative linkage project. The Department is holding discussions with the Ghana Ministry of Health with the view to collaborate in the running of graduate training programmes in public health for middle level personnel.

## **CONCLUSION**

The Department is convinced that the future is bright. The Department is working hard to attract lecturers to beef up its current number so as to ensure smooth running of academic work in the Department.

# **DEPARTMENT OF EYE, EAR, NOSE AND THROAT**

## **INTRODUCTION**

The Department of EYE, EAR, NOSE AND THROAT (EENT) was established by the Academic Board on 1<sup>st</sup> October 1982 with Professor Sir George Wireko Brobbly, then a Senior Lecturer, as the Foundation Head. It was established as a composite academic unit made up of two distinct Microsurgery units Ophthalmology and Otorhinolaryngology and given the name EENT.

Since its inception in 1982, the academic programme has so been streamlined as to portray the interdisciplinary nature of the two specialities. The prevalence of Eye, Ear, Nose and Throat (ENT) diseases in Ghana is very high. Indeed; Professor Peter D. Bull, a visiting Professor and a Consultant of ENT confessed to have seen more hearing-impaired children in Ghana during his three weeks visit than he sees three years in Britain. This being so, a newly qualified medical practitioner should be equipped with skills and in depth knowledge to be able to manage common Eye, Ear, Nose and Throat disorders at the community and district levels and our department has achieved this goal. The performance of our graduates in these areas has been praised by many health workers and patients who come into contact with them. The department can boast of a well-furnished lecture theatre, consulting rooms, and Audiology centre, the first of its kind, south of the Sahara. Although, the Eye Unit is physically separated from the ENT section, our programmes are fully coordinated with other special subjects like Anaesthesia, Dermatology, Radiology and Psychiatry etc.

The Eye Unit is currently housed in an ultra modern building which is well equipped with current state of art equipment.

### **VISION AND MISSION**

The Vision of the Department is in concordance with that of the School of Medical Sciences (SMS) which conceptualises its Mission as an internationally recognised school offering undergraduate, postgraduate and professional programmes of exceptionally high quality. This Vision has motivated and encouraged the department of EENT to become a centre of excellence both locally and internationally through the indefatigable efforts of the Founding Head.

### **AIMS/ OBJECTIVES**

The Department aims to:

- Fulfil the general purpose of SMS through the pursuit of excellence in teaching, service, ethical and character training.
- Provide basic clinical training in Eye, Ear, Nose and Throat through lectures, practical and clinical demonstrations through tutorials, seminars etc.
- Promote and conduct research into the various facets of Ophthalmology, Otorhinolaryngology and Clinical Audiology and Speech Pathology.
- Provide postgraduate training for the Membership/Fellowship of Ghana College of Surgeons and Fellowship of West African College of Surgeons to Medical Officers not only from Ghana but also from other Countries eg. Nigeria through advanced instructions, Practical and Clinical demonstrations and training in advanced Eye, Ear, Nose and Throat surgical skills.
- Provide the requisite health care service to the general public and to offer advise on good ear care practices.
- Lead the crusade against the invisible handicap of “Deafness” through outreach activities, publications in print media, research, seminars etc.

### **SPECIFIC OBJECTIVES OF EAR, NOSE AND THROAT UNIT**

At the end of rotation in ENT, the student should be able to:

- Master the care of patients with a tracheostomy; identify signs of danger and act to correct these.
- Describe which patients need specialist care, refer them to a special unit and describe in detail the clinical features and any treatment given.
- Practice the following skills
  - (i) Use head mirror to examine the ear, nose and throat
  - (ii) Tuning fork testing- Schwabach, Rhine, Weber Otoscopy
  - (iii) Learn the technique and identify the application direct and indirect laryngoscopy, anterior and posterior rhinoscopy
- Treat common Ear, Nose and Throat disorders
- Identify basic equipment used in hearing evaluation and different types of hearing aids.
- Identify hearing-impaired children and to instruct their parents.

### **POST-GRADUATE TRAINING**

A post-graduate Course – DLO (Diploma in Otolaryngology) was started for the whole of the West African sub-region in 1997. Kumasi and Ibadan are the only two centres of excellence

accredited by the West African Post-graduate Medical College for the Course. Since then, several students from Ghana and Nigeria graduated from the department and holding key positions in various hospitals in Ghana and Nigeria. Additionally, the department was accredited by the West African College of Surgeons and the Ghana College Physicians and Surgeons to train Consultants for West Africa. At the moment, there are nineteen (19) residents at various levels of training in the department. These include ten (10) candidates at the Ear, Nose and Throat Unit and nine (9) at the Eye Unit. They are preparing for the primaries and various levels of the FWACS and the GCPS Examinations.

Currently the department has started an MSc. Programmes in Audiology and Speech/Language Pathology (2013-2014) academic year.

### **FUTURE POSTGRADUATE TRAINING**

Again, the Eye Unit takes part in the teaching of clinical Ophthalmology course to the Postgraduate Students of Optometry. The ENT Unit has also got a five-year accreditation from the Ghana Post-graduate College of Physicians and Surgeons to train ENT Specialists.

In addition to the above, the members of staff are also actively involved in teaching the Post Basic Diploma Course for Nurses at the Komfo Anokye Teaching Hospital. This is a national programme and Kumasi is the only centre of excellence accredited by the Ghana Health Service and the Nurses and Midwives Council for Ghana.

### **ACADEMIC MEMBERS OF STAFF**

The department has one (1) Professor, two (2) Senior Lecturers, three (3) Lecturers and one (1) Research Assistant. They are supported by three (3) administrative staff.

### **COLLABORATIVE LINKS WITH OTHER INSTITUTIONS OF HIGHER LEARNING/ORGANISATIONS**

- Research link with the University of Sheffield, UK since 1992 on Bacteriology of Otitis Media.
- Research link with WHO as a collaborative centre for Hearing Assessment.
- Research link with Bernhard Nocht Institute Hamburg, Germany. (Prof Horstmann C.) Culminating in the establishment of Kumasi Centre for collaborative Research into Tropical Medicine (KCCR), Kumasi.
- University of Utah John Moran Eye Hospital, Salt Lake City Utah, USA.
- University of Abidjan, ENT department (in process) Cote D'Ivoire.

### **RESEARCH INTERESTS**

#### **Prof Sir Dr Dr Brobby**

- The Causes and Prevalence of Acquired Childhood Deafness and Adult Hearing-Impairment in Ghana.
- Molecular Genetics of Congenital Deafness
- Distribution of Connexin 26 R143W, a Gene Mutation for the cause of Non-Syndromic Deafness in Ghana.
- Occupational Hearing Loss
- Identification Audiometry

- Aural Rehabilitation
- Brainstem Evoked Responses (ABRs).

**Dr Joseph Opoku-Buabeng**

- Ear, Nose and Throat diseases in children
- Allergy

**Dr Peter Awuah**

- Mastoidectomy
- Diseases of the Middle Ear

**Dr Seth Lartey**

- Diabetic Retinopathy
- Ocular Trauma
- Childhood Blindness

**Dr. Duah I. Mohammed**

- Middle Ear diseases
- Laryngeal surgeries

**ONGOING RESEARCH ACTIVITIES**

**EYE UNIT**

- Retinoblastoma and its management in Komfo Anokye Teaching Hospital – can it be modified?
- The Causative Organisms in Ocular Corneal Ulcers
- Causes of Ocular Trauma in Kumasi
- Intra-Ocular pressures in 5-year period after trabeclectomy in Congenital Glaucoma.

**ENT**

- Bacteriology in Otitis Media
- Patterns of hearing loss in Diabetic patients
- Hearing Sensitivity and related Acoustic Impedance Findings
- Characteristics of hearing loss among patients at Komfo Anokye Teaching Hospital, Kumasi
- Ear, Nose and Throat manifestations in HIV/AIDS patients
- Assessment and therapy to Articulation and Phonological Disordered in Ghana
- Articulation Test for the Twi language in Ghana

**DEPARTMENT OF MEDICINE**

**INTRODUCTION**

The Department of Medicine is made-up of eight (8) full-time academic staff, supported by two (2) part-time lecturers, and assisted by six other staff.



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.

### **COMPOSITION OF ACADEMIC STAFF**

The department has three (3) Associate Professors, two (2) Senior Lecturers and one (1) Lecturer.

### **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.

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 includes:

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. Devon Hale, Utah, USA	Infectious Disease
Dr. Kwame Owusu Dapaah-Afriyie	Infectious Disease

### **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

### **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 and HIV/AIDS.

### **RESEARCH/PUBLICATIONS**

1. Prospective study investigating the impact of GB virus co-infection on HIV disease progression
2. Studies identifying HIV-2 and other co-infections in HIV-infected patients attending the HIV clinic at KATH

Study identifying HIV rate in traders with name tattoos

3. 10 years of donor care in transfusion services of KATH

## **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.

## **DEPARTMENT OF MOLECULAR MEDICINE**

### **INTRODUCTION**

The Department of Molecular Medicine has eight (8) senior members (two (2) Associate Professors, two (2) Senior Lecturers and four (4) Lecturers). These are supported by one (1) part-time lecturer and six (6) Senior/Junior Staff.

The Department teaches Medical Students, Allied Health Science Students 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 KCCR and the following departments and units: Medicine, Anatomy, Behavioural/Psychiatry Sciences, Obstetrics and Gynaecology, Surgery, Urology, Oncology and Pharmacology.

In the 2013/2014 academic year the number of research students who graduated was as follows:

M.Phil. - 2

M.Sc. - 1

The department currently has a total of fifty (50) graduate students with seven (7) students pursuing programmes leading to the award of Ph.D. Chemical Pathology, one (1) Ph.D. Immunology, twenty three (23) M.Phil. Chemical Pathology, two (2) M.Phil. Immunology, sixteen (16) M.Sc. Chemical Pathology and two (2) M.Sc. Immunology.

### **MEMBERS OF STAFF**

The department has two (2) Associate Professors out of which one is on contract, two (2) Senior Lecturers, six (6) Lecturers out of which one is on study leave and another is on part-time. With support staff, the department has one (1) Chief Technician, two (2) Senior Technicians, one (1) Senior Administrative Assistant, one (1) Technician, and a cleaner.

### **CURRENT RESEARCH ACTIVITIES**

#### **Dr. Robert A. Ngala**

1. Effect of potassium channel (Kv1.3) inhibitor PAP-I on glucose uptake in mice isolated soleus muscle.
2. Antidiabetic properties of some tropical plants.

3. Is there correlation in anthropometrics with adipokine cytokine and some mineral elements in metabolic syndrome among type two diabetic patients?
4. Antidiabetic properties of selected tropical plant extracts in Ghana.
5. Effect of some Ghanaian vegetable oils on glycaemic control in diabetes Mellitus management.
6. Possible causes of infertility in patients visiting IVF clinic and the use of Basal Gonadotropins as predictive markers of ovarian response in IVF clients.
7. Type 2 Diabetes Mellitus in Ghana: An estimation of the prevalence rate, risk factors, and complications among Ghanaian population as a guide for integration of non-communicable diseases into national plans, policies and strategies.

**Prof. (Mrs.) M.T. Frempong**

1. Comparative Analysis of the Quantity of RA I3 Receptors on triple negative breast carcinomas and non-triple negative breast cancers and the possible development of anti-RA-13 monoclonal antibodies for diagnosis and/or treatment of triple negative breast cancers. 2010 to date.
2. Relationship between Interleukin-6 and Resting Energy Expenditure among obese and non-obese adults: 2009 to date.
3. The impact of Helicobacter pylori infection on Immune Regulation and Clinical course in HIV patients in Ghana.
4. Immune Response to Mycobacterium Ulcerans infection.
5. Prevalence of HBV infection among children 1-10 years after the implementation of HBV vaccine in Infant Immunization Policy in the Northern and Upper West Regions
6. Prevalence of Hepatitis B and/or C infections among HIV-infected pregnant women in the Brong-Ahafo Region.
7. The role of MiR 29 in the T-Cell Response against Tuberculosis.
8. Development of malaria plasmodium falciparum vaccine by chemical attenuation.
9. Prevalence of Folate Receptor- $\alpha$  in triple negative breast cancers and their association with RAI3.
10. Evaluation of FTA cards for obtaining DNA sample and the detection limit.
11. Inflammatory markers in HIV patients before and after treatment.

**Dr. E. F. Laing**

1. Metabolic syndrome among Ghanaian patients presenting with chronic kidney disease
2. Prevalence of metabolic syndrome among hypertensive patients visiting Komfo Anokye Teaching Hospital, Kumasi.
3. Anthropometric variables in type I and Type II diabetes mellitus
4. Use of glycosylated haemoglobin as an index of glycaemia in the treatment of type II diabetes mellitus
5. Insulin resistance in diabetic patients with thyroid dysfunction

**Dr. W. K. B. A.Owiredu**

1. Sexual dysfunction and sexual quality of life among persons with physical disability in Ghana
2. Haemato-Biochemical basis of Anaemia in the Ashanti region, Ghana.
3. Metabolic syndrome and Oxidative stress among patients presenting with Prostate cancer in the Kumasi Metropolis

4. Haemato-biochemical basis of primary postpartum haemorrhage
5. Haemato-Biochemical profile of psychiatric patients referred to Komfo Anokye Teaching Hospital, Kumasi
6. Quality control evaluation of Clinical Chemistry tests in the Kumasi metropolis
7. The effect of Lead on Haemato-Biochemical parameters in the Kumasi metropolis
8. The effect of thyroid hormones on obesity indices, hypertension and diabetes.
9. Inflammatory markers in Hypertension and Renal Disease.

#### **Dr. Christian Obirikorang**

1. Prevalence and predisposing factors of obesity among students of KNUST, Kumasi
2. Prevalence of obesity among school going children in the Kumasi Metropolis.
3. Quality of life among people living with HIV/AIDS in the Techiman municipality
4. Comparism of obesity and Cardio-metabolic risk factors in the Urban and rural settings in the Ashanti Region.
5. Needle-stick injury among Healthcare workers in the Kumasi Metropolis.
6. Assessment of the nutritional status of People living with HIV/AIDS in Kumasi, Ghana.
7. Knowledge and attitude of Hepatitis B vaccination among Medical students of KNUST, Kumasi
8. Quality of life among Hypertensive patients at the Kumasi South Hospital, Kumasi.
9. Prevalence of Iron deficiency among People living with HIV/AIDS in Northern Ghana.
10. Assessment of new obesity indices and adipokines in normotensive and hypertensive patients in Accra.
11. Effect of Non-Ionizing Radiation (From Cellular Phones) On Human Sperm Quality In Men at a Fertility Centre In Tema
12. Relationship between Inflammatory Markers, Metabolic And Anthropometric Variables in Type 2 Diabetic Patients In Ghana With And Without Microvascular Complications
13. Association between Glycaemic control and Lipid profile in Type 2 Diabetic Patients: GlycatedHaemoglobin as a dual biomarker
14. Exploratory Factor analysis, Confirmatory and Structural Path model of the conventional/exotic definitive Biomarkers of Metabolic syndrome among a Ghanaian HIV population.

#### **Samuel Asamaoh Sakyi**

1. Selection and application of aptamers as simple diagnostic tool for buruli ulcer
2. Changes in Lymphocyte Subsets in the Peripheral Blood of Buruli Ulcer patients on combination therapy.
3. Evaluation of procalcitonin, TNF-A, IL-6 and C - reactive protein as diagnostic markers for paediatric sepsis.
4. Assessing adherence and quality of life of patients living with diabetes mellitus at Komfo Anokye teaching hospital, Kumasi.
5. Angiogenesis, oxidative stress and placental pathology in normal pregnancy and subsequent pregnancy outcome

#### **MAJOR SERVICE TO THE COMMUNITY**

##### **Prof. (Mrs.) M.T. Frempong**

1. Serves as a member of the Committee for Human Research, Publications and Ethics of the

School of Medical Sciences/KomfoAnokye Teaching Hospital

2. Member of School Board, SMS
3. External Examiner for M.Phil Candidate, Mr. Benjamin NarteyAmenya, School of Graduate Studies, College of Health Sciences, University of Ghana, June 2013/January
4. Study Manager for Peace and Love Hospital Collaborative Research with NCI on Breast Health Studies

**Robert A. Ngala**

1. Head of Department-Molecular Medicine
2. Member- Oath Swearing Committee
3. Member- School Admissions committee
4. Visiting fellow - University of Buckingham, UK
5. British pharmacological Society (BPS)
6. Member- International Diabetes Federation
7. Member- School Board- School of Medical Sciences
8. Member- School Education Committee.

**Dr. E. F. Laing**

1. Member: Library Committee, School of Medical Sciences, KNUST
2. Head: Department of Biochemistry, Komfo Anokye Teaching Hospital, Kumasi (2014)
3. Acting Head: Directorate of Diagnostics, Komfo Anokye Teaching Hospital, Kumasi (2013-2014)
4. Member and Chairperson: Committee to draft Equipment Policy for the Komfo Anokye Teaching Hospital (2012-2013)
5. Member: Technical Advisory Committee on Clinical Trials (TAC-CT), Food and Drugs Authority (FDA), Ghana 2012-date
6. Consultant Physician and Doctor-in-Charge: Aseda Clinic, Adum, Kumasi
7. Member: Volunteers Group, Central Charismatic Baptist Church, Gyinyase, Kumasi
8. Member: Counselling Team, Central Charismatic Baptist Church, Gyinyase, Kumasi
9. Member: 'You shall have a Child' Ministry, Central Charismatic Baptist Church, Gyinyase, Kumasi

**Dr. W. K. B. A.Owiredu**

1. College of Health Sciences Examinations Officer
2. External Examiner in Chemical Pathology, Department of Medical Laboratory Sciences, School of Medicine and Health Sciences, University for Development Studies, Tamale
3. External Examiner in Chemical Pathology, Department of Medical Laboratory, University of Cape Coast, Cape Coast.
4. Chairman, Parent Teacher Association of Saint Monica's Senior High School, Mampong, Ashanti
5. Deacon and Secretary, Calvary Temple Assembly of God Church
6. Member, School Management Board, Calvary Temple Assembly of God School.

**Dr. (Mrs.) Linda Ahenkorah Fondjo**

1. Departmental Examination Officer- since October 2012
2. Secretary- Theresian International- Our Lady of the Holy Rosary Catholic Church Community

– since February 2012.

## **DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY**

### **INTRODUCTION**

The Department of Obstetrics and Gynaecology is located in Komfo Anokye Teaching Hospital and continues to offer its core roles of teaching, research and service in collaboration with the directorate. In the year under review, one senior member, Dr. Seth Sengretsi retired from the department. However the number of academic staff currently at post has risen to 16 following the recruitment of 3 new full time lecturers, one adjunct and two assistant adjunct lecturers to the department. This has enhanced teaching, and enabled us start our affiliated teaching site program for senior clerkship rotations in Manhyia, Kumasi South and KNUST Hospitals.

### **TEACHING PROGRAMMES OFFERED BY THE DEPARTMENT**

- We offer undergraduate Obstetrics and Gynaecology course towards the MB.ChB. degrees of the University. Currently, 185 undergraduate medical students are in the department for their junior and senior clerkships. The department is also involved in training emergency nursing, midwifery and dental students in obstetrics and gynaecology.
- The department continues to attract foreign undergraduate medical students for their elective training in various aspects of obstetrics and gynaecology. During the year, several students from countries such as United Kingdom, United States of America, Germany, Slovenian, China, Poland and Australia undertook electives in the department.
- Postgraduate training in Obstetrics and Gynaecology for the Fellowship of the West African College of Surgeons (FWACS) and the Ghana College of Physicians and Surgeons (FGCPS) is also offered in the department. At present, there are over 40 doctors at various stages of postgraduate fellowship training in the department.
- Under the Kumasi-Gates collaboration the department continues to support the Department of Community Health in running MPH/MSc programme and short courses in population and reproductive health.
- The department also trains House Officers in general obstetrics and gynaecology. During the period under review, 90 House Officers of KATH were trained in Comprehensive Abortion Care, Repair of Episiotomy, Manual Removal of Placenta and Basic Surgical Skills.
- The department continues to collaborate with the Ghana Health Service and non-governmental organizations in provision of continued professional development education in Family Planning and Reproduction Health. In 2013 we trained 38 preceptors from the Northern regions of Ghana, 60 midwives in KATH, and 40 private midwives in Ashanti region.
- The introduction of sub-specialist training in family planning and reproductive under the Ghana College of Physicians and Surgeons leads to increase in research activity of the mentorship of faculty members.

## SERVICE TO THE COMMUNITY

- The department continues to play a leading role in women's health care in Ghana. Specifically, the faculty helps in provision of general and specialist maternity and gynaecology care to patients at the Komfo Anokye Teaching Hospital and other health facilities. Under the Millennium Accelerated Framework (MAF) to reduce maternal mortality in Ghana, faculty members provide outreach services to district hospitals.
- The department provided resource persons for the following national and international assignments.
  - Examinations of the Ghana Nurses and Midwives Council.
  - Examinations of the West African College of Surgeons
  - Examinations of the Ghana College of Physicians and Surgeons
  - Examinations of the Medical and Dental Council of Ghana.
  - Examinations of the Ghana Medical School, University for Development Studies and University of Cape Coast School of Medical Sciences.
- **Faculty members were reviewers & authors of following**
  - **MOH documents**
    - What every pregnant woman should know
    - Maternal Health Record
    - Prevention and Management of Unsafe Abortion—Standards & Protocols
  - **Peer Review Journals**
    - International Journal of Gynecology and Obstetrics
    - West African Journal of Medicine
    - International Journal of Nursing and Midwifery

## PARTICIPATION IN CONFERENCES/WORKSHOPS

In the year under review, academic members of staff attended conferences and workshops both internationally and locally. Some of these were:

1. International *Reproductive Justice Focus on Abortion and Contraception*. International conference on Reproductive Justice. Ann Arbor, USA, 2013.
2. Obstetric Emergencies. Medical Knowledge Fiesta 2013: Cutting Edge Updates for Medical Practice in Ghana. Ghana College of Physicians and Surgeons and African Partners Continuing Medical Education Conference. Kumasi, Ghana; September 2013.
3. AFOG general assembly meeting and the 26th Congress of the Sudanese Obstetrical and Gynaecological Society, in Khartoum, Sudan, February 2014
4. Royal College of Obstetricians and Gynecologists World Congress 2013 at Liverpool United Kingdom from 24 to 26 June, 2013.
5. 54<sup>th</sup> annual conference of the West African College of Surgeons. Kumasi, Ghana on Feb 23-28, 2014.

6. National Conference on Infertility: Pentecost University Conference Centre, Accra, Ghana. 15<sup>th</sup> March 2014.
7. International Family planning conference Addis Ababa, November 2013.
8. 5<sup>th</sup> Annual Ghana College and International Family Planning Fellowship Conference. Accra, 15 April 2013.

## **DEPARTMENT OF PATHOLOGY**

### **INTRODUCTION**

The Department of Pathology was the first to be established in the School as the founding Dean, Late Prof. W.N. Laing was a pathologist. The department does not offer a degree programme on its own but serves as 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 has the following units:

1. Diagnostic Pathology
  - a. Diagnostic Histopathology and Molecular Pathology
  - b. Morbid Anatomy & Forensic Pathology
  - c. Haematopathology
2. Histopathology Technique

### **STAFFING**

The Department has a staff strength of four (4) Lecturers. These are supported by technical staff and demonstrators made up of experienced scientists from the Department of Medical Laboratory Technology of the Faculty of Allied Health Sciences, KNUST and the Pathology Department of Komfo Anokye Teaching Hospital.

Administratively the department is manned by one (1) Principal Administrative Assistant and one (1) Administrative Assistant.

### **TEACHING SERVICES**

The Department offers courses in General and Systemic Pathology to undergraduate students in the MBChB and BDS degree programmes. The department having realized the responsibility imposed by the fact that Pathology is the fundamental basis of medicine and the science on which patient diagnosis and management revolves, designed a reviewed course structure which enables pathology to be taught as a one year programme to the Human Biology III class with a follow up of the theoretical knowledge into the clinical years and consolidation of the knowledge with a year six module on Forensic Pathology and Medical Ethics.

The reviewed course structure which was supported by practical sessions and tutorials is a departure from the previous curriculum where General Pathology was taught as a component of BSc. Human Biology in year III and Systemic Pathology as a component of MBChB degree in year IV. By this review, both general and systemic pathology were merged into a single course.



The clinical exposure involves the pathologists' participation in the seminars and course structure of the clinical departments while the students are on rotation in such clinical units. However the Forensic pathology exposure will be 2 weeks student's hands on experience on autopsy which is expected to be a component of Internal Medicine in the final year. However, this will take effect from 2013/2014 Academic Session since the first set of students in the reviewed course structure will only be in the final year then.

### **Service courses to Allied Health Sciences in Diagnostic Pathology**

The Department also offers general pathology as service course to the following KNUST classes:

1. BSc. Nursing Year II
2. BSc. Optometry Year III
3. MB. Herbal Medicine Year II
4. BSc. Sonography Year II
5. Medical Laboratory Technology II
6. BSc. Midwifery II

### **Service Courses to the Department of Medical Laboratory Technology in Histopathology Technique**

The department offers services to the department of Medical Laboratory Technology in teaching the following classes.

- |                                      |                                     |
|--------------------------------------|-------------------------------------|
| 1. Medical Laboratory Technology II  | - Histopathology Technique I        |
| 2. Medical Laboratory Technology III | - Histopathology Technique II & III |
| 3. Medical Laboratory Technology IV  | - Histopathology Technique IV & V   |

All the teachings in the medical laboratory technology unit are supported by laboratory sessions at Komfo Anokye Teaching Hospital.

### **OTHERS**

In fulfilling our obligations to the other Allied Health Sciences disciplines, the department started a new service course to the Department of Sonography. The course is titled Gross Pathology for Radiography and Sonography.

### **CLINICAL SERVICES**

The Lecturers in the department offers Consultancy services to Komfo Anokye Teaching Hospital in the area of Diagnostic Pathology which includes Histopathology, Cytopathology and Autopsy.

### **ONGOING RESEARCH**

1. Research on occurrences of benign breast diseases/changes in Ghanaian and Norwegian women. A comparative autopsy study.
2. GHABREAST ; Molecular characterization of breast cancer in GHANA. Research in conjunction with NCI
3. Causes of post natal mortality in Ashanti and Brong Ahafo Regions. A comparative study
4. Cause of Road traffic accident, the Human factor
5. Perinatal and Neonatal mortality in Ghana.
6. Causes of Road Traffic Accident, in Ghana, the Human Factor.

## **CONFERENCES**

In the year under review, members of staff attended various conferences. These include:

1. Institutional Mortality, KATH, 27-28 March 2014, MOH, Ghana
2. Conference of International Academy of Pathology, Germany Division. November 17 2013.
3. International Academy of Pathology Conference, West Africa Division, November, 2013.
4. The Department hosted an international conference titled: Gastrointestinal/Liver Pathology, Immunohistochemistry and Liquid Based Cytology Conference between 13 -17<sup>th</sup> August 2012 at Komfo Aokye Teaching Hospital, Kumasi. This was done in collaboration with Department of Pathology, Leeds University Teaching Hospital and Komfo Anokye Teaching Hospital Kumasi.

## **OUR ACHIEVEMENTS**

- i. Through this conference, the department was able to promote a better working relationship between the pathologists, the clinicians and biomedical scientists.
- ii. The conference provided handsome training and hands on experience for Immunohistochemistry techniques and liquid based cytology.
- iii. The conference addressed some issues which negatively influence the pathologists-clinicians' relationship in the management of their patients.
- iv. The slide sessions served as refresher courses for pathologists to sharpen their skill in the area of diagnosis related to GI and Liver pathology and application of Immunohistochemistry findings.

## **TOURIST ATTRACTION**

The participants, many who were first time visitors in Ghana took a tour of the University and teaching hospital, visited Lake Bonsotwi, Kakum National Park and Elmina Castle at Cape coast after the intensive conference and workshop.

## **FUTURE MEETING**

The department has scheduled the second edition of the Clinicopathological meeting for 2015 with the title ;Use of Molecular Pathology in Cancer Diagnosis and Management. ( Focus will be on Breast Pathology, GI/Liver Pathology and Haematopathology). The laboratory session will focus on FISH/CISH/SISH/DDISH in Her 2 Testing , Tissue Microarray and Polymerase Chain Reaction(PCR)

## **MOLECULAR PATHOLOGY LABORATORY**

The Department is working on establishment of Molecular Pathology Laboratory. Our effort in this area got a booster by the donation of equipment by Dr Owusu Danquah, a UK trained Molecular Pathology Scientist and newly employed Lecturer of the Medical Laboratory Technology of KNUST. Both Dean of School of Medical Sciences and Allied Health Sciences are collaborators in the establishment of this Laboratory. This Laboratory will further support the Department in achieving her dream.

## **MEMORANDUM OF UNDERSTANDING WITH UNIVERSITY OF ILLINOIS, CHICAGO**

A memorandum of understanding between the Pathology Department, University of Illinois Chicago and the Pathology Department, KNUST was signed. The memorandum will permit

- Exchange of research materials and joint research activities between the two Universities
- Exchange of faculty members between the two Universities
- Exchange programme for undergraduate Medical and Dental students
- Training of graduate students in Pathology (MSc/MPhil/PhD)
- Training of Resident Doctors in Pathology
- Assistance in Pathology laboratory infrastructural development.

The Director of University of Illinois Pathology Graduate Programme, Prof Marteen Bosland visited the University during the year to facilitate the implementation of the exchange programme.

### **ACCREDITATION FOR RESIDENCY TRAINING**

The Department of Pathology KATH unit was accredited by the Ghana College of Physicians for training of Pathologists to the fellowship status. This accreditation has further strengthened our department and provision of avenue for sustenance of manpower recruitment for Teaching and Consultancy Services rendered by the Department and provision of highly skilled personnel for Ghana University and Health Services.

### **CONCLUSION**

The Department of Pathology has witnessed a steady growth in all areas in line with the vision of Kwame Nkrumah University of Science and Technology as summarized: To advance knowledge in Science and Technology for sustainable development in Africa.

## **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.

### **MEMBERS OF STAFF**

The department has a staff strength of seven (7) made up of one (1) Professor, one (1) Associate Professor, one (1) Senior Lecturer, one (1) Lecturer, one (1) Assistant Lecturer, an Administrative Assistant and a Cleaner.

### **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 Ten (10) Postgraduate (MPhil) students in the Department. Four out of the ten are in their first year. The rest are expected to complete their programmes before the end of 2014.

### **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.
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/AS01E 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/AS01<sub>E</sub> Candidate Vaccine, when Administered as Primary Vaccination Integrated into an EPI regimen to Infants Living in Sub-Saharan Africa (MAL063). 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/AS01E 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 randomised-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 multicentre 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 UK. This project started in February 2014.

### **PUBLICATIONS BY MEMBERS IN THE DEPARTMENT 2013/2014**

Academic members of staff published in several journals. These can be found in the University's Quality Assurance Bulletin for the year under review.

## **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  
Department of Sports and Exercise Science  
Department of Sonography

### **DEANSHIP**

Dean of the Faculty - Rev. Fr. Prof. Appiah-Poku

### **STAFF**

The low staffing situation has improved but it still remains a big challenge. We have enjoyed the support and co-operation of the College as well as the University Administration in this enterprise and we are most grateful, we hope for their continued support in the future in this regard.

### **FACULTY BUILDINGS AND OFFICES**

The Faculty continues to share lecture rooms and laboratory and internet resources with the School of Medical Sciences which has been very supportive. We are grateful.

With increasing number of students and the recruitment of additional Faculty members we face new challenges of office accommodation for lecturers. Our effort to get classrooms space at the Central Classroom Block failed forcing us to put our student into Laboratories and smaller classrooms at the School of Medical Sciences lecture rooms.

The situation is becoming increasingly unbearable and we now have to plead with the Administration to permit us to build new classrooms for our students. Requests for drawing and the needed plan to enable us put this into effect have been sent to the Director of Works. We have sought and received the support of the Provost and Vice-Chancellor for our effort and we thank them for their continued support. We rely on the University Administrations continued support to put up a classroom block for the Faculty.

We would like to register our appreciation of the University and College Administration for the support of our work here at the Faculty.

## **DEPARTMENT OF MEDICAL LABORATORY TECHNOLOGY**

### **INTRODUCTION**

The Department of Medical Laboratory Technology is one of the four Departments of the Faculty of Allied Health Sciences. The Department is the oldest established Department under the Faculty. The Department runs the B.Sc. Medical Laboratory Technology programme, started some 13 years ago, and produces professional Biomedical Science graduates, through regular lectures, an extensive bench-based laboratory training, tutorials and seminars.

Nine batches of graduates have passed out; some are contributing their quota to the health delivery system, and others are pursuing professional Biomedical Sciences graduates programmes. The Department under 2008/2009 Academic Year reviewed its Curriculum to meet the changing demand of the world market of Biomedical Science.

The Department has developed Human Capacity Development collaboration with the Westminster University where Westminster University is training a number of lecturers to beef up the staff situation in our distressed units such as Hematology, Histopathology, etc. Delegation from Westminster also visited the department to further establish student exchange programme where students from the two departments will visit each other's laboratory during the summer holidays.

### **STAFFING**

Lecturers: **8**

Service lecturers: **10**

Senior Administrative Assistant: **1**

Dr. Clement Opoku-Okrah a Senior Lecturer is the Head of Department, and he is joined by eight permanent lecturers. The rest of the courses are handled by lecturers from the Departments of Anatomy, Physiology, Pathology, Microbiology, and Molecular Medicine of the School of Medical Sciences.

### **Administrative Staff**

There is one (1) administrative staff who helps with the day to day running of the department.

### **STUDENTS NUMBERS**

Two hundred and Thirty Seven (237)

### **LINK WITH OTHER INSTITUTIONS OF HIGHER LEARNING**

The Department has a link with the School of Biomedical Science of the University of Westminster, UK and University of Michigan, USA.

## **DEPARTMENT OF NURSING**

### **PROGRAMMES OFFERED BY THE DEPARTMENT**

The Department is offering regular and sandwich programmes. Its programmes are Bachelor of Science in Nursing, Emergency Nursing, Midwifery; and Diploma in Emergency Nursing

### **STAFFING**

Lecturers: full time – 10 (2 on study leave)

Visiting Lecturer – 1

Part time Lecturers – 6

Administrative staff – 1

### **STUDENT NUMBERS**

The department has a total of five hundred and fifty-seven (557) students enrolled in the various programmes.

## **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 and midwives and as well build the capacity of qualified professional nurses and midwives to effectively and efficiently deliver evidence-based nursing and midwifery care to their prospective clients and significant others. The course also prepares the students to identify pertinent health problems in their institutions and communities and to effectively design programmes to address them. The Department benefits immensely from the service courses. The Skills laboratory has been equipped with resources to provide pre-clinical teaching on nursing and midwifery procedures.

## **RESEARCH IN THE DEPARTMENT**

Staff continue to work with students in the areas of research in nursing, midwifery and general health issues.

## **SERVICE TO THE COMMUNITY**

Senior members of the department offer services to the University in various capacities, serving on some college and faculty boards; and other committees. They also serve as moderators for nursing programmes in affiliated University colleges such as Central University College (Accra), Garden City University College (Kumasi), Christian Service University College (Kumasi) and St Karols School of Nursing (Accra). Then nursing programme at the Pentecost University College (Accra) is also affiliated to the KNUST to receive support from the department. They also provide support to the Nursing and Midwifery Council, Ministry of Health, Ghana Health Service and the National Accreditation Board.

## **OFF-CAMPUS PROGRAMMES**

The University through the Department of Nursing has begun running an off-campus programme at the All Nations University College, Koforidua. This is a top-up programme for registered nurses leading to the award of BSc. Nursing.

## **MINISTRY OF HEALTH PROGRAMME**

The Ministry of Health's diploma-awarding institutions in midwifery, registered general nursing and community health nursing are affiliated to the University. As part of the process, the Department of Nursing organizes terminal examinations for candidates who successfully complete their academic programmes in their institutions to enable the university award them with the diploma certificate. Two of such examinations were held for the Midwifery Training institutions.

## **LINKS WITH INSTITUTIONS OF HIGHER LEARNING**

The Department has collaborations with the School of Nursing, University of Michigan, USA, University of Nottingham, School of Nursing, Midwifery and Physiotherapy, UK and the School of Nursing at the Ramapo College, New Jersey, USA. It is collaborating with the Department of Emergency Medicine, University of Michigan Hospital through the Ghana Emergency Medicine Collaborative (GEMC) Initiative. It is also collaborating locally with universities that offer nursing programmes.

### **EXCHANGE PROGRAMMES**

In pursuit of the collaboration between KNUST and the School of Nursing, Midwifery and Physiotherapy, Nottingham, UK, two (2) students from the Department visited the University of Nottingham; they had clinical exposures to observe nursing practice in the UK. Three (3) students from the Diploma Emergency Nursing programme also had a one month attachment to the Department of Emergency Medicine, University of Michigan Hospital for clinical exposure in developed emergency settings.

### **PROPOSED NEW PROGRAMMES**

The department has submitted proposal to begin postgraduate programmes in the next Academic Year. This will be run in collaboration with the School of Nursing, Ramapo College, New Jersey, USA.

### **DONATIONS/GRANTS**

- The Department received anatomic models, a birth simulator equipment and 32-seater Toyota coaster bus from the United Nations Population Fund (UNFPA) in support of the BSc. Midwifery programme.
- JHIPIEGO also donated resources to the department.
- The Department also received text books from Ramapo College, New Jersey

### **PROFESSIONAL LICENSING EXAMINATION**

The department registered forty-five (45) candidates for the professional nursing examination organized by the Nursing and Midwifery Council for Ghana in August, 2013. Thirty-five (35) of them representing 79.5% were successful in all subjects and this was the best performance nationwide.

### **PARTICIPATION IN WORKSHOPS/CONFERENCES/SEMINARS**

Staff participated in the following conferences/workshops:

- **Pregnancy Induced Hypertension: Implications for Midwifery Practice** organised by the West African College of Nursing (Ghana Chapter) at Accra from 28<sup>th</sup> July-1<sup>st</sup> August, 2013.
- **Current Trends in Tuberculosis Management in the Sub- region: Implication to Nursing Practice**” organized by the West African College of Nursing (Ghana Chapter) at Accra from 29<sup>th</sup> September -3rd October, 2013.

### **10<sup>TH</sup> ANNIVERSARY OF THE DEPARTMENT**

In November, 2013, the department celebrated its decade of establishment under the theme: “Transforming the image of Nursing and Midwifery: the role of tertiary education”. It was a week-long celebration with public education on various topics. The department’s vision for the future was also outlined, key among which was the need for infrastructure expansion and the intention to begin postgraduate programmes.

## **DEPARTMENT OF SONOGRAPHY**

The Department of Sonography is one of the Departments under the Faculty of Allied Health Sciences. The BSc Sonography programme started 2008/2009 academic year.



## **ACADEMIC MEMBERS OF STAFF**

The Department has Dr K. Bedu-Addo as the coordinator. Most of the courses are handled by lecturers from the departments of Anatomy, Physiology, Pathology, Microbiology, Radiology and Molecular Medicine of the School of Medical Science, and from the Department of Nursing and Physics. Efforts are however, being made to recruit more core staff.

The student population has grown from three in 2008 to eighty (80) in May 2013. The first batch of students will graduate in May 2013. The department recently acquired four (4) ultrasound machines to enhance teaching.

## **PROPOSED PROGRAMME**

It is hoped that the Department will start a BSc Radiology programme in the near future. When started, the students of both programmes will take same courses in the first and second year classes, and branch to their programme during the third and fourth years.

Mr. Yaw Amo Wiafe joined the Department as an Assistant Lecturer at the beginning of the 2012/2013 academic year.

## **DEPARTMENT OF SPORTS AND EXERCISE SCIENCE**

### **STAFFING**

Senior Lecturer	-	1
Lecturers: Full time	-	4
Part time	-	4
Snr. Admin. Assist	-	1

### **TEACHING**

- (A) The Department of Sports and Exercise Science is under the Faculty of Allied Health Sciences in the College of Health Sciences. The Department offers and prepares students for a four-year degree in Sports and Exercise Science.
- (B) The core staff of the Department has been strengthened following the return of Mr. Benjamin Asamoah and Miss Biggie Bonsu, the two products of the Department of Sports and Exercise Science who were sponsored by the University (KNUST) to pursue post-graduate studies in South Africa. The two joined the Faculty in January 2014. Additionally, the Department has a Nigerian Lecturer, Dr. Monday Omoniyi Moses on full-time in the Department.
- (C) The Department further inculcates in students the essential capacities for total fitness, leadership and professional growth. Additionally, the Department seeks to use the exercise science platform as a professional tool in promoting fitness for faculty, students, athletes and the community at large.

The Department of Sports and Exercise Science represents an amalgamation of scientists from academic disciplines of Anatomy, Physics, Physiology, Kinesiology and Biomechanics.

**Courses offered include:** Exercise Physiology, Biomechanics of Human Motion, Basic Principles of Biomechanics, Care and Prevention of Athletic Injuries, Scientific Principles and Methods of Sports.

Final year students are required to receive clinical attachment in Recreation/Sports Administration and physiotherapy.

The Department provides a science-based education in Sports and Exercise Science electives to many departments in the university.

### **INFRASTRUCTURAL DEVELOPMENT**

The Department of Sports and Exercise is currently located in the same building housing Departments of Medical laboratory, Nursing and Sonography all in the School of Medical Sciences at KNUST.

### **PROJECTIONS**

The Department hopes to increase its intake substantially despite numerous problems it is currently facing. The staff at post and any new employees would be expected to work harder to meet challenges and demands of the Department.

### **RESEARCH**

- i. Adjei James A. - Teaching Manual for Kinesiology
- ii. Adjei James A. - Teaching Manual for Exercise Physiology
- iii. Adjei James A. - Teaching Manual for Biomechanics

### **COMMUNITY SERVICE**

Dr. James Adjei, the current Head of Department continues to provide lectures on

- Aging and exercise
- Other fitness and health-related lectures to area churches and communities.

## **DENTAL SCHOOL**

### **PREAMBLE**

After its establishment in the 2006/7 academic year, the KNUST Dental School will hopefully graduate the 3<sup>rd</sup> batch of dental surgeons in August, 2014. Starting with a pioneer class of ten (10) dental students, the young school now has a student population of one hundred and fifty nine (159); with an average class size of twenty seven (27).

It also continues to attract foreign students from neighbouring countries like Nigeria, Cameroun, Mali and Togo. Though a full-fee paying programme, it is one of the over-subscribed courses in the University. Using the inadequate clinical facilities and staff provided by both the University and KATH in the training of the increasing student population, we are more likely to compromise on the standard competences required from our products. To address this and other challenges facing the school, a platform should be created where the key stakeholders will meet to offer medium to long term solutions.

## **STAFF**

Administratively the school is headed by a Dean (Dr. Francis ADU-ABABIO) and has one Assistant Registrar (Mrs. Regina NUAKO), Principal/Senior Administrative Assistants and a messenger.

## **Academic/Teaching Faculty**

The department has twenty (20) academic/teaching staff which is made up of Professors (Adjunct ones included), Senior Lecturers, Lecturers and a Demonstrator.

## **Recruitment - Teaching Faculty**

Dr. Oti-Acheampong was appointed as a full-time Lecturer and has joined the Department of Oral & Maxillofacial Surgery.

## **ACADEMIC DEPARTMENTS**

Five (5) departments; viz:

Adult Oral Health  
Basic & Diagnostic Oral Health Sciences  
Child Oral Health & Orthodontics  
Community Dentistry  
Oral & Maxillofacial Surgery

*\*\*\*NB/ Departments of Child Health, Obstetrics & Gynaecology, Medicine & Surgery from the School of Medical Sciences (SMS) continue to provide service to our clinical students at KATH.*

## **SPONSORSHIP/FUNDING FROM COLLEGE OF HEALTH SCIENCES/KNUST**

Dr. Fremah Dapaah, a senior Resident at KATH is pursuing a 4-year Fellowship training in Oral Pathology in South Africa. Her entire training is being funded by the University through the College of Health Sciences.

## **PURCHASE OF DENTAL EQUIPMENT/MATERIALS/CONSUMABLES**

The dental school is using its share of the fees paid by Ghanaian students to purchase additional 5 dental chairs, 50 packets of hand pieces (low, high & straight hand pieces per packet), orthodontic pliers and dental consumable/materials for students use at KATH.

## **INTERNATIONAL ACADEMIC COLLABORATION**

In the year under review, our 5th year clinical year students have received invitations from the School of Dentistry, University of Michigan in the USA and the Kleinkenhau Hospital, Rotenburg/Wumme in Germany to undertake their 4-week elective programme in their institutions. Prof. Schippers, an Adjunct Faculty has arranged for full sponsorship including the purchase of return air-tickets and free accommodation for the two students, who will travel to Germany in September, 2014.

## **CONFERENCES ATTENDED**

Drs. **Francis Adu-Ababio** and **Gilbert Aboryo Ankrah** attended the workshop on the harmonization of the undergraduate Dental Surgery Curriculum for the ECOWAS sub-region which was held in Bobo-Dioulasso, Burkina Faso from March 16-20, 2014.

Drs. **P. E. Karikari, G. A. Ankrah** and **Adu-Ababio** also participated in the 3-day Continuous Professional Development (CPD) programme on the theme ‘ Oral health of the elderly’ jointly organized by the Commonwealth and Ghana Dental Associations which was held in Accra from 17-19, February, 2014.

### **Presentation at the 54<sup>th</sup> Annual Conference of the West African College of Surgeons (WACS)**

Dr. Adu-Ababio attended the above conference held from February 24-28, 2014 in Kumasi, Ghana. Francis presented a paper titled ‘Alcohol and Drug use among dental students in KNUST; A preliminary survey’ jointly authored by Drs. Tettey, Martin Tetteh-Ahua and Joseph Abu-Sakyi.

### **GHANA MEDICAL ASSOCIATION (GMA) FELLOWSHIP AWARD**

In November, 2013, Dr. Francis Adu-Ababio, a Past President of the GMA received the GMA fellowship award during the 55<sup>th</sup> Annual Conference of the GMA held in Sunyani, Brong Ahafo region.

### **EXAMINERS AT THE FACULTY OF DENTAL SURGERY, GHANA COLLEGE OF PHYSICIANS & SURGEONS (GCPS)**

Drs. G.A. Ankrah and Francis Adu-Ababio acted as Internal Examiners in the Faculty of Dental Surgery, GCPS for the Part 11 Examination held in September, 2013.

### **CHALLENGES**

- Inadequate academic/teaching staff in most departments of the dental school but seriously affected is the Department of Adult Oral Health.
- Limited clinical facilities at KATH not matching the increasing students’ population
- No School bus to support the outreach/community-based programmes of the dental school.

### **RECOMMENDATIONS**

- Vigorously intensify the recruitment of qualified teaching and laboratory staff from within and outside Ghana.
- Provide space in the KNUST Teaching Hospital project for the expansion of clinical facilities to train dental students.
- Provision of a spacious school bus preferably a 33-seater to support the community-based programme.

### **ACKNOWLEDGEMENT**

On behalf of the Dental School, I wish to express my profound gratitude to the University Management in particular for their tremendous assistance in bringing our young institution this far.

# SCHOOL OF VETERINARY MEDICINE

## INTRODUCTION

The School of Veterinary Medicine (SVM) was established in 2009 as an integral School of the College of Health Sciences and it is mandated 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.

## 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

Head, Anatomy and Physiology Department

Coordinator, Veterinary Pathobiology Department

Coordinator, Veterinary Clinical Studies

School Examinations Officer/Head, Vet. Public Health

Assistant Registrar

## ENROLMENT

The School is in its fifth academic year of existence. Student enrolment is shown in the table below.

ACADEMIC YEAR	FEMALE	MALE	TOTAL
2009/2010	4	9	13
2010/2011	3	8	11
2011/2012	4	5	9
2012/2013	7	15	22
2013/2014	1	11	12
<b>TOTAL</b>	<b>19</b>	<b>48</b>	<b>67</b>

## FACILITY FOR CLINICAL TRAINING

In the absence of Veterinary Teaching Hospital on campus, the College has identified off-campus government veterinary clinic at Amakom for clinical training of students. It has been renovated and upgraded for the purpose.

## INTERNATIONAL COLLABORATION

The School has signed Memorandum of Understanding for academic collaboration with the

Schools of Veterinary Medicine of Tuskegee University, Tuskegeeee, 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.

## VISITING LECTURERS

1. Prof. Walter Renberg, a Professor of Orthopaedic Surgery, College of Veterinary Medicine, Kansas State University, USA paid one week visit to the school to deliver lecture on orthopaedic surgery to the fifth year veterinary students. His visit was initiated by Dr. Andy Quarcoopome of Tema Animal Hospital at no cost to the University.
2. Six-member team of Christian Veterinary Mission from USA and Canada comprising Dr. Sara Phipps, Dr. Suzanne Sowa, Dr. Hillary Hickam, Dr. Rachel Carpenter, Mr. Jason Phipps and Mr. David Carpenter paid one week visit to the school. During the period, they facilitated hands-on practical training and lecture in the specialty of soft tissue surgery and internal medicine. Their visit was initiated by Dr. Andy Quarcoopome at no cost to the University.
3. Maarten C. Bosland, Professor of Pathology, College of Medicine, University of Illinois at Chicago, USA visited the school and we had a fruitful discussion 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.

## DONATIONS

1. Six-member team of Christian Veterinary Mission from USA and Canada: During their visit the following items were donated to the school:
  - Ten (10) stethoscopes given to forth year veterinary students,
  - Assorted drugs, disinfectants and surgical disposables,
  - Three (3) examination tables.

The items were estimated at a total cost of about **GH¢4000.00** (four thousand Ghana cedis).

2. Dr. William B. Amanfu, a consultant veterinarian and the current chairman of the Veterinary Council of Ghana, donated the following items:
  - One (1) Toshiba Laptop computer with a bag,
  - One (1) Sony Digital Projector.

The items were estimated at a total cost of about **GH¢3,700.00** (Three thousand, seven hundred Ghana cedis).

3. Dr. Andrew Kusi Appiah, a private veterinarian, donated the following items:
  - Three (3) Desktop computers
  - One (1) Laptop computer:

The items were estimated at a total cost of about **GH¢7000.00** (seven thousand Ghana cedis)

4. The Minister of Food and Agriculture, Hon. C.K Humado, and Veterinary Services Directorate represented by the Director, Dr. Philip Salia donated the following items:
  - One (1) desktop computer,
  - One (1) printer,
  - One (1) Laptop computer
  - Assorted clinical instruments.

The items were estimated at a total cost of about **GHC6000.00** (Six thousand Ghana cedis).

### **CONSTRUCTION OF SCHOOL OF VETERINARY MEDICINE COMPLEX**

Construction work has started on the first phase of the School of Veterinary Medicine Complex building. The project is being funded by Ghana Educational Trust Fund (GETFund). Sod-cutting for the commencement of the project was done by the Minister of Food and Agriculture, Hon. C. K. Humado assisted by the Vice-Chancellor, Prof. William Otoo Ellis. Present at the ceremony, among other dignitaries, were the Chairman of the Veterinary Council of Ghana, Dr. William B. Amanfu, the Registrar of the Veterinary Council, Dr. S.O. Ofosu, and the Director of Veterinary Services Directorate, Dr. Philip Salia.

### **SCHOOL BUS**

A thirty (30)-seater Toyoter Coaster bus was purchased for the school by the GETFund. This has tremendously eased movement of students to off-campus training facilities.

### **CHALLENGES**

The challenges as expected of a new school are many. They include the two listed below:

1. Faculty: The School is facing difficulties in attracting qualified specialists to teach most clinical specialties. Most of the clinical courses are being taught by Part-Time Lecturers.
2. 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.

## **KUMASI CENTRE FOR COLLABORATIVE RESEARCH (KCCR)**

### **INTRODUCTION**

Established 17 years ago through Ghana-Germany partnership, among three institutions in the two countries (Ghana and Germany), the Bernhard Nocht Institution for Tropical Medicine (BNI) in Hamburg, Germany, KNUST and the Ministry of Health of Ghana (MoH), KCCR continues to perform her role in applied biomedical research at the College of Health Sciences.

Over the years, research has predominantly focused on tropical communicable and neglected diseases such as Malaria, Buruli ulcer, Tuberculosis, Filariasis, Onchocerciasis, HIV/AIDS and recently, Zoonoses in particular coronaviruses among bat population. Although currently the centre drives large scale research in the area of non-communicable diseases such type II diabetes, Hypertension and Sickle Cell Disease. We continue to focus on the core mandate of training, sub-regional collaboration and integration as well as fostering scientific collaboration in areas of mutual benefit for partners. The current research profile of the centre consists of thirty eight (38)

ongoing researches with nineteen (19) major and nineteen (19) minor projects respectively. This current report details some modest achievements in pursuant of the centre's mandate.

Key highlights are; the recognition of the Chairman of the board of directors of BNI's as honorary fellow of the Ghana College of Physicians and Surgeons (GCPS), the deepening of collaborations with Universities of Pittsburgh, Northeastern, Pennsylvania in the United States of America, working with the National Tuberculosis Programme (NTP) to perform routine drug resistance testing for tuberculosis, implementation of screening for Ebola fever and other viral haemorrhagic fevers, screening of Hajj pilgrims for MERS coronavirus, institution of financial rules and guidelines for KCCR, Training and Capacity building opportunities and additional granting opportunities.

Additional information about the current status and performance of KCCR- please visit [www.kccr.de](http://www.kccr.de)

## **SIGNIFICANT EVENTS**

### ***Honorary Fellow of GCPS***

The Chairman of the Board of directors of the BNI, Prof. Rolf Horstmann was acknowledged for his contribution to science and to the establishment of KCCR in research into tropical diseases in Ghana and abroad on December 9<sup>th</sup>, 2013. He was received into the fraternity of the college with a prestigious citation that makes all of us at KCCR proud. We use this opportunity to congratulate the accomplished professor and friend on this modest but significant achievement to himself and KCCR.

### ***University of Pittsburgh***

During the period under review the Principal Investigator of the proposed haematology group Prof. Solomon Ofori-Acquah of the University of Pittsburgh, together with Prof. Kwaku Ohene Frimpong made separate visits to the centre. The initial equipment for the laboratory work (-80 freezer and DNA extractor Machine) have been sent to KCCR. The initial talk to involve KATH and other stakeholders has taken place and as well KCCR has signed a MoU with the University of Pittsburgh that will facilitate transfer of funds and student and faculty exchange among others. Full protocol for current study is underway.

### ***Millennium Development Project-Amansie West***

In order to facilitate training of students, KCCR is in talks with the Millennium Promise village to sign an MoU to help in future engagements including research into Buruli Ulcer and other diseases. Current funding scheme from Columbia is almost complete and therefore part of the engagement would seek for granting opportunities together for potential scale up and adoption of the site for research.

### ***Granting Opportunities-‘Bridge’***

BNI and KCCR together with other research institutes from Dar es Salaam and Nairobi are currently pursuing a study to improve the diagnosis of Non-Communicable Diseases (NCDs) in Ghana for replication in other African countries through the use of the district health concept. The team was recently invited to Berlin to make a presentation and to improve the current proposal for final submission in August 2014. The project concept is one of 11 potential (four to be selected) projects to receive up to 12 and half million Euros each in funding from the German



Ministry of Education and Research (BMBF).

### ***Construction of Cold House for KCCR***

KCCR was in the process of soliciting for funds to construct a cold room for freezers to free up space at the current location for other purposes and also to create opportunities for biorepositories for future research. Let me mention that plans are far advanced in this direction and hopefully will see this come to fruition this year.

### ***Training and Capacity Building***

The total number of students sponsored for graduate training stands at 40 (30 Mphils and 10 PhDs). The centre currently has Four PhDs and six Masters students in training. Additionally, several students and staff continue to benefit from short courses and training opportunities from several institutions abroad.

## **LEADING AND WORKING WITH OTHERS**

KCCR is committed to establishing and maintaining mutually fruitful relationships with industries, health, research and educational institutions, as part of its core values. Over the last two years the current Director has signed over 10 memoranda of understanding with health intuitions and Universities, aimed at strengthening health systems in Ghana through research, development of better laboratory diagnostic methods for common diseases, as well as introducing innovative teaching modules for postgraduate programmes.

## **ESTABLISHMENT OF HAEMATOLOGY LABORATORY**

KCCR recognises the high mortality that is associated with blood disorders including sickle cell traits and disease, and is directing some attention to haemaetological research work. In view of this, a new haematology laboratory is being established. Equipment that will be used to furnish the Haematology Core Lab has been procured, which include Systmex Haematology Analyzer, Isoelectric Focusing machines, PE-IsoScan, HPLC, etc. has been put in place with part funding from partner institution from University of Pittsburgh.

## **EXPANSION OF ULTRA-COOL FACILITIES**

Measures have been put in place to expand storage (freezer) capacity of the institute and numbers of offices and laboratories. It is intended that soon KCCR can boast of cold room housing about 40 units of 40 -80°C freezers.

## **THE JOURNEY TO THE FUTURE**

KCCR also recognises the future of Biomedical Science to belong to Omics – Genomics, Proteomics, Agricgenomics, Transcriptomics, Metabolomics, Neurogenomics, Connectomics, etc. For that matter, through its strategies of resource mobillisation, collaboration and quest for biomedical excellence, it intends to establish bioinformatics resources laboratory to drive innovative Omics research and human resource capacity development in Ghana. In line with this, KCCR has procured high capacity computing servers capable of storing and analyzing thousands of human genome databases for training and equipping the next generation of genome biologists. The aim is to build a core bioinformatics group to support analysis of large-scale genome wide studies.

We continue to invest in the next generation scientists by providing training to enhance knowledge and skills that equip staff for optimum function.

### **CONFERENCES AND WORKSHOPS ATTENDED**

During the year under review, academic members of staff attended several conferences and workshops some of which are:

1. 5th Annual Scientific Conference, KNUST, Kumasi, 14<sup>th</sup> to 15<sup>th</sup> November 2013
2. Complete Forensic DNA workflow training at Life Technologies' African Forensic School in Johannesburg from 25<sup>th</sup> May to 8<sup>th</sup> June 2013.
3. H3ABionet Train-the-Trainer workshop at International Centre for Invertebrate Physiology and Ecology (ICIPE), Nairobi Kenya from 7<sup>th</sup> to 28<sup>th</sup> July 2013.
4. National TB control stakeholders meeting in Kumasi, which was held on 24<sup>th</sup> – 27<sup>th</sup> May 2013.
5. 5<sup>th</sup> AFENET Scientific Conference. Ethiopia (United Nations Conference Centre). 17<sup>th</sup> to 22<sup>nd</sup> November 2013.
6. Follow-Up Conference German-African Cooperation Projects in Infectology, Hotel Whitesands Dar es Salaam, Tanzania 29<sup>th</sup> January to 1<sup>st</sup> February 2014.
7. Health-seeking behaviour of Tuberculosis patients and related factors in the Central Region of Ghana 16<sup>th</sup> International Congress on Infectious Diseases (ICID) Cape Town, South Africa: 2<sup>nd</sup> to 5<sup>th</sup> April 2014.
8. African Programme for Advanced Research Epidemiology Training (APARET) Project Management Workshop hosted in Zanzibar - Tanzania, from 31<sup>st</sup> March to 5<sup>th</sup> April 2014.
9. HIV Research Manuscript Development workshop; Kumasi, 27<sup>th</sup> to 28<sup>th</sup> March 2014.
10. Monitoring and Accountability 2020 (PMA202) Dissemination Workshop; Accra, 26<sup>th</sup> March 2014.
11. Workshop on the National Estimate for HIV/AIDS prevalence: Research, Monitoring and Evaluation Committee of the Ghana AIDS Commission Team; Accra, 8<sup>th</sup> March 2014.
12. International Conference of Infectious Diseases, Cape Town, South Africa, 2<sup>nd</sup> to 5<sup>th</sup> April 2014.
13. 6<sup>th</sup> Annual scientific conference of the Ghana Biomed Convention, Cape Coast, Ghana, 29<sup>th</sup> to 31<sup>st</sup> July 2013.
14. KNUST- College of Health Science scientific conference, Kumasi, Ghana, 14<sup>th</sup> to 15<sup>th</sup> November 2013.

# **COLLEGE OF SCIENCE**

## **INTRODUCTION**

The College of Science consists of seven academic departments and a research centre. Its focus is to provide first class education, high quality research and extension services in the basic and applied sciences for national industrial and economic development. Ultimately, we seek to become a centre of excellence nationally and internationally, for the advancement of knowledge in the sciences.

The College has twelve (12) undergraduate programmes, run by the various departments, in addition to multiple postgraduate programmes at the Master's and doctorate levels. As the third largest College, the overall student population currently stands at approximately 5, 560 of which 329 are post graduates.

## **COLLEGE ADMINISTRATION**

During the period under review, there was a change in the leadership of the College. The former Provost, Prof. R. K. Nkum was succeeded by Prof. Kwasi Obiri-Danso, having completed his tenure of office.

Provost - Prof. K. Obiri-Danso  
College Registrar - Mrs. Margaret Dzisi  
Ag. College Finance Officer - Mr. G. S. Ahinful  
Ag. College Librarian - Mrs. Hagar Atta-Obeng  
Senior Assistant Registrar - Mrs. Ida Saeed

## **ACTIVITIES**

### **PRE-SCIENCE TEACHING PROGRAMME FOR INTERNATIONAL STUDENTS**

The Pre-Science Teaching Programme which is organized for First Year international students every year came off from 12<sup>th</sup> August 2013 to 20<sup>th</sup> September 2013. The programme is designed to address deficiencies of participants in the basic sciences in preparation for the main course work.

### **TRAINING PROGRAMME FOR TECHNICIANS**

The College's training programme for Technicians moved into the third phase. The programme is to upgrade the knowledge and technical skills of Technicians in the College and other Colleges/Units of the University. Participants were taken through courses such as Computer Applications, Statistics for Laboratories, Methods of Validation for Laboratory Practical, among others.

## **STAFF RECRUITMENT**

With the increase in student numbers each year, and the introduction of new programmes, the College continues to recruit high caliber staff to improve its staff/student ratio. For the period under review, seven Lecturers and four Technicians were recruited into various Departments of the College.

## **NEW PROGRAMMES**

In response to stakeholder demands and national development, and to increase access to tertiary education, plans are far advanced to introduce new and attractive programmes. The existing syllabuses have undergone review and the College's first part-time/parallel programme in Computer Science was introduced at the beginning of the academic year.

## **ORIENTATION FOR NEW STAFF**

The College organized orientation programmes for newly recruited Lecturers and Technicians on the 18<sup>th</sup> and 25<sup>th</sup> of March 2014, respectively. Participants were given insight into the workings of the University, their respective responsibilities and conditions of service, among others.

## **STAFF TRAINING WORKSHOPS**

As part of measures to enhance the examinations process, Senior Members in the College underwent a two-day training workshop on the 13<sup>th</sup> and 14<sup>th</sup> of November 2013, to upgrade their skills in online uploading of marks, organized by the College, in collaboration with the University Information Technology Services. The training is intended to facilitate marks recording and expedite the release of examination results.

A two day workshop was also held for Website Content Managers from the various Departments in the College on the 12<sup>th</sup> and 13<sup>th</sup> of March 2014 respectively, to effectively manage the Departmental and College websites.

## **BENEFACTORS**

The College Library was privileged to receive a consignment of science books donated by the University of Guelph, Canada.

## **VISITORS**

The College hosted a two-member delegation, led by Prof. Sevenrine Fogel from the Universite de Paris Sud, France, on the 17<sup>th</sup> and 19<sup>th</sup> of February 2014. The visit provided an opportunity to interact with management of the College and to promote further collaboration between the two parties.

# **DEPARTMENT OF BIOCHEMISTRY AND BIOTECHNOLOGY**

## **INTRODUCTION**

The Department of Biochemistry and Biotechnology, has for the past 30 years, trained biochemists who are employing their acquired knowledge and skills for national development in different areas, such as health care delivery, food industry, research, teaching, security services, self-employment, etc. During the past year, the Department engaged in several activities; all aimed at facilitating its operations.

## **STUDENT STATISTICS**

The total number of students at the Department is 407. The breakdown is as follows;

B.Sc. Biochemistry	-	356
M.Sc. Biotechnology	-	15
M.Phil. Biochemistry	-	10

M.Phil. Human Nutrition and Dietetics	-	25
PhD Biochemistry	-	1

### **STAFF STATISTICS**

The Department engaged the services of two lecturers and one assistant lecturer this year. They are Dr. Christopher Larbie (trained under the Staff Development Programme), Dr. Pandam Salifu and Ms. Marina Tandoh. This brings the number of staff to 16. The breakdown is as follows:

Professors	-	1
Associate Professors	-	1
Senior Lecturers	-	6
Lecturers	-	4
Assistant Lecturer	-	1
Technical Instructor	-	1
Administrative Assistant	-	1
Clerical Assistant	-	1

### **GRADUATE STUDIES**

The Department continues to offer quality graduate training at the MPhil, MSc and PhD levels. Plans are underway to convert the MSc. Biotechnology programme to an MPhil programme to create more job opportunities for graduates.

Also, the MPhil Human Nutrition and Dietetics programme is in its second year and the first batch of students had their clinical internship with the Diet Therapy units of the Korle-bu Teaching Hospital (KBTH), the Princess Marie Louise Hospital and the Nutrition Department of the Ghana Health Service.

This practical training, comprising a 4-month clinical attachment, gave students experience in the National Diabetic Centre, the Burns ward, the Medical and Renal wards, the Out-patient Department and the diet kitchen at KBTH. Students also acquired practical experience in the management of childhood malnutrition. The students are currently undergoing further clinical training at the Komfo Anokye Teaching Hospital (KATH).

### **GRADUATION/ORAL EXAMINATIONS**

Five students of the MSc. Biotechnology and three MPhil Biochemistry students defended their theses. One student had his MPhil Biochemistry upgraded to a PhD, following his successful defence of his research work.

### **CAPACITY STRENGTHENING**

The Department, for the past two years, has organized a Certificate Course on Human Nutrition and Dietetics for health professionals, co-ordinated by 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 represented by most District hospitals in the Ashanti Region, with strong support from the Regional Health Directorate, Ghana Health Service.

## **AWARDS**

Prof. (Mrs.) Ibok Oduro was awarded the Prof. Samuel Evans Adunya and Mrs. Patricia A. Boykin-Adunya Award to Staff for Academic Excellence. Mr. Felix Acheampong, a postgraduate student of the Department has been awarded a Novartis Visiting Scholar Award to further his postgraduate research at the Novartis Institute of Biomedical Research in USA.

Miss Rashid Suad, a final year student of the Department, was awarded the NUGS/VICE CHANCELLOR EXCELLENCE AWARD for being the best student of the College of Science with CWA of 79.89.

## **CONFERENCES**

During the past year, the first branch of the Ghana Nutrition Association was formed at KNUST. Following this, the Department of Biochemistry and Biotechnology hosted the National Annual General Meeting of the Ghana Nutrition Association, on 22<sup>nd</sup> November, 2013 at the College of Science auditorium. Guests were welcomed by the Head and also by the President of the Ghana Nutrition Association, Professor Matilda Steiner, who said the formation of the branch was a clear indication of the growth of the association. The keynote address was given by Dr. Kweku Edusei (an alumnus of the Department), of the Disability and Rehabilitation Centre, KNUST, on the topic: “Diet and lifestyle in the prevention and management of chronic diseases”.

Staff and students of the Department participated actively in the 3<sup>rd</sup> one-day Research Seminar and Poster Presentation organised by the Ghana Science Association (Kumasi Branch) on 16<sup>th</sup> April, 2014. About 19 students presented research papers by oral and poster presentations.

## **COLLABORATIONS AND DONATIONS**

Staff of the Department continued with existing collaborations with the Kirkhouse Foundation, the Cocoa Research Institute of Ghana (CRIG), the Noguchi Memorial Institute for Medical Research (NMIMR) and the Centre for Scientific and Industrial Research (CSIR). The Department received donations in the form of books and laboratory equipment for various benevolent individuals. The Department is also collaborating with the Department of Sports and Exercise Sciences and the KNUST Hospital to establish the KNUST Wellness Centre. The University of Alberta, Canada through the initiative of Dr. Rudolf Fredua-Agyeman, an alumnus, donated PCR equipment, spectrophotometer, glassware, etc. Dr. Sam Amartey, another alumnus also donated some books and journals for use by staff and students. The Kumasi Centre for Collaborative Research (KCCR) also donated an Ependoff centrifuge for use at the CAnLab. The Department received equipment (Microscopes, nanodrops, Gas Chromatograph, PCR machine, electrophoresis setup and assorted glassware etc) via Seeding Lab Equipment Transfer Programme during the year of account. The Department appreciates KNUST for bearing the entire cost. We are grateful to these individuals and organisations.

## **GRANTS**

The Department received a research grant from the Menzies School of Health Policy, University of Sydney, Australia to undertake an evaluation of Ghana’s health/trade policy on fatty meat importation. The research was carried out by Dr. Reginald Annan and Dr. Anne Marie Thow, the collaborator from University of Sydney. The Department has also collaborated in the same vein with the International Malnutrition Task Force and University of Southampton to implement an

evaluation of e-learning course on “Caring for Infants and Young Children with Severe Acute Malnutrition:”. Other external research grant applications are under review.

### **STUDENT ACTIVITIES**

The student body of the Department, the Ghana Biochemistry Student Association (GHABSA) hosted the 2014 Congress of the National Association. This historic event took place from 26<sup>th</sup> February to 2<sup>nd</sup> March 2014. Participating schools were, Kwame Nkrumah University of Science and Technology (KNUST), University of Ghana (UG), Legon, University of Cape Coast (UCC) and University of Development Studies (UDS). About a hundred and fifty student Biochemists came from the visiting schools to take part in this year’s Congress. Various activities were linked up with the main focus geared towards sensitising the student to apply their acquired knowledge to real life situations. This focus was backed by the theme: **Bridging the Gap between Scientific Knowledge Acquisition and its Application- the Role of GHABSA**. This theme was chosen to expose students to the practical aspects of science which aid in the reduction of the dependence on the stereotypic approach of theoretical knowledge. Following the official launch, which was also used to unveil the National Logo of the Association, the National Debate, dubbed “The K. Nsiah Debate”, named after Dr. Kwabena Nsiah, a staff of the department and the National Patron of the Association, was held. The KNUST chapter emerged the overall winners.

### **DEPARTMENTAL SEMINAR**

The Department engages staff and students in Departmental seminars at which research results and new techniques are presented. In the year, the Department had a special presentation by Prof. Anthony Kwame Nyame, an alumnus of the Department from the University of Maryland, Eastern Shore, USA, on the topic “From Basic to Applied Biomedical Research”. Mr. Ralph Nyadu Addo of the KNUST Business Development Centre also presented a seminar on “Science and Entrepreneurship’. We hope to attract more distinguished scientists in the years ahead, to propel the professional development of students.

### **SERVICE TO COMMUNITY**

Staff and students of the Department have been continually involved in outreach programmes. This has given birth to the Dynamic Research Access Media (DReAM). This group is a health outreach group, made up of Staff, National Service Persons and Students of the Department. The group has been in operation since September, 2013 and has been on five outreaches so far. The communities reached include Ayeduase, Kotei and Alabar. They were mainly educated on cardiovascular diseases, diabetes and Hepatitis B. The communities visited showed a lot of enthusiasm and received the education in good spirit. The Nutrition and Dietetics students also embarked on a community outreach to the Asante Akyem Agogo. It was geared towards addressing the nutritional challenges of the people. It took the form of education and anthropometric assessments. It was embarked on, in collaboration with the Agogo Presbyterian Hospital.

### **INCOME GENERATION**

The Clinical Analyses Laboratory continues to receive wide patronage from the university community and beyond. The client base of the Laboratory increased in the year with the accompanying increase in revenue due to continued improvement of service quality. Plans are underway to further improve its visibility, procure more diagnostic equipment to broaden the

range of tests and also expand the physical structure of the laboratory. The laboratory also continues to support both teaching and research needs of the Department.

### **CHALLENGES**

The recent development in the Allied Health Council, where Biochemists who have had their National Service in hospital laboratories of Ghana Health Service are refused further employment in the hospitals for not being qualified Biomedical Scientists, has revealed an emerging challenge. This has shown that apart from one of the main avenues for the employment of biochemists being blocked, there exist no statutory positions for trainees who go through 4 years undergraduate training. It is hoped that through the efforts of all Departments of Biochemistry and all trained Biochemists in the country, a professional body (e.g. the Ghana Biochemistry Society) shall be formed to champion the cause of Biochemists in all fields of endeavour. It is also important that the Department is supported in its effort to run specialised areas of applied biochemistry even at BSc, like Clinical Biochemistry, Industrial Biochemistry, and Molecular Biology. For instance, a firm foundation in Clinical Biochemistry at the BSc level would motivate students to pursue postgraduate training in this area, to the PhD level, to ensure that professional Clinical Biochemists are produced, as is done in the developed world. All hospitals in the developed world have Clinical Biochemistry Departments, manned by professional Clinical Biochemists.

### **CONCLUSION**

Despite these emerging challenges, the Department shall continue to produce quality student trainees and to carry out quality research, teaching and service to community with dedication.

## **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 industry. This year marks a decade of the University running the BSc. Food Science and Technology programme after the establishment of Department in 2004 following approval by the Academic Board. The first batch of students from this department graduated in June 2008 and has subsequently trained six batches of highly qualified personnel for the food science and technology industry. The seventh batch will graduate this year making a total of about 180 Food Scientists and Technologists. This does not include graduates of the postgraduate programme which has been running for over 20 years. Graduates are serving in the Food and Beverage industries either as entrepreneurs or working for local and international food companies or pursuing further studies.

### **STUDENT STATISTICS**

The current student population is two hundred and twenty-four (232) and the breakdown is as follows:

❖ BSc	-	160
❖ MSc	-	58 (18 regular, 40 IDL)
❖ MPhil	-	5
❖ PhD	-	9



## **STAFF STATISTICS**

The faculty is fourteen (14): Two (2) Professors, One (1) Associate Professor, One (1) Senior Lecturer, One (1) Senior Research Fellow, Seven (7) Lecturers and a Technical staff. The Department currently has a visiting Professor, Prof. Kolawole Olumuyiwa Falade, from University of Ibadan, Nigeria.

## **GRADUATE STUDIES**

With the vision to produce high caliber food scientists and technologists, the Department runs high standard research and teaching programs at the MSc, MPhil and PhD levels. These programmes offer excellent scientific and research training in food science and food technology. During the period under review, eleven (11) postgraduate students comprising eight (8) MSc, (3) MPhil and one (1) PhD successfully defended their theses.

As part of building capacity of professionals already in the field, the Department started an MSc in Food Quality Management on the distance learning platform in the 2012/2013 academic year having gone through accreditation by the Institute of distance Learning (IDL). The pioneering students were 17 in number. The second batch made up of 23 students completed the first semester with upbeat performances.

The facilitators of the program are largely drawn from the Department though some are outsourced for courses such as *Food Laws, Irradiated Food Marketing Management, Food Supply Chain Management, Food Industry Crises Management, Food Politics, Food Ethics and Consumer Perception of Food Products*.

## **STUDENT ACTIVITIES**

The main student body of the Department, Association of Food Science and Technology, organized a number of events including Freshers' orientation, Food Science Awareness Day and a field trip to Premium Foods Ghana Ltd., Jachie - Kumasi. All these were successful and deepened the knowledge and appreciation of the Food Science and Technology programme by students.

## **RESEARCH ACTIVITIES IN THE DEPARTMENT**

The faculty continues in active research in various areas/ fields of endeavors resulting in a number of publications in both national and international journals. One such research team focuses on investigations into the potentials of ackee (*Blighia sapida*) fruit for various food uses. The staff also participated in national and international conferences/ seminars in the academic year.

## **AWARDS**

Three students from the Department won the top three Awards on poster presentation during the 4<sup>th</sup> annual SPHI Technical and Steering Committee Meetings held on 7<sup>th</sup> - 9<sup>th</sup> October, 2013 at the Noda Hotel, Kumasi. Sweetpotato for Health Initiative (SPHI) is a platform aimed at promoting the consumption of sweetpotato in Africa. The students were Leticia Effah-Manu (1<sup>st</sup> Prize), Mr. Eric Owusu Mensah (2<sup>nd</sup> Prize) and Hannah Ayowa-Gyedu (3<sup>rd</sup> Prize).

Dr. Faustina Dufie Wireko-Manu, a lecturer at the Department and 2011/2012 Fellow of the African Women in Agricultural Research and Development (AWARD) went on a six month

research attachment at the Institute National de la Recherche Agronomique (INRA), Avignon, France as a visiting Scientist. She worked on ‘Characterization of flavor and bioactive compounds in selected indigenous fruits and vegetables from Ghana and the impact of traditional processing on them’. She returned to the Department in March 2014 after a successful training. The training was sponsored by AWARD and Agropolis Foundation. Thanks to KNUST for granting the study leave.

## **CONFERENCES**

Staff and students of the Department participated actively in the 3<sup>rd</sup> one-day Research Seminar and Poster Presentation organised by the Ghana Science Association (Kumasi Branch) on 16<sup>th</sup> April, 2014. About 6 students presented research papers by oral and poster presentations.

## **PROJECTS**

The Department successfully obtained grants for two projects in the year: One on *strengthening root and tuber value chains in Ghana* sponsored by DANIDA and the other on *Improved yam storage for food security and income (IYSFSI)* sponsored by AUSAID. There are 1 PhD and 3 MPhil/MSc. candidates on the projects.

## **CAPACITY BUILDING**

The Department in conjunction with the University of Ghana and Premium Foods Limited with support from ADVANCE-USAID organized a one-week course on Food Extrusion Technology at KNUST. The participants were from University of Ghana and KNUST.

A number of postgraduate students and Teaching Assistants were recently trained and awarded certificates on ‘HACCP System and Related Food Safety Aspects’ under the Ghana Street Foods project. Plans are also underway to organize an open short course on ‘HACCP Food Safety’ in July 2014.

Students and faculty also benefited from a One-day Symposium on ‘Foodscape modeling and Food Architecture’ by the Danish partners of the *strengthening root and tuber value chains in Ghana* project.

A Diploma program in Food Manufacturing has already been forwarded to the Dean of IDL for consideration. Plans are underway to have the program take-off as soon as accreditation is given. A postgraduate diploma course is also under consideration.

## **COLLABORATION**

In order to equip students with hands-on experience in basic industrial processes, the Department continues to work in partnership with Food Manufacturing Companies such as Maslenda Fruit Processing in Kumasi, Original Ackee Farms - Food Processing Company in Kumasi, Food Research Institute – CSIR and Premium Foods Limited among others.

## **LABORATORIES**

### ***MYCOTOXIN (AFLATOXIN) LABORATORY***

The Mycotoxin (Aflatoxin) Laboratory continues to run both analytical and consultancy works for food processing industries, researchers and the general public on millet, corn, soya, cassava flour and groundnut. It is currently running joint projects with Crop Research Institute, Premium

Foods Ltd, Cocoa Research Institute as well as researchers from within the University. Premium Foods Ltd has been one of the key partners of the laboratory since its inception and still continues to support the laboratory in diverse ways.

The Laboratory also organizes annual training and internship programmes via the IASTE on mycotoxin analysis and management. It has also been selected as one of the research laboratories under the “*Feed the Future's Peanut and Mycotoxin Innovation Lab (PMIL)*” under USAID Sponsorship from 2014 – 2017. This PMIL is a joint collaboration between Universities and Research institutions from the USA (North Carolina State University, University of Florida, Virginia Tech and University of Georgia) and Ghana (Kwame Nkrumah University of Science and Technology, Savanna Agricultural Research Institute, Crop Research Institute and University of Ghana).

The laboratory will continue to pursue its core mandate and expand its services to include research on other mycotoxins such as Fumonisin, Ochratoxin A and Patulin.

The Department received equipment (nanodrops, HPLC, rheometers, electrophoresis setup assorted glassware etc) via Seeding Lab Equipment Transfer Programme during the academic year. The Department is grateful to KNUST for absorbing all associated costs incurred. In addition, a ‘New Lab’ for the Department, in the College of Science building, was opened for use the second semester of the academic year.

### **VISITORS**

Members of the PMIL Project (Prof Manjeet Chinnan, Prof Kumar Mallikarjunan and Dr Agnes Budu) paid a courtesy call on the Head of Department to discuss the role of the Department in the project. Profs Jinru Chen and Robert Phillips also visited the Mycotoxin (Aflatoxin) Laboratory.

A team from CarGill Company paid a visit to the Department to follow up on the 3<sup>rd</sup> Year internship programme. The visit was part of the company’s assessment on students’ ability to relate their experience on the field to academic work. Future collaboration was also discussed.

### **CHALLENGES**

The new labs are yet to be fully equipped with some fundamental equipment (spectrophotometers, analytical balances etc) and also need competent technical assistance. This makes it challenging to carry out research work and training of students.

### **CONCLUSION**

The 2013/2014 academic year was successful and we would like to express our sincere gratitude to all who supported the Department in diverse ways. It is our hope that the Department will continue to excel in research, teaching and service to the community in the years ahead.

## **DEPARTMENT OF CHEMISTRY**

### **INTRODUCTION**

The Department of Chemistry at KNUST is a prominent standalone Chemistry Department in Ghana. It offers a four year B.Sc. degree programme in chemistry. In addition, there are

M.Sc./M.Phil. and PhD programmes. Currently, the student population stands at 518 students: 481 undergraduates, 30 MSc/MPhil. and 7 PhD students. The Department acknowledges the centrality of chemistry as a science and trains its students to take advantage of the cornucopia of contributions that chemistry can make to society. 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.

### **STAFFING**

Academic Staff strength at the department currently stands at twenty-one. Out of these, one is a visiting professor who came in to support a new M.Phil. programme in polymer science and technology (vide infra), two on post retirement contract, two on part-time and one on study leave (for their doctoral degrees). These are supported by six technical staff and four administrative and ancillary staff. The Faculty Members of the Department are presented in the Table 1.

### **SEMINARS**

Weekly seminars form part of the department's routine activities. 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.

### **ACADEMIC STAFF OF THE DEPARTMENT**

The department has;

**three (3) Professors** one of which is on contract, another a visiting Professor and the third a part time one.

**seven (7) Senior Lecturers** and

**twelve (12) Lecturers** of two (2) are on study leave and another a part time one.

### **RESEARCH AND GRADUATE TRAINING**

Members of staff in the department are 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, green chemistry, etc. Since the beginning of the 2013/2014 academic year, some members of staff have been invited to make presentations at some international conferences/workshops.

### **VISITING SCHOLARS**

In the year under review, the department hosted a number of academic scholars including the following:

- Dr. Prince Amoako, University of Wisconsin, Madison - 22<sup>nd</sup> January
- Dr. Collins Obuah, University of Johannesburg, SA - 27<sup>th</sup> January

- Dr. Professor Richard Catlow, University College London - 15<sup>th</sup> March (Modeling microporous materials)
- Dr. Professor Nora de Leeuw - University College London - 15<sup>th</sup> March (Modeling minerals and biomaterials)
- Dr. Michael Lartey - 2<sup>nd</sup> April - (Polymers for controlled drug delivery and gas separation)

## RESEARCH FUNDS

- Dr. Marian A. Nkansah** received a grant of 25,000 NOK in January 2014 to support the running of the newly introduced undergraduate elective course in Introduction to Petroleum Chemistry.
- Dr. Richard Tia** received a Royal Society of Chemistry Bursary of GBP 2,000 to attend the IUPAC General Assembly in Istanbul in August 8 - 15, 2013
- Dr. J. A. M. Awudza** currently holds a research fund from the prestigious Leverhulme – Royal Society Africa Award Scheme for a research project entitled “Developing Internationally Competitive Research on Solar Cell Materials at KNUST”. The value of this fund is £150,000.00 and it is to be used over a three-year period (2010 to 2013). The project has already started. The project is being implemented in collaboration with the School of Chemistry of the University of Manchester, UK.
- Dr. Evans Adei** has also been awarded a fund under the Leverhulme, Royal Society Africa Award Scheme for a research on “Molecular Modeling for Energy Efficiency” and this is also worth £150,000.00. It is to be spread over three years (2011 to 2014). This is to be implemented with Prof. Nora de Leeuw of the University College, London. We congratulate Dr Adei and his team for winning this prestigious award.

## COLLABORATIONS

- Leverhulme / Royal Society-DFID Africa, Grant
  - Department of Chemistry, KNUST-School of Chemistry, University of Manchester (Contact: Dr. JAM Awudza)
  - Department of Chemistry, KNUST- University College, London (Contact: Dr. E. Adei)
- Department of Chemistry, KNUST - Laboratory of Toxicology, Graduate School of Veterinary Medicine, Hokkaido University (Contact: O. Akoto)
- Department of Chemistry, KNUST-Department of Chemistry, University of Bergen Petroleum Chemistry Project (Contact: Dr. Marian A. Nkansah and Dr. J.A.M Awudza).

## 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

Members of staff in the department continue to offer a variety of services to community at local, national and international levels.

- a. Prof. A. A. Adimado** is the Government appointed Chairman of the Council of Ho Polytechnic. He also serves in the following capacities:
- (i) Campus coordinator for TALIF.
  - (ii) KNUST representative on the Governing Board of the West African Examinations Council.
  - (iii) External Examiner and Assessor to a number of Universities and Research Institutes in Ghana.
- b. Prof. J. H. Ephraim** is the Vice-Chancellor of the Catholic University College at Fiapre near Sunyani. He is also is a member of the Editorial Board of the Journal of the Ghana Science Association (JGSA), a reviewer for the JGSA, Journal of the Ghana Chemical Society and Journal of Science and Technology, JUST.
- c. Dr. J. A. M. Awudza** is a reviewer for JGSA. He also serves in the following capacities:
- (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.
  - (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.
- d. 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) Chairman: Pesticides, Environment and Health Research Group. KNUST
  - (vii) Science Coordinator: Institute of Science and Technology for Africa (ISTA), KNUST
  - (viii) Resource Person: Cocoa Research Institute of Ghana and Building and Road Research Institute of CSIR-Ghana
- e. Mr. N.K. Asare-Donkor** is the Vice President of the Ghana Chemical Society and a resource person for the WAEC.
- f. Mr. E. E. Kwaansa-Ansah** is a resource person for WAEC. Serves as
- (i) Member of the working group: Integrated assessment of water sustainability, infrastructure inequity and health in small scale gold mining communities in Ghana.
  - (ii) Reviewer to the Science of the total environment and other journals.

- g. Mr. Apau** is a resource person for WAEC.
- h. Dr. J.K. Mensah** is a resource person for WAEC
- i. Mr. Nathaniel Boadi** is a resource person for WAEC and also serves as reviewer to the Journal of Food Chemistry.
- j. Dr. Marian A. Nkansah** has introduced a final year elective course in Introduction to Petroleum Chemistry. 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.  
She also serves as:
  - (i) Leader of the EnvironChem (Environmental Chemistry) research group in the Department of Chemistry.
  - (ii) Member: Science, Technology, Engineering and Math (STEMAfrica)
  - (iii) Member: International Federation of University women (IFUW)
  - (iv) International Union of Pure and Applied Chemists: Sponsored Affiliate
  - (v) United Nations online volunteering network
- k. Dr. Godfred Darko** serves as
  - (i) A member of the Editorial Board of Environmental Monitoring and Assessment (Springer).
  - (ii) He is on the review boards of 8 journals under Elsevier and the
  - (iii) Mendeley adviser for April, 2014.
- l. Mrs. Mercy Badu** is a reviewer of three International Journals, Editorial member of College of Science Newsletter, WAEC resource person and Ghana Science Association, Chemistry Department Representative.
- j. Dr. Richard Tia** was part of a team that represented Ghana at World Chemistry Leadership Meeting (WCLM) in Istanbul (separate from the GA) - August 13, 2013.

The Department offers laboratory services to a number of 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;

- Cosmetic Science (Cosmetology)
- Forensic Science / Chemistry and Toxicology
- Pesticide Chemistry
- Medicinal Chemistry
- Glass Technology / Chemistry
- Hydrocarbon and Petroleum Chemistry
- Chemistry and Enterprise
- Oil and gas Chemistry

## **DEPARTMENT OF COMPUTER SCIENCE**

### **INTRODUCTION**

The Department of Computer Science is one of the four departments of the Faculty of Physical Sciences of the College of Science. 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. In 1999, the Department stopped offering the Diploma in Data Processing and the BSc. Programme changed to a 4-year programme.

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 individual 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.

Since the establishment of the Department two decades ago, the Department tops the list of graduates produced since 1962 by the College of Science with a total number of over 3000 graduates in applied sciences.

### **ACTIVITIES**

#### **TEACHING**

##### **Undergraduate**

The Department currently runs a 4-year degree programme in Computer Science in the regular mode, a 4-year degree programme in Information Technology and 2-year top-up degree programme in Computer Science (both by distance learning mode). The programmes prepare 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 Introduction to Computers, Computer Appreciation and Computer Programming to students in other departments of the University. The undergraduate student population in the Department is over 400 with the breakdown as follows:

##### **Regular**

First year        -        168



Second year - 138  
 Third year - 141  
 Fourth year - 163

#### **Distance**

Year 1 - 27 (BIT)  
 Year 2 - 23 (BIT)  
 Year 3 - 27 (CS)  
 Year 4 - 20 (CS)

#### **Postgraduate:**

The Department runs two postgraduate programmes namely MSc/MPhil in Computer Science and MSc/MPhil in Information Technology in the regular mode and MSc/MPhil in Information Technology by distance learning mode and the IDL mode. At this year's graduation ceremony, we will all witness the graduation of fifty (50) of the postgraduate students from the Department. The number graduating from each of the programmes are as follows:

<b>Type of degree and programme</b>	<b>Number Graduating</b>
MPhil Computer Science (Regular)	-
MPhil InformationTechnology (Regular)	2
MPhil InformationTechnology (IDL)	43
MSc. Computer Science (IDL)	-
MSc. Information Technology (IDL)	5

I take this opportunity to congratulate you all for working tirelessly and completing your programme on scheduled. To the hardworking members of staff I say congratulations.

#### **FACILITIES**

The Department has three laboratories that are to be well equipped by the commencement of the 2013/2014 academic year. Currently one of the laboratories has been equipped with one hundred computers which will be put into use in the next few weeks. One of the laboratories (Huawei Laboratory) which was provided by Huawei Technology through the gallant efforts of one of our members of staff Dr. M. Asante when he served as the University's ICT Consultant, is used to service other departments of the university. Another laboratory is also in the process of being equipped with computers and will soon be opened to students when all machines have been supplied and installed.

Vodafone telecommunications set up a laboratory each on the floor of the Department of Computer Science within the Science Complex Building which has greatly been of immense help in research and teaching at the Department. We say a big thank you and we hope you will continue to do more and others will also emulate you.

The department has also been able to acquire eighteen computers (18), and four overhead projectors from their share of the funds donated by the National grateful to the NCA for the offer.

## **TEACHING STAFF**

The number of teaching staff has improved and currently stands at twelve (12). During the year under consideration, we have not been able to get any new lecturer as the current policy of employing only staff with PhDs is making it difficult for us to get new lecturers. The teaching staff is made up of has two (2) Senior Lecturers, eight (8) Lecturers and (3) Technical Instructors. Out of the lecturers, one is on study leave pursuing a PhD.

## **SUPPORTING STAFF**

The department has seven (7) supporting members of staff made up of one (1) Principal Technician, three (3) Senior Technicians, one (1) Senior Clerk, one (1) Clerk and a messenger.

## **RECRUITMENT**

Mr. Mr. Parthey Tei Benjamin, Mr. Odoi-Lartey Benjamin were recruited into the department as Senior Technicians during the early period of the 2014 and we warmly welcome them into the department.

## **COLLABORATIONS**

The Department has a number of collaborations with local and international institutions. This year, the Department is happy to get into discussions with University of Lincoln. An MOU is likely to be signed by the end of this academic year. The MOU will involve exchange of staff and students among other things.

## **NEW PROGRAMME AND COURSES**

### **Graduate Programmes**

Currently three lecturers and two technical instructors have enrolled into the PhD program being organized by the University to enable staff to upgrade themselves and we are of the view that they will all work hard and complete the program on time.

The department has also been able to work hard such that about fifty of our MPhil/MSc students in both Information Technology and Health Informatics will graduate in June 2014.

### **Undergraduate Programmes**

Approval was given by the academic board of the university to the department to run a part time/parallel in Computer Science and a total of a one hundred and thirty-eight students were admitted under this program. This has served as reliever to a lot of candidates who could not get admission into the main stream due to inadequate facilities.

Also, the department is preparing course syllabi for two distance learning programmes; a two-year Diploma in Data processing (or Computer Science) and a one-year certificate programme in Computer Science to start during the 2014/2015 academic year.

## **RESEARCH**

Current research being undertaken in the department is in the area of Software Engineering, Computer Networking, Data Communication and Optimization. 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. The department is also researching into computer and internet networking and security issues. The department has designed a biometric system that can be used to recognize people from the way they walk (Automatic Gait recognition). This system can be very useful to the security agencies in the country and also as a medical tool for medical practitioners for correcting pathological abnormal gait. Publications arising from the biometric research have been referenced several times all over the world.

A good number of papers have been published by members of staff during the 2013/2014 academic year, in referred journals both local and international. Details can be found in the University's Quality Assurance Bulletin.

### **SERVICE TO COMMUNITY**

The department organizes 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 awareness programmes every year to educate students in first and second cycle institutions on Information and Communication Technology. The department is making arrangements to help the government on her ICT programme for the southern sector.

Some members of the department continue to serve the community in the following areas:

- (i) As consultant to the national Accreditation Board in assessing Computer Science programmes and its related areas for accreditation (**Dr. J. B. Hayfron-Acquah**)
- (ii) As Consultant to the National Accreditation Board in undertaking academic auditing in tertiary institutions in the country (**Dr. J. B. Hayfron-Acquah**)
- (iii) IT consultant to KNUST and IT Advisor to Christian Service University College (**Dr. M. Asante** and **Dr. J. B. Hayfron-Acquah**)
- (iv) As external examiners/moderators to sister universities: University of Ghana, University of Education-Kumasi Campus, Garden City University College, Kenyasi-Kumasi, University of Cape Coast, Regent University College of Science and Technology, All Nations University College, Methodist University College of Ghana, Catholic University College of Ghana, Advance Institute of Technology (AIT), University for Development Studies, Valley View University, Christian Service University College, Kumasi Polytechnic –( **Dr. M. Asante, J. B. Hayfron-Acquah, Mr. K. A. Pabbi, Mr. J. G. Davis, Mr. C. Osei-Bonsu** and **Mr. J. K. Panford**)
- (v) As referee to Local and International journals (**Dr. J.B. Hayfron-Acquah, Dr. M. Asante** )
- (vi) Motivational or guest speakers in a number of institutions including Christian Service University College (**Dr. J.B. Hayfron-Acquah, Dr. M. Asante** and **Mr. E.O. Oppong**).
- (vii) Some members of staff have written ICT books that have been approved by the Ghana Education Service to be used by Junior and Senior High Schools (**Dr. M. Asante, Dr. J.B. Hayfron-Acquah, Mr. J.K. Panford, Mr. M.F. Bosu, Mr. D.A. Asamoah, Mr. J.G. Davis** and **Mr. N. Frimpong**)
- (viii) Hall master (**Mr. J. G. Davis**)
- (ix) Committee members – All members of staff

- (x) Consultancy Services – All members of staff

## APPRECIATION

- (i) The Department is very grateful to SSNIT and Vodafone who continue to take a good number of our continuing students on vacation attachment and good number of our final year students for National Service and employment.
- (ii) The department is grateful to Indiana University of Pennsylvania (IUP) for donating a number of books to the department every year.
- (iii) The Department is very grateful to **SG-SSB** (Accra), **SIC** (Accra) and **BSystems** (Accra) who have agreed to take a good number of our students to do their vacation training during holidays.
- (iv) Ghana Ports and Harbours Authority, Ghana Telecom, SSNIT, Tema Oil Refinery, VALCO, VRA and Ghana Immigration Services, the department is grateful to you all for allowing our students to visit your institution during their field trips.
- (v) The Department will also like to thank **National Communication Authority (NCA)** for providing funds to the Department to purchase eighteen (18) state-of-the-art computers and four (4) projectors to improve research, teaching and learning in the Department.

## CONCLUSION

The Department of Computer Science has made significant progress, particularly in introducing two MSc/MPhil programmes, a top-up programme and a parallel programme. The Department will continue to make progress in introducing more programmes at both the graduate and undergraduate levels, attract more teaching staff and increase students' enrolment in the Department, increase output and establish more industrial and educational linkages.

## DEPARTMENT OF MATHEMATICS

### INTRODUCTION

Mathematics is a gateway to a wonderful world of discovery. 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. The Mathematics Department of this University continues to be a leading centre of excellence in Mathematics in Ghana and combines world-class research with dedication to teaching. 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 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 nonprofit making organizations.

Currently, undergraduate programmes offered in the Department are BSc. in Mathematics, BSc. in Actuarial Science and BSc. in Statistics.

The table below shows the number of students in the various undergraduate courses:

<b>COURSE</b>	<b>YEAR ONE</b>	<b>YEAR TWO</b>	<b>YEAR THREE</b>	<b>YEAR FOUR</b>
BSc. Mathematics	104	125	140	129
BSc. Actuarial Science	172	200	117	136
BSc. Statistics	70	84	65	-
<b>TOTAL</b>	<b>346</b>	<b>409</b>	<b>322</b>	<b>265</b>

The BSc. Statistics Course was introduced three years ago and therefore has only three batches.

Under graduate programmes, the department offers the following: MPhil Mathematics, Mphil Actuarial Science, MPhil Mathematical Statistics as well as PhD in Mathematical Sciences.

The table below shows the number of students in the various graduate Programmes:

<b>COURSE</b>	<b>YEAR ONE</b>	<b>YEAR TWO</b>
MPhil Statistics	24	24
MPhil Pure Mathematics	4	6
MPhil Applied Mathematics	20	18
MPhil Actuarial Science	16	-
<b>Total</b>	<b>64</b>	<b>48</b>
PhD Mathematical Sciences	<b>30</b>	

In the year under review, new programmes in MPhil Actuarial Science were introduced. Other programmes envisaged for the near future include Masters and PhD in Biostatistics, and top-up programme in Actuarial Science in Distance Mode.

This year (2014), about one hundred and twenty (120) students will graduate with BSc. Degree in Mathematics, one hundred and thirty (130) with BSc. Degree in Actuarial Science, and over thirty (30) will graduate with Masters Degree in Mathematics (distance learners included).

Only one (1) will however graduate with a PhD in Mathematical Sciences.

### **ACADEMIC STAFF**

The Department has highly qualified and experienced academic staff; the staff strength is twenty- two (22) and is made up of three (3) contract lecturers and nineteen (19) full-time lecturers of which two (2) are Associate Professors, three (3) Senior Lecturers and fourteen (14) lecturers. Almost all the lecturers in the department participate in programmes that generate original research papers.

Our very hardworking staff teaches and supervises research not only at the Mathematics department but also in many other departments of the University including Departments at the College of Arts and Social Sciences and Institute of Distance Learning. The Department also provides service courses in mathematics to almost all other Departments of the University at both Undergraduate and Graduate levels. For example, all undergraduates of the College of Engineering take at least 4 hours of mathematics courses every semester for the first two years.

### **STAFF DEVELOPMENT**

The main purpose of staff development is to support KNUST's goal of ensuring that every member of staff has every opportunity to acquire the skill, knowledge and expertise to carry out their duties effectively. To this end, staff are encouraged to work together i.e. more joint publications are encouraged. Again second degree holders are encouraged to consider as a matter of urgency the need to undertake PhDs. Staff are encouraged to establish international links with institutions and individuals.

Staff are also encouraged to get involved in community/national as well as internationally related programmes.

### **RESEARCH**

Academic members of staff published 45 papers in various peer reviewed journals. (Refer to University's Quality Assurance Bulletin for year under review)

### **COLLABORATION WITH EXTERNAL BODIES**

The Department has collaboration with AIMS-GHANA where some of our staff teach Mathematics and Supervise Masters 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 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.

### **RETREAT**

The department held a retreat at Sheila's Executive Hotel in Sunyani from the 24<sup>th</sup> to 27<sup>th</sup> April, 2014. The purpose of the retreat which was attended by the Vice Chancellor was to review the syllabi of all programmes offered by the department as well as draw a Strategic Plan using the Total Quality Management Framework.

## DEPARTMENT OF OPTOMETRY AND VISUAL SCIENCE

### INTRODUCTION

The Optometry and Visual Science Department, of the College of Science, though one of the smallest cannot be underestimated in terms of its contributions to the College's prestige. For the past twenty years, it has and continues to serve students, staff and the general public in academia and provision of quality eye care services.

Reaching out to people and ensuring they have quality eye care is one of the core mandates of the department and in fulfilment of that, thousands of people, often in hard-to-reach areas of the country have benefitted from free eye examination, ocular health education, medication and either free or highly subsidized spectacles. Numerous blinding conditions like glaucoma, cataract have also been identified and referred to nearest eye clinics where they receive comprehensive eye examination, surgical and medical interventions and continuity of care. This has been the main way of giving back to the society while introducing our student-clinicians to Community Service, and to let them experience at first hand, the level of eye care need in the Ghanaian society, particularly in the rural areas.

These activities have largely been irregular and undertaken when we got the needed support. As a result of this, the Outreach Unit of the Department was officially launched on **17<sup>th</sup> February, 2014 at the KNUST Basic School** and reintroduced to Ghanaians. The launching is in line with the Vice-Chancellor's vision for the University and a reorientation of our outreach activities. The Outreach Unit has since been made available year-round so that individuals, groups, and the general public can apply to make use of its services. It is also intended to be a fulcrum around which our core mandates as a Department are discharged. These services are delivered free of charge and as such; we would urge the entire public to patronise anytime.

There a number of hospitals the department has collaborations with in order to facilitate clinical competence and skills for students. Among these are the **KNUST Hospital Eye Clinic, Juaben Government Hospital, St. Michael's Hospital, Pramso, the Komfo Anokye Teaching Hospital, Wesphallian Eye Hospital, Oyoko and the St Thomas Hospital, Mataheko, Accra.** Currently, processes are ongoing to having an MOU with the St. Michael's Hospital, Pramso and some other hospitals and hopefully, at the end of the next academic year, it is expected that MOU's would have been signed with all our collaborative hospitals. Discussions are ongoing to renew the MOU between KNUST and the Brien Holden Vision Institute that led to the establishment of Ashanti Vision Centre, a facility located within the Ayeduse community to serve the eye care needs of the community.

Several research projects are ongoing which include ocular epidemiology, environmental vision, paediatric vision, vision and nutrition, binocular vision, orthoptics and vision therapy, prevalence of refractive error, refractive error development and low vision. In collaboration with the Africa Vision Research Institute (AVRI) some faculty are pursuing graduate programmes which are not accessible here yet.

In March, 2 senior members and 4 interns from the Department joined Nave Etna and Nave Cavour, the Italian Navy in the program "Transforming Children's Lives through Sight" through

which many school children were screened and provided with the necessary corrections and medication.

We continue to face challenges in finding lecturers for the department and are counting on graduates who are currently studying outside the country, to join us soon.

To conclude, the department has made significant impact in the provision of quality training and eye care services to the students, staff and surrounding communities of the university. With the current progress being made, it is expected that in a few years to come, the department would be able to stand tall as a leader in eye care research and training programmes

## **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 competitive 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 years duration. From the third year onwards, in addition to the core courses in physics, the students do courses in their areas of specialization which include geophysical exploration, biomedical physics, electronics, computing and materials science.

### **ACADEMIC STAFF OF THE DEPARTMENT**

The department has twenty two (22) teaching staff made up of four (4) Professors, one (1) Associate Professor, five (5) Senior Lecturers and twelve (12) Lecturers.

The Department also has fourteen (14) non-teaching staff.

### **NEW ACADEMIC PROGRAMME IN METEOROLOGY AND CLIMATE SCIENCE**

In August, 2008, a new undergraduate degree programme in Meteorology and Climate Science was introduced in the Department of Physics. The objective of the programme is to build human capacity by training and producing graduates with the following qualities:

- i. High quality fundamental physical sciences
- ii. Up to date current meteorological knowledge and skills including forecasting, experimental, theoretical and research techniques
- iii. Expert knowledge in the physical climatic processes of tropical Africa
- iv. Social, economic and management qualities

### **PROGRAMMES IN THE DEPARTMENT**

At the undergraduate level, the department offers the following degree programmes: BSc (Physics) and BSc (Meteorology and Climate Science).



At the graduate level, the department offers the following courses: MPhil (Materials Science), MPhil (Solid State Physics), MPhil (Nuclear Physics) (with specialisation in Medical Physics), MPhil (Geophysics) with specialization in

- Oil and Gas Exploration
- Groundwater and Mineral Exploration
- Environmental Geophysics
- Seismology including Earthquake Studies
- Terrestrial Impact Crater Studies

MPhil (Meteorology and Climate Science) and PhD in any of the above areas.

### **STUDENT NUMBERS FOR 2013/2014 ACADEMIC YEAR**

The total student number is five hundred and fifty nine (559) with the following breakdown:

#### **BSc (Physics)**

First Year	-	90
Second Year	-	97
Third Year	-	91
Fourth Year	-	116
<b>Total = 392</b>		

#### **BSc (Meteorology and Climate Science)**

First year	-	44
Second Year	-	34
Third Year	-	25
Fourth Year	-	27
<b>Total = 130</b>		

### **POSTGRADUATE STUDENTS**

MPhil	-	<b>26</b>
PhD	-	<b>11</b>

### **ACTIVITIES**

#### **TEACHING**

##### **Undergraduate Programme**

The Department has restructured the 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 third year of the programme, the students take the same core courses in physics in addition to their chosen areas of specialisations in one of the following:

- Physics with Biomedical Physics
- Physics with Electronics
- Physics with Geophysics
- Physics with Materials Science
- Physics with Computing

The restructuring is in line with the Department's objective of reacting to the changing trends in socio-economic developments both at the national and global levels. After graduation, all successful students are awarded the BSc (Physics) degree.

### **Postgraduate Programme**

The Department also offers a postgraduate programme, which is applied physics-based, in the following areas:

- Condensed Matter Physics (Solid State Physics and Materials Science)
- Applied Geophysics
- Applied Nuclear Physics including Medical Physics
- Environmental Physics/Atmospheric Physics
- Meteorology and Climate Science
- Soil Physics
- Theoretical Physics
- Electronics
- Computational Physics

### **WHITTAKER SCHOLARSHIP AWARD**

The Department of Physics continues to benefit from the Whittaker Scholarship Award for female students, due to the generosity of the late Mrs. Rose Whittaker who bequeathed a sum of money for the scholarship in memory of her husband, the late Prof. Whittaker, a former Head of the Department of Physics and also a former Dean of the then Faculty of Science.

For the 2013/2014 academic year, the number of female students who got the scholarship has been increased from six (6) to ten (10) including postgraduate students. Each of the awardees received GH¢1,500.00 (one-thousand-five-hundred Ghana cedis).

### **MODERNISATION OF THE PHYSICS LABORATORIES - TURNKEY PROJECT**

As part of the Turnkey Project to modernise the basic sciences laboratories of the College of Science, the Department of Physics has received some modern equipment (state-of-the-art) for the following laboratories:

- General Physics Labs I and II
- General Physics Lab III
- General Physics Lab IV
- Modern Physics
- Optics
- Geophysics
- Nuclear Physics
- Materials Science
- Engineering Physics

The Department of Physics has benefitted immensely from the Turnkey Project. The students are very happy that they have been exposed to the use of modern scientific equipment for their practical training.

### **RESEARCH IN THE DEPARTMENT OF PHYSICS**

Senior Members (teaching staff) of the Department have been engaged in research activities in the following areas:

### **Research Groups/Research Focus**

#### **i. Geophysics Research Group**

- Use of Seismics and Petrophysics in the Evaluation of the Hydrocarbon Potential of some Ghanaian Sedimentary Basins
- 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
- Seismology including Earthquakes Studies

#### **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
- 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

#### **iii. 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
- Renewable Energy and Recycling
- Analyzing the combustible efficiencies of different biomasses
- Production of new plastic products from municipal plastic waste (MPW)

- Identification and characterization of different types of polymers
- Fabrication of plastic composite materials for construction

#### **iv. Solid State Physics Research Group**

- The growth of thin films for photovoltaic applications
- Ferroelectric materials medical, sensor and memory applications
- Properties of ferroelectric materials
- Dye sensitized solar cells
- Photovoltaics and fuel cells (PEM)
- Microbial fuel cells
- Fabrication of traffic lights
- Automated Dip-Coating Unit

#### **v. Environmental Physics**

- Monitoring of soil pollution in the Suame-Magazin area using x-ray fluorescence (XRF) spectroscopy methods

#### **vi. Meteorology, Climate Science, Atmospheric Physics and Satellite Remote Sensing**

- West Africa climate trends and studies
- Retrieval studies of atmospheric compositions (trace gases and aerosol particles) i.e. remote sensing of trace gases
- Impact of night time NO<sub>x</sub> (NO<sub>2</sub> and NO<sub>3</sub>) on ozone depletion and total global ozone budget, diurnal variability of NO<sub>x</sub>
- 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 O<sub>3</sub>, NO<sub>2</sub>, CO
- Climate impact on tropical diseases modeling
- Boundary layer meteorology
- Rainy season onset and seasonal forecast
- Regional climate modeling and hydrology

#### **vii. Frontier Science Group**

The Frontier Science Group of the Department of Physics is pursuing vigorously the possibility of clarifying and predicting the properties of materials not relying on experiments but based on quantum theory with the aid of Computational Methodologies.

Seeking to clarify next generation device materials such as

- SiC on Si interfaces

- Surfaces, defects and vacancies of technologically important materials
- New properties in carbon nanomaterials
- Coating of carbon nanotubes with transition metals as a template for electrical connectivity
- Growth of graphene of transition metal surfaces
- Phase transition of early refractory materials especially the carbo-nitrides

### **RESEARCH COLLABORATION/RESEARCH GRANT**

The Department of Physics is collaborating with the School of Applied Sciences, University of Wolverhampton, UK on a Royal Society funded project on “Toxic Elements Removal in Mining Wastewater using Zeolites Synthesized from Bauxite and Kaolin”. The project is funded within the Leverhulme-Royal Society Africa Award which seeks to strengthen collaboration between Research Scientist in the UK and Ghana or Tanzania. A total amount of **GBP 180,000.00** has already been approved for the project over a three-year period. **The Award holder in the Department is Dr. Bright Kwakye-Awuah.** One PhD student is currently on the project.

**Dr. Bright Kwakye-Awuah** was also awarded a **CAD 113,000.00** research grant by the Grand Challenges Canada-Rising Stars in Global Health on the project “Ceramic-Silver-Zeolite impregnated filters for Low Cost Point-of-Use Drinking Water Treatment in Ghana”. The main aim of the project is to use a low-tech high-tech approach to significantly improve the quality of drinking water in both the rural and urban areas of Ghana.

### **NEW RESEARCH PROJECT**

The Department of Physics is collaborating with some European and African Universities on a European Union (EU) funded project on “Dynamics-aerosol-chemistry-cloud interactions in West Africa (DACCWA)”. The project is aimed at assessing all relevant physical and chemical processes to improve the monitoring of climate and compositional parameters from space and to develop the next generation of weather and climate models capable of representing coupled cloud-aerosol interactions, which will ultimately lead to reduced uncertainties in climate predictions in southern West Africa.

The training of 2 PhD students and some master level students has been factored in the project will start fully in July, 2014 and end in 2018. The project team members are Dr. Leonard K. Amekudzi, Dr. Kwasi Preko and Prof. S. K. Danuor, who is the local coordinator.

### **PLANNED NEW ACTIVITY/PROJECT**

#### **Enhancing Seismological Education and Research**

The Department is collaborating with the Africa Array Network Group to install a seismic array network system to monitor seismic activity in the country including earthquakes, blasts from mining and quarrying activities. It is expected that the analysis of the data and the results will contribute to knowledge in disaster management, tectonic activities associated with earthquakes occurrence in Ghana and West Africa in general, and mine safety issues.

### **PUBLICATIONS**

During the year under review, academic members of staff in the department published in several

refereed journals. These can be found in the University's Quality Assurance Bulletin for the year under review.

### **CONFERENCES ATTENDED**

Staff attended several conferences in the year under review. Some of these are listed below.

1. CREW-TWG Workshop, October 11, 2013, Koforidua, Ghana
2. CLIM-WARN National Meeting July 2-3, 2013, Koforidua, Ghana
3. Climate Change and Population Conference on Africa, 03 – 07, June 2013, University Of Ghana, Legon Accra, Ghana
4. Biostatistic Conference, August 2013, Accra, Ghana
5. 3<sup>rd</sup> UCC – UNILORN International Conference Secretariat, University of Cape Coast, Ghana, August 2013.

## **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 2013/2014 academic year the student population stands at One thousand two hundred and forty nine (1249) students; One thousand and sixty one (1,061) undergraduates, One hundred and eighty eight (188) MSc/MPhil and seven (7) PhD.

### **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.

### **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 third batch would be graduating in the 2013/2014 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. These include Microbial Ecology, Genetic Engineering, Ecosystem Analysis, Biodiversity Conservation and Utilisation, Ecology of Inland Waters, Environmental Microbiology, Environmental Pollution and Bioremediation and Brewing Science and Technology.

## **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 national environmental issues- Assistance for the programme has also come from the United Nations University Institute for Natural Resources in Africa (UNU/INRA). With this assistance the Department, new courses in Environmental Management and Policy Studies were introduced to complement existing courses.

## **RESEARCH**

Staff and students' research continue in the following:-

- Fermentation Studies
- Nitrogen Fixation
- Fungal infection of Crop Plants
- Aquatic Ecotoxicology
- The Biology and Ecology of Tropical bees
- Biological control of Pests
- Aflatoxin levels in Industrial raw materials and Ghanaian foods
- Onchocerciasis and other Filarial diseases, Malaria, Schistosomiasis, Tissue and Intestinal Parasitic Infections and 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
- Resistance mechanisms in the malaria parasite and the mosquito
- Ecological Sanitation
- Lassa fever

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. The Research is mainly on Onchocerciasis, Filariasis, Malaria and Buruli Ulcer.

## **MAJOR RESEARCH CURRENTLY ON-GOING/PLANNED**

**In collaboration with Bernhard Nocht Institute for Tropical Medicine, Hamburg (BNI) and the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR).**

- Analysis of the Anti-Filarial T Cell Responses in Onchocerciasis patients.
- Analysis of Cytokine and Cytokine receptor Allelism associated with Disease Manifestations in onchocerciasis and Lymphatic Filariasis.
- Doxycycline Chemotherapy for depletion of *Wolbachia* endosymbiotic bacteria in the treatment of onchocerciasis.

Use of *Bti* and *Bs* as additional tools in malaria control

## **In Collaboration with Noguchi Memorial Institute for Medical Research**

- Studies on the distribution of the Molecular Marker for Pyrethroid resistance in Populations of *Anopheles gambiae* sensu stricto in the Ashanti Region of Ghana.

- Elucidation of the molecular mechanisms of insecticide resistance and sequencing of the genes responsible for conferring Pyrethroid Resistance in the main Anopheles vectors of malaria in Ghana.  
Buruli Ulcer prevalence in the Ga East District  
Occurrence of Lassa fever in Ghana

### **Waste Recycling**

- Development and production of activated charcoal from coconut shell wastes as a means of minimising and recycling wastes.

### **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 a collaborative effort between KNUST and Universities Denmark with funding from ANIDA. Ms Linda Aurelia Andoh and Akosua Karikari are currently pursuing the PhD degrees programmes on a “sandwich-model”.

### **Canada NSERC/University of Waterloo Project**

Canada NSERC in collaboration with University of Waterloo awarded US\$4,912.76 and equipment worth CAD\$6,475.00 to Dr. S. Aikins to investigate the limnology of Lake Bonsumtwi in Ashanti region. Two students recently completed their PhD degrees on the project.

### **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, PPAG and others.

### **INNOVATIONS**

The Department is embarking on a programme to secure the University Botanic Garden from encroachment and make the garden more attractive for its rich biodiversity. There are plans to



develop our Museum so as to attract visitors and students from secondary schools. A comprehensive programme to internally re-train our technical staff is on-going. This is to equip them to handle other areas of work aside that which they have hitherto been doing. Plans are also being made to produce teaching slides for secondary schools as part of our income generation activities. The Department also generates additional income from Water Quality Analysis on behalf of the Food and Drugs Board.

### **PROJECTIONS**

The Department has undertaken an extensive review of the courses offered in its BSc. degree programme to make the BSc. programme more applied and attractive. The name of the Department - Theoretical and Applied Biology reflects these changes. These are expected to attract more students both local and foreign and to bring in more funds (AFUF). The number of foreign students has been growing significantly in the last two years especially into our Environmental Science programme.

### **INTERNATIONAL AFFILIATIONS/LINKS**

- a) The Department continues to benefit from the College of Science's linkage with RAMAPO COLLEGE of New Jersey, through a donation of computers and various textbooks and educational materials.
- b) The Department's collaboration with the Bernhard Nocht Institute for Tropical Medicine (BNI), Hamburg, through the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) continued with the training of research students at the Master's and Doctoral level.
- c) A draft memorandum of understanding (MOU) for an academic linkage between the College of Science, KNUST and the Indiana University of Pennsylvania (IUP) has been approved.

### **GRANTS/AID/SUPPORTS**

The United Nations University Institute for Natural Resources in Africa (UNU/INRA) continues to support our MSc. Environmental Science programme with various donations.

## **KNUST BOTANIC 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 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.

### **PROBLEMS**

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. It is expected that with the new funding initiative, TURN KEY project, the number would be improved significantly. However, there is the need for more because of the large number of students. 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 graduate level. 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 visitors stay worthy.

# INSTITUTE OF DISTANCE LEARNING

## INTRODUCTION

The Institute of Distance Learning was established to complement the conventional lecture room session conducted within the confines of KNUST. It aims, among others, 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.

In this regard, IDL has since 2007 taken the quality and demand-driven education and training provided by KNUST to the doorsteps of students throughout and beyond the shores of Ghana.

In line with its vision of *“Increasing access to relevant and flexible tertiary and continuing education and training anytime, anywhere through the Distance Learning Mode using multimedia”*, the institute has adopted pragmatic measures to expand its activities; an effort which has yielded some positive results.

The Institute began in 2005 in two learning centres- Accra and Kumasi. Currently the Institute has a presence in all the Regional Capitals of Ghana and in three Districts of Ghana.

The off-shore programme which began on a pilot basis in Dubai has been extended to Nigeria on a larger scale.

## PROGRAMMES ON OFFER

At the undergraduate level, the Institute runs two year Top-Up programmes for Diploma and HND holders and the regular four year programmes. The Top-Up programmes have received enormous patronage and are often oversubscribed.

With the introduction of Petroleum Engineering this Academic year, the Institute currently runs eighteen (18) undergraduate programmes from the various Departments of the University. Emphasis at IDL is gradually shifting from undergraduate programmes to postgraduate programmes. The Institute runs a total of thirteen (13) postgraduate programmes, with the following programmes at various stages of the Accreditation process:

1. MSc. Tourism and Hospitality
2. MSc. Procurement Management
3. MSc. Enterprise Information Systems
4. MSc. Library Studies and Information Science
5. MSc. Communication Design

## PHYSICAL INFRASTRUCTURAL DEVELOPMENT

### The Accra City Campus

An initial four-storey structure comprising of classrooms and offices, which commenced on 14<sup>th</sup> December 2012 at Kwabenya in Accra, is 85% complete and is expected to be handed over for use in the coming Academic year.

### The Kumasi City Campus

Plans are far advanced to start the construction of the Kumasi City Campus Building Complex on the parcel of land at a strategic part of Kumasi graciously donated to the University by the Chancellor of the University, Otumfuo Osei Tutu II.

### **Tamale Campus**

Drawings for the Tamale City Campus have been completed and tendering procedures are underway for the start of the Tamale Campus.

### **Takoradi Centre**

IDL is in the final stages of negotiations for the acquisition of land at Kansaworodo in Takoradi for the Takoradi centre.

### **E-LEARNING PLATFORM**

The IDL E- learning platform is currently being used for students in Dubai, Nigeria and some selected centres in Ghana. Additionally, some programmes are run purely online while other courses combine the E-learning platform mode along with the face to face sessions.

### **E-LEARNING FACILITIES**

The National Information Technology Agency (NITA) has provided an ultra-modern video conferencing equipment to the institute which has been installed in a sound-proof multi-purpose conference Centre, located on the University Campus, behind the Swimming Pool.

IDL has acquired an additional recording studio at the New Central Classroom Block and installation of equipment is on course. All this is in a bid to ensure that facilitation via the E-platform becomes a reality. With the use of the E-Learning platform, it is projected that IDL can reach a lot more people both within and outside Ghana.

### **TARGETS**

IDL is soon to commence executive short courses that have been designed with specific institutions and establishments in mind.

# **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.

## **STAFFING:**

The office is made up of:

1. Dean
2. Assistant Registrar
3. Administrative Assistant
4. Messenger/Cleaner
5. National Service Personnel(s)

## **AGREEMENT AND MEMORANDUM OF UNDERSTANDING SIGNED**

During the 2013/2014 academic year, KNUST and a number of universities in Europe, North America and Africa signed academic collaboration agreements as well as Memoranda of Understanding and Academic Collaborations with KNUST. These institutions and organizations were:

1. Department of Construction Management and Quantity Surveying, Cape Peninsula University of Technology, South Africa – 8<sup>th</sup> August, 2013
2. MasterCard Foundation – 9<sup>th</sup> September, 2013
3. Southern University and A&M College of Baton Rouge, LA – 2013
4. Lappeenranta University of Technology, Finland – 6<sup>th</sup> February, 2014
5. University of Pittsburgh of the Commonwealth System of Higher Education – 25<sup>th</sup> February, 2014
6. The University of Chicago Medicine, USA – 20<sup>th</sup> March, 2014
7. Ghana Institution of Surveyors, Accra, Ghana – 26<sup>th</sup> March, 2014
8. Hewlett-Packard (Ghana) Ltd, Accra, Ghana – 10<sup>th</sup> April, 2014

## **IMPLEMENTATION OF MOUs SIGNED WITH KNUST**

In line with the implementation of the Memorandum of Understanding and Academic collaborations signed, partner institutions in South Korea offered the following scholarships under their University's scholarships for the 2014/2015 academic year:

- Hanbat National University in South Korea MOU: offered eleven (11) full scholarships to teaching/research assistants in the College of Engineering to pursue Masters Degree Programmes for a period of two years (2) in Korea.

**Table 1: Scholarships to Hanbat National University**

	<b>Name</b>	<b>Department</b>	<b>Programme</b>
1.	Godfred Ohenmeng-Boahen	Chemical Engineering	MSc. Biomolecular Engineering
2.	Divine Damertey Sewu	Chemical Engineering	MSc. Biomolecular Engineering
3.	Stephen Boakye-Ansah	Chemical Engineering	MSc. Biomolecular Engineering
4.	Roger Kwao Ahiadormey	Electrical Engineering	MSc. Electronic Engineering
5.	Bridget D. Antwi-Boasiako	Electrical Engineering	MSc. Electronic Engineering
6.	Kwesi Mensah	Mechanical Engineering	MSc. Mechanical Engineering
7.	Benedict Prah	Agricultural Engineering	MSc. Mechanical Engineering
8.	Henry Abu Diawuo	Electrical Engineering	MSc. Electronic Engineering
9.	Philip Ayiku Dzagbletey	Electrical Engineering	MSc. Electronic Engineering
10.	Sumaila Mahama	Electrical Engineering	MSc. Electronic Engineering
11.	Alidu Abubakari	Electrical Engineering	MSc. Electronic Engineering

### **INTERNATIONAL STAFF AND STUDENT EXCHANGES IN THE 2013/14 ACADEMIC YEAR**

The 2013/2014 academic year received Sixteen (16) students for a semester's study abroad programme and three (3) Faculty members on Staff exchange at KNUST. Out of the sixteen (16), six (6) were Postgraduate students and Ten (10) were undergraduate students.

On the other hand, KNUST had seventeen (17) students comprising of four (4) undergraduate students and thirteen (13) Masters Students placed on study abroad programmes in partner institution in Europe and the USA for the 2013/2014 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.

### **STUDY ABROAD**

**Table 2: Study Abroad Students to KNUST for 2013/2014 Academic Year**

<b>No</b>	<b>Name of institution</b>	<b>Country</b>	<b>Programme</b>	<b>No. of Students</b>	<b>Period</b>
1	North Carolina A&T State University	USA	BA. Economics	1	1 <sup>st</sup> Semester of 2013/2014 academic year
2	Ecole Speciale Travaux Publics (ESTP)	France	MSc. Road and Transport Engineering	2	1 <sup>st</sup> semester of 2013/2014 academic year
2	Savannah State University (SSU)	USA	BA. Sociology and Social Work	6	Second semester of 2013/2014 academic year

3	University of Eastern University	Finland	Master's Programme – Faculty of Renewable Natural Resources	2	Second semester of 2013/2014 academic year
4	University of Eastern Finland	Finland	Internship –Faculty of Pharmacy	2	3 months
5	Ecole National Suprieve de Beaux Arts de Paris (Paris)	France	Faculty of Art	1	One semester of 2013/2014 Academic year
5	Karlstad University	Sweden	Masters in Energy and Environment Technology	2	One month
<b>TOTAL</b>				<b>16</b>	

**Table 3: KNUST Students on Study Abroad Programme in partner institutions for 2013/2014 academic year**

No	Name of institution	Country	Faculty /Department	No. of KNUST Students	Period
1	University of Eastern Finland	Finland	BSc Natural Resource Management	4	Second semester of the 2013/2014 Academic year
2	Aalborg University	Denmark	Masters in Business Administration	1	September 2013 to January 2014 (2013/2014 Academic Year )
3	North Carolina A & T State University	USA	Professional Masters in Engineering	12	Four weeks (2013/2014 Academic Year)
<b>TOTAL</b>				<b>17</b>	

- One undergraduate student from North Carolina A & T State University, USA was placed in the Department of Economics, College of Art and Social Sciences for the first semester of the 2013/2014 academic year.
- Two Postgraduate students from Ecole Speciale Travaux Paris (ESTP), France were placed on the Department of Civil Engineering's Postgraduate programme for the first semester of the 013/2014 academic year.
- Six (6) students from Savannah State University (SSU), USA were on the 2013/2014 academic year study abroad programme for undergraduate programmes in Sociology and Social Work.
- Four (4 ) students -- 2 MSc Students from Eastern University, Finland for a Masters

Programme in the Faculty of Renewable Natural Resources, College of Agriculture and Natural Resources and two (2) Interns at the Faculty of Pharmacy College of Health Sciences on a three (3) months internship with Komfo Anokye Teaching Hospital and Bandy Chemists, Kumasi

- Four (4) students from Faculty of Natural Resources (FFNR and FFRT) for a semester Programme for the 2013/2014 academic year.
- Faculty of Art has received 1 student from Ecole National Suprieure de Beaux Arts de Paris (ENBA), France for an exchange Programme for one semester for the 2013/2014 academic year
- One MBA student from the KNUST School of Business returned from a one semester exchange programme at Aalborg University in Denmark from September 2013 to January 2014.
- Twelve (12) Professional Master's in Engineering Programme students were invited to North Carolina A & T State University in Greensboro, USA to participate in a 4-week Continuous Education Certificate programme and to work on their projects as part of the degree requirements.
- Two Energy and Environment Technology postgraduate students from Karlstad University, Sweden under the supervision of Dr. Moses Mensah, Chemistry Department were received in the College of Science for a one month thesis project.

## STAFF EXCHANGE

**Table 4: Visiting staff to KNUST for 2013/2014 academic year**

No	Name of institution	Country	Programme	No.of Lecturers	Period
1	Harbin Finance University	China	Chinese Language	1	2013/2014 academic year
2	Savannah State University	USA	Social Work	1	Second semester of 2013/2014 academic year
3	University of Michigan	USA	Mechanical Engineering	1	One month
<b>TOTAL</b>				<b>3</b>	

**Table 5: KNUST staff visiting partner institutions for 2013/2014 Academic Year**

No	Name of institution	Country	Programme	No. of Lecturers	Period
1	University of Eastern Finland	Finland	Renewable Natural Resources	6	5 <sup>th</sup> to 13 <sup>th</sup> April 2014
2	Madonna University	Nigeria	Faculty of Pharmaceutics and	10	Two weeks 10 <sup>th</sup> – 24 <sup>th</sup> March,



**TOTAL****16**

- Ms. Song Zhou, from Harbin Finance University, China is a Chinese Volunteer to KNUST to teach Chinese language in the Department of Modern Languages for a year
- Dr. Roenia Deloach, a visiting Professor from Savannah State University USA to the Department of Sociology and Social Work for one semester of the 2013/2014 academic year to teach Social Work.
- Six (6) lecturers from Faculty of Renewable Natural Resources and Faculty of Forest Resource Technology will visit University of Eastern Finland from 5<sup>th</sup> to 13<sup>th</sup> April, 2014 for a Teacher-Exchange Programme under the auspices of UEF-KNUST exchange programme.
- Dr. Joseph Ansong, a visiting lecturer from the University of Michigan visited the Department of Mechanical Engineering, College of Engineering to teach a short course for a month (March to 2<sup>nd</sup> April, 2014).
- Ten (10) Lecturers in the Faculty of Pharmaceutics and Pharmacy, College of Health Sciences were permitted to travel to Madonna University, Nigeria for a two week teaching exercise as part of the Memorandum of Understanding between KNUST and Madonna University.

**INTERNSHIPS AND NATIONAL SERVICE**

- **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 six (6) final year students to undertake their National Service and six (6) third year students for an internship programme for the 2013/2014 academic year with the company.

**Table 5: KNUST Students undertaking the 2013/2014 National Service at Technip**

<b>No.</b>	<b>Name of Institution</b>	<b>Department</b>
1.	Grace Ansu-Gyeabour (Miss)	BSc. Mechanical Engineering
2.	Francis Oppong	BSc. Mechanical Engineering
3.	Lydia Ferkaah Yajoh (Miss)	BSc. Mechanical Engineering
4.	Stephen Baffoe Ofofu	BSc. Petroleum Engineering
5	Gloria Mateko Mensah (Miss)	BSc. Environmental Science

**Table 6: KNUST students on internship at Technip Ghana**

	<b>Name of Institution</b>	<b>Department</b>
1.	Ali Eliasu	BSc. Mechanical Engineering
2.	Asiwome Bans-Akutey	BSc. Mechanical Engineering
3.	Adwoa Tenkoramaa Kwarko (Miss)	BSc. Mechanical Engineering

4	Yovonne Sefakor Dzovor (Miss)	BSc. Mechanical Engineering
5	Michael Asante-Afrifa	BSc. Mechanical Engineering
6	Papa Kwaku Mensah Effah Aboagye	BSc. Mechanical Engineering

#### ➤ **CARGILL**

Cargill Ghana Ltd in partnership with the College of Engineering for the second time offered five (5) students from the Colleges of Engineering and Science a three (3) months internship in Tema, Greater Accra Region for 2013/2014 academic year.

**Table 7: KNUST students on internship at CARGILL Ghana LTD**

	<b>Name of Institution</b>	<b>Department/College</b>
1.	Okyere Geoffrey Broni	College of Engineering
2.	Adu Boadi Derek	College of Engineering
3.	Amankwah Godwin Osa	College of Engineering
4.	Vida Opoku Berchie	Food Science and Technology
5.	Sussana Combey	Food Science and technology

#### **ACTIVITIES**

The Major activities undertaken by the office during the year under review included:

- Organizing KNUST-DRUSSA Team meetings with representatives from the Six Colleges and other units in the University.
- Soliciting of contacts numbers and email addresses of Teaching Assistants from the departments for possible scholarships for Masters Degree programmes.
- Facilitating Universities Denmark 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.
- Organizing Orientation programmes for study abroad students for the Academic year
- Organizing Study Abroad and Educational Programmes for KNUST students interested in studying in France.

#### ➤ **French Embassy - French Study Abroad Fair**

The Head of Cooperation and his team from the French Embassy in collaboration with the KNUST Maison Français organized a study Fair for students who wish to study in France at the College of Science.

A donation of books and journals were made to KNUST by the Embassy. Both events took place on Thursday, 27<sup>th</sup> February, 2014.

#### ➤ **Israeli Delegation visit to the Department of Sociology and Social Work**

A two member delegation from the Embassy of Israel visited KNUST on 18<sup>th</sup> March, 2014 in collaboration with The Department of Sociology. A Study Abroad Session was held for Teaching/Research Assistants and postgraduates students in the Colleges of Science, Health Sciences and Faculty of Social Sciences to promote a new programme in Early Childhood

Development in Israel. The event took place at the Central Classroom block Auditorium at the Faculty of Social Sciences, College of Art and Social Sciences.

### **WORKSHOP**

The IPO in the second semester facilitated a one –day workshop for KNUST students which focused on possible scholarships and admissions to pursue Masters Programmes.

### **INSTITUTIONAL VISITS TO KNUST**

The office received delegations from both international and national institutions. The purposes of most of the visits were to seek possible collaborations between KNUST and their Institutions. In the 2013/2014 academic year these institutions visited KNUST:

1. Clemson University, USA
2. The Melton Foundation, USA
3. French Embassy, Accra
4. African Union Commissioning (Scholarship Team Monitoring), Accra
5. Universities Denmark, Building Stronger Universities (BSU), Denmark
6. Sutherland Global, USA
7. All over Polytechnic, Nigeria
8. Technische Universitat Munchen, Institute of Automotive Technology ,Germany
9. KNIGHTS, Prague-Czech Republic
10. Technip Ghana Ltd. Accra
11. Oslo and Akershus, Norway
12. Karlstad University, Sweden
13. University of Leeds, UK
14. Paris-Sud University, France
15. Aarhus University, Denmark
16. Bank of America Merrill Lynch, Accra
17. University of Nottingham, UK
18. Delaware State University, USA

### **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.

The office also lacks suitable hostels to accommodate its study abroad students to reduce the burden of the GUSSS hostel which caters for the University's international students either enrolled for a four year degree programme or on an exchange as well as to ease the frustration such students go through upon their arrival.

### **CONCLUSION**

The International Programmes Office in pursuing its mandate of fostering collaborations with institutions with similar focus both nationally and internationally hopes to be better resourced to achieve its goals.

It also urges staff in the Colleges/Faculties/ Departments to be more proactive towards requests from the IPO.

# **OFFICE OF GRANTS AND RESEARCH**

## **INTRODUCTION**

The Office of Grants and Research (OGR) was established in February 2013 under the Office of the Vice-Chancellor to help advance the research enterprise of the University. This was a follow-up to a resolution taken at a retreat by senior university leadership to establish research administrative offices in all the Colleges, with a central office coordinating and facilitating research administration across the university campus. Its establishment was facilitated by a one-year start-up grant awarded to KNUST on the Initiative on Research and Innovation Management (iRIM) by National Institutes of Health, USA. Within the overall vision of the University, OGR seeks to be a Centre of Excellence for research support services facilitating a stimulated, well supported, accountable and expanded research enterprise at KNUST and beyond.

## **AIMS AND OBJECTIVES**

The goal of OGR is to help build a vibrant research enterprise at KNUST through the strengthening of research administrative infrastructure, procurement of external funds, good stewardship, valuable collaborations and an outstanding global reputation.

Specific objectives include:

- Facilitate research by identifying funding sources in collaboration with the Colleges
- Assist faculty in proposal development and review of proposals
- Accept appropriate awards as well as interpreting award guidelines, as well as development and negotiation of agreements
- Collaborate with the university administration in the development of policies to guide the conduct of research and ensure compliance with University and funder policies
- Organize training programmes for research administrators and researchers in the university
- Create a database on grant and research activity in the university

## **ADMINISTRATIVE STRUCTURE OF OGR**

OGR is under the Vice-Chancellor's office and reports directly to the Vice-Chancellor and the Pro Vice-Chancellor. It also works closely with the Registrar's and Finance offices. The OGR office is located on the first floor of the Great Hall. The following personnel are responsible for the day-to-day running of the office:

Acting Director – Prof. Peter Donkor

Grants and Research Manager – Ms. Nadia Tagoe

Supervising Accountant – Mr. Ebo Ocran

Principal Administrative Assistant – Mrs. Florence Aboh

## **ACTIVITIES OF THE OFFICE**

The office has undertaken a number of activities in the past year to propel growth of research

activities on campus.

### **FACULTY NEEDS ASSESSMENT SURVEY**

As part of the preliminary activities towards the establishment of the Office, a faculty needs assessment survey was conducted which targeted all researchers and potential researchers of the university. This was done to determine the involvement of members in research grants and ascertain their needs with respect to research support in order for the office to target which areas of service to focus on. It became evident that the greatest need of our researchers was support during the pre-award stage i.e. finding funding opportunities and developing proposals.

### **TRAINING FOR RESEARCHERS AND RESEARCH ADMINISTRATORS**

The Office of Grants and Research held a two-day training event on research with the themes, “Fundamentals of Research Administration” and “Getting External Funds for your Research” for researchers and research administrators in the university.

### **SUMMER SCHOOL**

The Office of Grants and Research in conjunction with the Quality Assurance and Planning Unit organized the 2013 KNUST Summer School held from 26<sup>th</sup> - 30th August 2013 at the Faculty of Law auditorium. The theme for the school was “Repositioning KNUST as a Global Institution: Effective Research Management as a Tool”. The main objective was to enable staff to understand the role of research management in the University’s Research enterprise, as well as obtaining and managing research grants. 285 senior members of the university participated in this summer school.

### **STAFF TRAINING**

The office has regular training programmes for its staff and other Research Administrators in the university to build capacity. This includes weekly seminars, workshops and mentored practicums.

### **INSTITUTIONAL REGISTRATIONS**

The OGR manages all institutional registrations with funding organizations and makes this information available to university staff. The office therefore compiles information on existing registrations and carries out new ones as required by applicants.

### **GRANT PROPOSALS**

As part of efforts to seek external funds, the office targeted funding opportunities for application and also supported the development of proposals across the university. Several proposals were completed during the year to funders such as USAID, NIH, DANIDA and European Commission.

### **OTHER GRANT AND RESEARCH SUPPORT PROVIDED**

- Funding Opportunity Announcements (FOAs) are regularly disseminated and advertised on the OGR website for KNUST staff and students
- Processing of grant sub-contracts on behalf of researchers
- Proposal advisory services to staff

- Resources uploaded on website for use by researchers e.g. sample proposals, etc.
- Proposal submission on funder electronic systems

## **PRESENTATIONS**

The Office received invitations and made the following presentations:

- “Finding Grants for Your Research” to the Academia, Social and Research Pharmacists Association (ASRPA) of the Pharmaceutical Society of Ghana for their workshop on Grantsmanship at KNUST in June 2013.
- “Getting and Administering Grants” at the Bi-annual Ghana Biomedical Convention 2013 held at University of Cape Coast in July 2013.
- Presentation to the KNUST DRUSSA team on “The Role of OGR in Research Management and Research Uptake” in September 2013.
- Workshop on Grant Applications to Research Coordinators of all Faculties and Schools at the University of Cape Coast in February 2014 organized by the UCC Directorate for Research Innovation and Consultancies.

# OFFICE OF THE DEAN OF STUDENTS

## INTRODUCTION

The Office of the Dean of Students was formally established in 1997 under statute 45 of the University with the mandate to provide the needed and necessary welfare support services for students during their period of study at KNUST. The Office has over the years rapidly and progressively evolved under the leadership of the Deans who headed the outfit. The foundation Dean was Rt. Rev. Prof Safo-Kantanka (1998-2001), the second was Prof E. Frempong (2001-2005) and the third had been Prof. M.L.K. Mensah (2006-2009). The present Dean, Dr. Kofi Owusu-Daaku, assumed office on January 1, 2010. He is attempting to build on the foundations of the previous deans and provides arrow-head leadership to fit the accolade of being *loco parentis* to the over 40,000 students.

The Office has become the first point of call for student welfare and discipline and also a crucial mop-up arena for all other student issues that might have otherwise fallen through the cracks; because they do not exactly fit the jurisdiction of any department. The Office is in regular dialogue with the Vice Chancellor's Office, the Registry, the Finance Office, all Academic units from Provosts through to Deans to Heads of Departments, the Protestant and Catholic Chaplaincies, the Health Directorate, the Security Services (internal and the local police), the Halls of Residence and the Private Hostels. It provides a platform for an intimate interaction between Students' Leadership –Students' Representative Council (SRC), Graduate Students' Association of Ghana (GRASAG) and a host of other student organizations on one hand, and the University on the other. Given the crucial role the office plays, it is represented on key University boards such as Executive Committee, Academic Board, Welfare Services and Residence Committee among others.

Over the years, the Office has sought to fulfil its mission by assisting Students to understand in both specific and, general terms, how the University operates both at the social and academic levels. This, consequently, enables students to understand and appreciate the need for their various constitutions should dovetail into the University statutes and invariably into the constitution of the republic of Ghana rules and regulations. The Office also provides opportunities for students to develop and enhance their leadership skills by involving them in decision making processes, supporting advocacy for students and providing and involving them in conflict resolution techniques. The Office achieves this goal by her own in house leadership fora which is run four times in a year in collaboration with International Leadership Foundation. The Office also or net working and facilitating such training programmes with multinational companies such as Unilever and a number of medium sized ones in collaboration with the KNUST Centre for Business Development. The Office facilitated the hosting of staff from both the British High Commission and the American Embassy in educating students regarding students desire to travel abroad.

## STAFFING

The current Senior Members strength of the Office of the Dean of Students is as follows:

- |                                       |                                      |
|---------------------------------------|--------------------------------------|
| 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                         |
| 4. Mrs. Victoria De-Graft Adjei | Assistant Registrar/Coordinating Counsellor |
| 5. Mr. Joseph Asamoah-Gyawu     | Assistant Registrar/Counsellor              |
| 6. Mr. Kofi Yamoah              | Senior Counsellor (retired)                 |

## ORGANISATION

The Office is internally organized into several sections as listed below:

- i. Administration
- ii. Student Guidance and Counselling/ Disability Support Services Unit
- iii. International Students Affairs
- iv. Immigration Office
- v. Students' Representative Council Affairs
- vi. Student Housing and Residence Life
- vii. Students Conduct and Discipline
- viii. Students Support Services (with Student Affairs & SFSS)

### i. Administration

The central administration is headed and coordinated by the Dean whose Office usually becomes the first port of call for any inquiry and from where issues are fielded to the other units. The Dean holds regular formal and informal meetings with the Units dialogues regularly with the Vice chancellor and works closely with International Programmes Office, Directorate of Health Services, Estate Office Students Financial Services and Student Affairs of the Registry whose offices are housed on the Dean of Students premises. He is ably assisted in the discharge of these duties by at the Vice Dean, the cohort of senior members and other staff. The Office is accountable to a Board that meets at least once a semester.

### ii. Students Guidance and Counselling Unit

The Counselling Unit was established in 1993, purposely to address the psycho-social and welfare needs of students in particular and members of the University community in general. During the reporting year, 2013/2014, the services provided by the Counselling Unit to the University Community ranged from issues related to Academics, Financial, Social, Relationship/Emotional, Psychological/Psychiatric, Medical and Housing.

A summary of cases handled are presented in the table below:

**Table 1.Cases Handled**

Type of Cases (Direct Services to Students)	No
Academics	92
Deferment & Reinstatement	12
Financial	73
Social	42
Relationship/Emotional	20
Behavioural	19
Psychological/Psychiatry (Suicidal Attempts)	11
Medical	44
Housing	9

Sexual Harassment and Rape	4
<b>Staff</b>	
Psychological	7
<b>TOTAL</b>	<b>333</b>
Prospective Applicants (Filling of University Application Forms and Career Counselling)	106
<b>GRAND TOTAL</b>	<b>439</b>
<b>Others</b>	
Attendance to Psychiatric Clinic, KNUST Student Clinic	28
Family Visits	9
Case Conferences	7
Review/Follow Up	101

- **Hospital Liaison**

The Counselling Unit liaised with the University Hospital by monitoring inpatient hospitalizations among the Student population. The Counselling Unit previously obtained referral forms/letters from the University Hospital and escorted Students with psychotic challenges to Komfo Anokye Teaching Hospital (KATH) and other Psychiatric Hospitals for treatment. However, beginning the 2013/2014 academic year the Director of Health Services in collaboration with the Office has initiated the provision mental health services at the Student Clinic on Tuesdays. The consultant psychiatrist, Dr. Kwasi Frempong-Manso a, a lecturer at SMS is on call for emergencies at the University hospital development has reduced stress on the counselling unit. *The Office strongly supports the continuation of this service and with time, its extension to staff and their dependant as envisaged by the by the Director of Health Services.*

Trained volunteer student Peer Counsellors tracked and visited students, during hospitalization, and performed case management services with follow-up visits on those who presented with unusual and/or with severe medical conditions. The Counselling Unit in the year under review trained thirty-five (35) new Peer Counsellors and also organized an annual HIV/AIDS Testing Campaign in collaboration with the United States Peace Corps at the Royal Parade Grounds which saw a total of 1,594 participants, (students and other members of the University Community), who tested for their HIV status and Hepatitis B and Blood Group. The programme was a success since attendance was more than half the target of 2000 participants.

### iii. **International Students Affairs**

The growing nature of our International student population requires that sufficient attention is given to the general conduct and welfare of these students since travel and study in a different environment could pose substantial challenges which can ultimately impact academic output. Their extra day orientation focused on the following areas: Immigration laws of Ghana, residence permit acquisition and renewal processes, Visa acquisition, the Laws of Ghana in relation to the International Student, Cultural Similarities, differences and adaption. Relevant resources were provided to the participants in the presence of the Executives of the International Students Association whose activities directly falls under the purview of the Vice Dean of Students.

**iv. Immigration Office**

With support from the Vice Chancellor, the Ghana Immigration Service now has an office space at the premises of the Dean of Students which aims to smoothly facilitate the processing of residence permits for our International Students and thereby curbing the annual systemic challenge of securing residence permit.

**v. Students' Representative Council Affairs**

The Office as a whole has intimate contact with the entire student body and their leadership (through SRC and GRASAG). The Office liaises between the SRC in the University Administration, give direction and offer advice to the Students' Leadership whenever necessary. The Accounts Unit of the Office manages the SRC accounts with oversight responsibility of the Finance Office. The University's Internal Audit continues to assist the Office in auditing the accounts of recognized student activities.

**vi. Student Housing and Residence Life Unit**

This Unit of the Dean of Students Office is headed the Acting Housing Officer appointed by the University. The students housing unit is responsible for Non-resident students accommodation issues as well as the management of the three Non-Residential students Facilities and play a pivotal role in the management of the Otumfuo Osei Tutu II Hostel, with the avid support of the SRC leadership.

**vii. Student Conduct and discipline Unit**

This Office comes under the direct management of the Dean assisted by two law interns who spend the national service year with the office. Efforts are made to investigate and apply appropriate disciplinary measures against students who breached University Regulations. Unfortunately, despite the relevant orientation and counselling, some students remained susceptible 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. It assisted in the process of forming Committees of Enquiry/Disciplinary Committees and facilitated in some cases, work of the committees once set up by the Vice Chancellor. During the year under review, a total of 139 cases were received by the Office. The cases ranged from Assault, Hostel related disputes and issues, armed robbery, threat of life and property, con activities by tricksters among others. Overall, 113 of the cases have been resolved with only 26 pending. On the recommendation of the Office, the Vice Chancellor has set up a committee to investigate and dispose off the cases which require disciplinary action.

**viii. Student Support Services**

The Office through the Dean of Students works 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 students who managed the *Ketewa Biara Nsua* (KBN) fund that assists needy students. The Office receives numerous complaints for mediation and settlement of a large number of disputes among students. The Counselling Unit makes recommendation to both the Students Financial Services and the SRC for assistance on the basis of genuine need.

## **CENTRAL OFFICE ACTIVITIES**

Highlights of the 2013/2014 academic year activities included the following service areas:

### **HOSTEL VISITATIONS AND APPROVAL**

At the instance of the Vice Chancellor, the Office facilitated a meeting with the Hostel Owners to discuss the issues regarding how they can help to improve security for our students in their lodging. As part of measures of the University to ensure the safety and security of KNUST students, the Office of the Dean of Students 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 Monday 24<sup>th</sup> to Wednesday 26<sup>th</sup> February 2014, and came out with a summary of the following findings: Out of the 75 hostels visited, only two met all the requirements from Ghana Tourism Authority for certification. Generally, the facilities did not have exit directional signs and no means of escape in case of fire outbreak. Fire-fighting equipment were absent and sanitation was also observed to be poor.

The Office is in concert with the Ghana Tourist Authority to enforce standards and the safety of our students.

The hostels recommended as having met the set standards are to have their hostels published on KNUST web site.

#### *Hostel Charges*

The Office spearheaded a meeting with Ghana Tourist Authority, Hostel owners and the Students' Representative Council (SRC) to negotiate the Hostel rental charges for the 2014/15 academic year based on classes **A**, **B** and **C**. The Office was alarmed at the arbitrary charges which were unsustainable.

The Ghana Tourism Authority has also categorized Hostels based on their regulations (**REGULATIONS 31 (2) CATEGORY C**) as follows;

1. **EXECUTIVE**
2. **STANDARD** and
3. **BASIC**

It was to be agreed that the Ghana Tourism Authority's categorization for the 2014/15 academic year's Hostel rental charges should be a strong basis for a future partnership which bodes well for a cordial academic atmosphere.

### **STUDENT CAR STICKERS**

The quest to be a step ahead of miscreants challenged the Office to roll out a plan to capture the database of all students who own and drive cars on campus. This is in sync with the system of giving car stickers to staff and embossment of taxis on campus. Thus far, a total of 147 cars have been enlisted as belonging to students. Relevant data have also been captured which can be used in cases of emergency.

### **CRYSTAL ROSE HOSTEL FIRE DISASTER**

At the beginning of the year, the usefulness of the hostel registration process came in handy when fire gutted the upper floors of one of its recognized hostels, Crystal Rose. The Office

intervened to craft a two-tier solution for her students. Out of total 257 students affected, the Office facilitated for either a refund of their monies or housed them in a specially refurbished guest house provided by the Vice Chancellor.

### **MEDIATIONS/ STUDENT CONDUCT AND DISCIPLINE UNIT**

The Office also directly assisted in resolving numerous theft, fraud and minor alleged assault cases. Civil cases constituted about 90% of the reported cases. Seventeen comprehensive reports were forwarded to the Office of the Vice Chancellor and the Legal Office for further investigation, advice and disciplinary procedures to be instituted. The above were handled by two efficient and effective law interns attached to the Office of the Dean of Students *The Office has since made a strong case for a properly constituted Students Judicial Services Unit with a lawyer as head supported by law interns and supervised by the University Legal Unit to be resourced under the Office for such purposes.*

### **SRC ELECTIONS**

The Office facilitated the process once again for a historic conduct of a biometric electronic election for the SRC. Through the versatility of the University Information Technology Services, the Office assisted the Electoral commission of the SRC to conduct its election. The Office prepared a comprehensive report on the election and justified its decision to heed the directive of the Vice Chancellor to provide logistics for the election and maintain its safety. This some students construed as interference in their affairs by the Office. Rather unbeknownst to these students, the logistical nightmare that have since 2010 confronted the various Electoral commissions have always caused them to seek assistance from Management which has occasioned an intervention from the Office. It had until this year reduced students rushing to the national courts for redress. The Dean has at various fora has consistently re-echoed the view of management that they are here first and foremost as students without colour to follow their academic pursuit and that extra-mural activity of seeking student leadership is secondary. It is also the view of management also consistently articulated by the Dean that the arrogated autonomy asserted by students to be independent from the institution that awards them their degree is a fallacy and that the best way forward for Junior members (students) and Senior members (management) is committed inter-dependency. The Dean also candidly and consistently makes the case that student leadership should indeed represent the broad masses the claim to represent instead of the incipient corruption that is perceived among student leadership. The way forward is a plausible sense of purpose on the part on student leaders to use the limited time they have to advance the course of their colleagues whose corner this office under the leadership of the Dean has spent advance.

### **MASTERCARD FOUNDATION SCHOLARS PROGRAM AT KNUST**

The most significant activity for the year under review was the implementation of the MasterCard Foundation Scholars Program. In 2013, KNUST signed an agreement with the MasterCard Foundation to provide scholarship to academically talented yet economically disadvantaged students from Africa. The Program has a commitment of USD20 million to be spread over a 10-year period. Under the distinguished leadership of the Vice Chancellor, the Office of the Dean of students and the International Programs Office worked tirelessly to ensure that this package is delivered to its Less Endowed Students; a concept unique to KNUST. A secretariat for the MasterCard Foundation Scholars Program at KNUST has been set up and is

currently being housed at the Dean of Students Office premises. The Office is to provide direct supervisory role over the secretariat. As part of the monitoring of the Program, the Office also received a delegation from the MasterCard Foundation Scholars Program and Mathematical

Policy Research group; a company charged with the monitoring, evaluation and learning of the Program.

## **CONCLUSION**

The year, under review, has produced an active engagement at all levels among our students, partners and management with beneficial results. It is hoped that the completion of the renovation works on-going the Office complex will take shape to serve the myriad needs of students.

## **SCHOOL OF GRADUATE STUDIES**

The School of Graduate Studies (SGS) was established in 2002 following restructuring by the University Council. It had existed as Board of Postgraduate. The restructuring was to strengthen and position the School to face the challenges of graduate studies in the country. The main objectives of graduate studies at the Kwame Nkrumah University of Science and Technology (KNUST) are to train and develop graduates at higher degrees to acquire specialized skills in Science and Technology. Besides, such graduates would be enabled to provide appropriate research initiative and leadership in industry, commerce and other sectors of the national economy.

In tandem with the objectives of the School, efforts are being made in the Departments and Faculties to develop graduate programmes, which are relevant to the promotion of economic, social, scientific and technological advancement of Ghana. It is noteworthy that material and human resources are being mobilized to ensure maximum utilization of available potential through courses and programmes organized and coordinated by the School of Graduate Studies.

### **GRADUATE PROGRAMMES OFFERED**

The School of Graduate Studies run more than eighty courses in the various departments in the University, through regular, part-time and distance modes.

The School offers the following Master's and Doctoral degrees in various fields of discipline:

- Graduate Diploma
- Master of Science
- Master of Arts
- Master of Philosophy
- Master of Fine Art
- Master of Pharmacy
- Master of Public Health
- Master of Business Administration
- Executive Master of Business Administration
- Commonwealth Executive Master of Business Administration
- Commonwealth Executive Master of Public Administration
- Master of Architecture
- Doctor of Philosophy
- Doctor of Optometry
- Doctor of Pharmacy

### **ENROLMENT**

The School has a student population of about 7,147, including those from our Institute of Distance Learning. The chunk of our students graduate in November every year. We expect about 500 to graduate this June.

## **ACTIVITIES**

The SGS, which acts as a co-coordinator to all the Departments that run graduate programmes in the University, performs among other duties, the following:

- Co-ordinates and liaises with the Central Administration, Colleges, Faculties, Institutes and Departments on general graduate issues.
- Administers and processes applications for prospective applicants.
- Assists various Departments in the organization of interviews for applicants seeking admission into various programmes, issuing of admissions letters and registration of students.
- Organizes seminars for students and members of staff on graduate issues.
- Receives and approves thesis synopsis, examination results, proposals for new programmes and withdrawal of non-performing and presents graduating students at congregation.
- Assists in the screening and appointment of External and Internal Examiners for Departments.
- Organizes and conducts oral examinations for final year graduate students to defend their theses, which is one of the major activities of the School.

## **INTERNATIONAL AFFILIATIONS**

The establishment of links with institutions for postgraduate studies elsewhere to encourage the mounting of joint programmes of research and study through the exchange of students, staff use of facilities for our mutual benefit is most welcome. A few of such links are already in place. Among them are, the Master of Science Programme (MSc.) in Development Planning and Management which is run jointly by the University of Dortmund, Germany, and the Master of Science programme in Geo-information Services and Natural Resources Management also jointly run by the I. C. T. of Netherlands and the Kwame Nkrumah University of Science and Technology through the Faculty of Renewable Natural Resources and the Department of Geomatic Engineering under the auspices of the World Bank; then also the Master of Science in Water Supply and Environmental Engineering in collaboration with UNESCO and IHE Delft., and the Master of Science and Doctor of Philosophy in Agriculture under the sponsorship of AGRA.

There is still room for many more linkage programmes for interested institutions and organizations. They are, therefore, welcome.

## **CHALLENGES**

The School has some challenges which are listed below:

- Office space, currently the school is housed in the Chemistry Block with few rooms. There is serious congestion. This actually needs immediate attention. However, it is gratifying to note that the new block for the school would soon be ready for use. Indeed we are most grateful to the Vice Chancellor for his intervention in this direction.
- The ICT facilities are a bit weak. The School needs ICT specialist to be fully in charge of our examination processing.



**CONCLUSION**

The School of Graduate Studies shall remain unwavering in addressing the needs of Graduate Students and will remain focused in its bid to expand graduate studies.

## **SPORTS DIRECTORATE**

Sports is one of the major activities performed on the university campus. Staff/Students on daily basis find themselves at Paa Joe stadium and Hale and Hearty centre either to train to keep them healthy, celebrate departmental, faculty, Hall and College weeks etc.

“A healthy body promotes a sound mind” and in that context the significance of the Sports Directorate on the University Campus cannot be over emphasized.

### **SPORTS INFRASTRUCTURE**

The Directorate ensures that the Paa Joe Sports Stadium facilities are always maintained and that the grass on the fields is green all year round. The Directorate in collaboration with others like the University Hall has upgraded the University’s Tennis Courts. Currently there is an ongoing facelift at the tennis court near the Senior Staff Club. A changing room is under construction to ensure that patrons of the place are able to change into different outfits after training and competitions.

The Hale and Hearty Centre has been refurbished and given new equipment.

### **COMPETITIONS**

The University in the year under review, organized, hosted and participated in various sporting activities for both staff and students.

Some of these were;

#### **1. Staff Soccer Tournament**

In June 2013, staff were engaged in an interdepartmental soccer competition which the Security Services won.

#### **2. World University Students and Staff Games**

In July/August 2013, two students and two staff represented Ghana Universities in Russia, Kazan, for the World Universities Game (FISU).

#### **3. Student Inter-Collegiate Games**

While in September and October 2013, the students were engaged in Inter-Collegiate.

#### **4. Vice-Chancellor’s Cup for Inter Halls Soccer Tournament**

In November 2013, the Vice-Chancellor’s cup in soccer was organized at inter hall level where a contingent from Ayeduase Hostel system won the trophy.

#### **5. Inter-University Students Cross Country Race Contest**

The University hosted and participated in the annual Inter-University Cross Country race in November, 2013. It is on record that, that competition was the first ever to be organized without casualties.

#### **6. Ashanti Regional Community Hockey and Basket Ball Tournament**

Students and staff terms were raised to participate in community programmes outside our campus. KNUST teams continue to win laurels in sports in the Ashanti Region. The daily graphic on 8<sup>th</sup> April, 2014 reported KNUST grapping the top spot in the Ashanti regional hockey league in men’s division.

KNUST won the basketball trophy at stake in Ashanti Region when a community basketball tournament was organized for community based teams in the Region on 26<sup>th</sup> October, 2013.

## **7. GUSA Games**

University participated in the 23<sup>rd</sup> Ghana universities Sports Association (GUSA) games hosted by University of Cape Coast at Cape Coast from 10<sup>th</sup> to 22<sup>nd</sup> June 2014.

### **SUPPORT FOR THE BLACK STARS**

The University consistently supported the course of the Senior National Soccer Team (The Black Stars) by making available its facilities and students' supporting groups to cheer the team to victory in all their qualifying matches played at Baba Yara Sports Stadium in Kumasi.

Students' supporters group from the two male halls (that is Unity and University) named '**TEAM KNUST**', played a major role in the qualification of the Black Stars, to the 2014 World Cup in Brazil.

### **AWARDS**

As a form of motivating students' sportsmen and women, bursaries were given to five (5) outstanding sports personalities, three (3) men and two (2) women in the year under review. The Vice Chancellor's end of year Awards and dinner for sportsmen and women would be held at the end of the semester.

### **OTHER ACTIVITIES**

The University authorities is trying to defuse the uncalled for tension on our campus where students, instead of seeing themselves as colleagues rather engage in antagonistic tendencies by approving an Inter-Hall Games to bring unity, harmony and healthy competition in sports and games. This has been done since 2008.

The University is doing all it can to ensure that all and sundry engage in sports activities in order to reduce the high prevalence of cardiovascular and other related diseases on campus. This would ensure productivity is maximized within the University.

### **CHALLENGES**

#### **1. Absence of lighting System at Paa Joe Sports Stadium**

The absence of lighting system at the stadium is a challenge because students don't get enough training time before darkness falls. Again since most students close lectures late, the provision of lighting system will go a long way to help sporting life on campus.

#### **2. Absence of Fields Exclusively for Soccer**

The absence of fields exclusively for soccer at the halls of residences poses serious challenge. Students under the circumstances are compelled to use any space available around the halls to play soccer.

# **UNIVERSITY LIBRARY SYSTEM**

## **INTRODUCTION**

The fundamental role of the University Library is to collect, process, store and disseminate quality information to both the academic and research community. During the 2013/2014 academic year, the University Library System which comprises of the Main Library and the Six College Libraries collectively provided relevant, accurate, current and timely information in print and electronic formats to support teaching, learning and research and innovative training in the University. In addition, the University Library System ensured the optimum use of information resources at its disposal by the students, lecturers and researchers through user/library education programmes, seminars, training sessions and workshops for staff and users. Notwithstanding these achievements, the University Library System continued to face many challenges which include lack of space, inadequate funding and absence/unreliable Internet access.

## **BOOKSTOCK**

A total of 2,979 volumes of books were added to the stock of the University Library in the year under review, as compared to 2,716 volumes in the previous year. In percentage terms this showed an increase of 9.7%. Out of this number, 2,311 were purchased from local representatives of foreign publishers mainly from Europe and North America; while 668 were received as donations from the United Nations and two of its specialised agencies, FAO and WHO; 95 from the Rotary Club International etc. A comparatively low figure of 419 volumes were received through local donations from the Bank of Ghana, Ghana Statistical Service, the Council for Scientific and Industrial Research, Environmental Protection Agency and the Agricultural Development Bank while the School of Graduate Studies sent 351 graduate theses.

## **PRINT JOURNALS**

During the year under review, a total of two hundred and eighty-six (286) journals were delivered to the Library. Among them were donations from the United Nations and its affiliate like FAO, WHO, UNESCO and ILO as well as IFLA. Although subscriptions to journals under the Association of Commonwealth Universities Protecting African Libraries Scheme (ACU-PAL) was suspended in the previous academic year, these journals are being subscribed to under the CARLIGH subscription so readers still have access to these resources.

## **ELECTRONIC JOURNALS**

The University Library System relied on its membership of the Consortium of Academic and Research Libraries in Ghana (CARLIGH) to increase its electronic resources. This made it possible for all libraries in the University System to have access to over 40,000 online journals and more than 100 million full text documents, bibliographic information, abstracts, book reviews etc. from 60 academic databases compared to 50 databases in the previous year. These databases which covered a wide range of subjects were from AGORA, HINARI, EBSCOHost, OARE, Emerald, Institute of Physics, Science Direct, JSTOR, Blackwell/Wiley, Sage and Royal Society of Chemistry and others.

Statistics obtained from the transaction log of publishers indicated that there has been an increase in the use of the databases for the year under review compared to the previous year. 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 of the Main Library and some College Libraries organized training workshops for Undergraduates, Post-graduates and Faculty on the use and access to these E-Resources and the Institutional Repository (KNUSTSpace). A total number of 949 users were trained during the 2013/14 academic year. On average, forty-four users visit the department daily to use these online resources.

### **LOCAL NEWSPAPERS**

The University Library maintained its subscription to single copies of the major non-partisan local newspaper like Daily Graphic and The Mirror from the Graphic Communication Group Limited and Ghanaian Times and The Spectator from the New Times Corporation as well as The Business and Financial Times. The Pioneer was the only private newspaper subscribed by the Library because of its local content. The Graphic Communications Group Limited still supplied the University Library with two (2) complimentary copies of Daily Graphic, The Mirror and Graphic Sports.

These local newspapers were indexed and entered into a database called J-MAN for users to access relevant information for their research works. Patronage of this database was not only by the university community but also by tertiary students in and around Kumasi. A total of 7114 records were entered into the database during the period under review.

### **PROCESSING OF LIBRARY MATERIALS**

The period under review saw the processing of many books which were later integrated into the existing stock of the University Library. A total of two thousand eight hundred and ninety-nine (2,899) books were processed during the 2013/2014 academic year. The figure showed an increase of about 43.3% compared to the previous year. The breakdown of the books processed to the various Departments of the Library was as follows:

Lending	1,115
Undergraduate	1,563
Reference and Research	116
Ghana Collection	58
UN Publications	43
World Bank Pub.	1
Women's Collection	3
<b>Total</b>	<b>2,899</b>

### **READERS SERVICES**

During the year under review, two thousand, eight hundred and two (2,802) new users were registered by the Library. The figure fell below the number of new users of three thousand, six hundred and forty (3640) registered during the previous academic (2013/2014). In percentage terms, there was a decline of 29.91% compared to the previous academic year.

The decrease in the number of users registered could be attributed to the decentralisation of orientation of Fresh Students at the College level which did not give the Main Library enough room to sensitise the students on the importance of library registration.

The manual method of charging and discharging books at the Circulation Desk came to an end during the year under review following the introduction of the automation system using the Alexandria Software. This method has been found to be faster, efficient and reliable than the manual system which was hitherto been used. A total of five thousand six hundred and sixty-nine (5,669) library materials were issued out to users during the year under review. This represented a decrease of 37.9% over the 2012/2013 academic year of nine thousand, one hundred and twenty-five (9125).

## **REFERENCE AND RESEARCH LIBRARY**

The Library offered reference and research services to staff and students. The Reference Library also known as the Students' Reference is a reserve collection of multiple copies of core or prescribed textbooks, which may be consulted within the library premises while the Reference and Research Library accommodates reference books in the programmes run by the University, in addition to reference tools such as general and subject Encyclopaedias and Dictionaries, Yearbooks, Calendars, Handbooks, Directorates, Almanacs and University Prospectus. Annexes to this department include the Theses Section, Women's Studies Collection, Ghana Collection and the United Nations Publications.

The Research and Reference Libraries together received nine hundred and twenty-one (921) processed monographs from the Cataloguing Department to replenish their stock during the 2013/14 academic year. The breakdown is as follows:

Reference I, II and III	772
Research	109
Ghana Collections	15
Women Collections	1
UN Publications	24
<b>Total</b>	<b>921</b>

A total of one thousand nine hundred and ninety-four (1,994) publications were consulted by users during the year. Out of this number, one hundred and forty-nine (149) were temporary reference books; six hundred and sixty-six (666) materials were from Ghana Collection while one thousand one hundred and seventy-nine (1179) were theses.

A total of thirty-one thousand (31,000) publications were consulted by users during the period under review. This is the summation of the daily counting from the six sections throughout the operational period.

The break-down of the user statistics was as follows:

January-March	1400
April-June	11,900
July-September	5000
October-December	12,700
<b>Total</b>	<b>31,000</b>

## **DEVELOPMENT INFORMATION CENTRE (DIC)**

The Development Information Centre which is a Unit/Section within the Serials Department is collaboration between the KNUST Library and the World Bank. This centre was created to

provide access to both print and electronic formats of the World Bank Publications in Developing Countries where access to development-centered information about Developing Countries, research and data are needed most.

Over 10,000 research works dating back from 2005 (including translation and journal articles) were made accessible to the users to use quickly and freely the World Bank's Open Knowledge Repository (OKR) and Open Access Policy wherever and whenever they have access to a computers provided by the donors.

During the year under review, the World Bank discontinued its Depository Library programme of sending print copies of materials such as book and journals in view of 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.

Patronage of these resources was high among users notably Lecturers, Research Fellows, Research Assistants, Postgraduate and Final year undergraduate students who needed information for their project work and research publications.

### **KNUST INSTITUTIONAL REPOSITORY**

The KNUST Institutional Repository continued to collect, organize, preserve and provide wide online access to scholarly and pedagogical works produced by the university's Faculty, staff and students. During the year under review, the Department was able to upload a total of one thousand, one hundred and twenty-two (1122) more records unto the KNUSTSpace bring the total entries to five thousand, seven hundred and eighty-five (5785). The ranking could improve if more Graduate thesis are submitted to the Library for uploading into the IR.

The breakdown of the number of entries currently on the KNUSTSpace is as follows:

Thesis	-	4720
Conference Proceedings	-	151
Journal of Science and Technology (JUST)	-	371
Research Articles	-	284
Speeches	-	262
<b>TOTAL</b>	-	<b>5785</b>

KNUST was ranked 23<sup>rd</sup> in Africa and 2164<sup>th</sup> in the world according to the Webometric ranking of the World Universities which was published in January 2014. Statistics from Google Analytics indicated that an average of 300 researchers visited 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 7075 researchers visiting the KNUST repository per month.

### **TECHNICAL SUPPORT**

The Library automation project which started in 2009 came to an end successfully with all the users' data captured into the Library Management Software (LMS). Entry of records into the LMS is now captured at the Acquisition Department and Cataloguing Department of the Main Library and the College Libraries.

During the year under review, the Unit purchased a heavy duty Scanner which can scan a whole book within a short period. With the acquisition of this equipment, all the ageing documents at the Ghana Collection could easily be captured for preservation.

### **INCOME GENERATION**

During the 2013/2014 academic year, the University Library generated income from fines and photocopying services. The breakdown was as follows:

Fines	GH¢3,910.00
Photocopying	GH¢ 1,797.40
<b>Total</b>	<b>GH¢ 5,707.40</b>

### **INFORMATION LITERACY SKILLS PROGRAMME**

During the year under review, the University Library System began the implementation of the Information Literacy Skills course for all first year students (both undergraduate and post graduate) in place of the traditional User Education/Library Orientation following its approval by the Academic Board of the university. The College of Science began the pilot programme and the other colleges are expected to join in the 2014/2015 academic year. The objective of the course is to equip these students with a deeper understanding of how and where to find information, the ability to judge whether the information is useful, how best the information can be used to address the problem or issue at stake and then the need and how to acknowledge the sources consulted.

### **COLLEGE LIBRARIES**

The collections of the University Library and the six College libraries are now accessible electronically through the Library's Open Access Catalogues (OPAC) following the successful completion of the automation process. The total book stock of the six Colleges and their satellite libraries for the 2013/2014 was sixty-eight thousand, seven hundred and twenty-nine (68,729) volumes compared to sixty-five thousand, one hundred and eighty-three (65,183) volumes of the 2012/2013 academic year. The break-down was as follows:

College of Agriculture and Natural Resources	12,891
College of Architecture and Planning	7654
College of Art and Social and Social Sciences	22,325
College of Engineering	13,301
College of Health Sciences	20,164
College of Science	12,558
<b>Total</b>	<b>68,729</b>

The College of Architecture and Planning received a donation of thirty-four books and sixty-five different issues of assorted Journals in the field of architecture from Prof. Matt Syal of the School of Planning, Design and Construction, Michigan State University USA. This was facilitated by Mr. Daniel Duah a Lecturer at the Department of Architecture who is currently on Study Leave pursuing his Ph.D Programme at the same School. Other donations were received from the University Library, Ghana Institution of Architects (GIA) and Mr. K.H. Osei Asante.



The College of Architecture and Planning which hitherto did not have a College Library Committee managed to form one during the period under review under the Chairmanship of Dr. B.K. Baiden of the Department of Building Technology who is also the College's representative on the University Library Committee.

The College of Architecture and Planning was able to complete and inaugurate its E-Library project which commenced in the previous academic year. This is the first of its kind in any of the College Libraries.

The Colleges of Architecture and Planning and Science Libraries embarked upon electronic resources (e-resources) training programmes for the Final Year Undergraduate Students during the academic year under review while the College of Health Sciences organized a similar training sessions for the postgraduate students in the College. The objective was to expose these students to the various databases and e-journals that the university library has subscribed to and how they could be accessed for their assignments, project works and theses.

The College of Science also received a donation of assorted books from Prof. R.K. Inkum, former Provost of the College; Prof (Mrs.) Ibok Oduro, the Head of Department of Biochemistry/Biotechnology as well as the University Library.

The Faculty of Law Library, in addition, received a donation of fourteen (14) new desktop computers from Ghana Investment Fund for Electronic Communication, through Mr. Seneadza, the Vice Dean of the Faculty.

The College of Agriculture purchased an updated version (2009 to 2011) of the LanTEEAL (The Essential Electronic Agricultural Library), an off – line Database in the Agriculture and Natural Resources Sciences which is highly patronized by Undergraduates, Postgraduate, Doctoral students as well as Lecturers.

## **CONFERENCES/SEMINARS/WORKSHOPS ATTENDED**

### **Dr. Helena Asamoah-Hassan**

- 1. The African Public Libraries Summit – Lessons Learnt.** Presented at the Namibia Library Symposium held in Windhoek, Namibia from 7-9 October 2013.
- 2. Making a Difference to Researchers- My Advocacy experiences.** Presented at Publishers for Development (PfD ) Conference held in London, UK, on 15<sup>th</sup> October 2013.
- 3. Presentations on Negotiations, Copyright and Licensing** at INASP Workshop held in Oxford, UK, from 16<sup>th</sup> -17<sup>th</sup> October 2013.
- 4. Presentations on aspects of Library Management for Head Librarians** at a Workshop for Head Librarians held in Accra from 7-8 November 2013
- 5. Presentations on Electronic Resources Management** at a Workshop for librarians held in Accra from 27-29 November 2013
- 6. Presentations on Library Consortium Building and Strengthening** at Workshops held in

Zimbabwe, Ethiopia and Malawi between February and April 2014.

**7. Access to Sustainable Online Scholarly Information – the Ghanaian Experience.**

Presented at the Sensitisation meeting of Vice Chancellors and Top researchers in Sierra Leone in Freetown, Sierra Leone from 1-2 May 2014.

**Kwaku Agyen-Gyasi**

1. 3<sup>rd</sup> KNUST Summer School under the theme “Repositioning KNUST as Global Institution: Effective Research Management as a Tool” organized by Quality Assurance and Planning Unit (QAPU) in conjunction with Office and Grants and Research, KNUST held at the Faculty of Law Auditorium from 26<sup>th</sup> August to 2<sup>nd</sup> September, 2013
2. The Information Training and Outreach Centre for Africa (ITOCA) in collaboration with The Essential Electronic Agricultural Library (TEEAL) and Access to Global Online Research in Agriculture (AGORA) organized a three day Train-the Trainer workshop at the Main University Library, from 29-31<sup>st</sup> October, 2013
3. Workshop on Pedagogical Skills which was jointly organized by the International Network for the Availability of Scientific Publications (INASP) and the Consortium of Academic and Research Libraries in Ghana (CARLIGH) from 3<sup>rd</sup>-5<sup>th</sup> March 2014 at the Conference Room of the Institute for Scientific and Technological Information (INSTI) CSIR Headquarters in Accra.

**Michael Sakyi Boateng**

1. 3<sup>rd</sup> KNUST Summer School under the theme “Repositioning KNUST as Global Institution: Effective Research Management as a Tool” organized by Quality Assurance and Planning Unit (QAPU) in conjunction with Office and Grants and Research, KNUST held at the Faculty of Law Auditorium from 26<sup>th</sup> August to 2<sup>nd</sup> September, 2013
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**Richard Bruce Lamprey**

1. 3<sup>rd</sup> KNUST Summer School under the theme “Repositioning KNUST as Global Institution: Effective Research Management as a Tool” organized by Quality Assurance and Planning Unit (QAPU) in conjunction with Office and Grants and Research, KNUST held at the Faculty of Law Auditorium from 26<sup>th</sup> August to 2<sup>nd</sup> September, 2013
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3. Qualitative Research Methodology (BSU) Workshop. Kumasi-KNUST 20<sup>th</sup> to 24<sup>th</sup> May 2013
4. Library Management Workshop 7<sup>th</sup> to 8<sup>th</sup> November 2013 Accra. INSTI-CSIR, ACCRA
5. Electronic Resources Management Workshop 27<sup>th</sup> to 29<sup>th</sup> November 2013 INSTI-CSIR-ACCRA

### **Evelyn Ekua Mensah (Mrs.)**

1. 3<sup>rd</sup> KNUST Summer School under the theme “Repositioning KNUST as Global Institution: Effective Research Management as a Tool” organized by Quality Assurance and Planning Unit (QAPU) in conjunction with Office and Grants and Research, KNUST held at the Faculty of Law Auditorium from 26<sup>th</sup> August to 2<sup>nd</sup> September, 2013
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### **Edward Mensah Borteye**

1. 3<sup>rd</sup> KNUST Summer School under the theme “Repositioning KNUST as Global Institution: Effective Research Management as a Tool” organized by Quality Assurance and Planning Unit (QAPU) in conjunction with Office and Grants and Research, KNUST held at the Faculty of Law Auditorium from 26<sup>th</sup> August to 2<sup>nd</sup> September, 2013
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### **Victor Teye**

1. 3<sup>rd</sup> KNUST Summer School under the theme “Repositioning KNUST as Global Institution: Effective Research Management as a Tool” organized by Quality Assurance and Planning Unit (QAPU) in conjunction with Office and Grants and Research, KNUST held at the Faculty of Law Auditorium from 26<sup>th</sup> August to 2<sup>nd</sup> September, 2013
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### **Hagar Atta-Obeng**

1. Workshop on Pedagogical Skills which was jointly organized by the International Network for the Availability of Scientific Publications (INASP) and the Consortium of Academic and Research Libraries in Ghana (CARLIGH) from 3<sup>rd</sup>-5<sup>th</sup> March 2014 at the Conference Room of the Institute for Scientific and Technological Information (INSTI) CSIR Headquarters in Accra.

### **Raymond Osei Boadu**

1. 3<sup>rd</sup> KNUST Summer School under the theme “Repositioning KNUST as Global Institution: Effective Research Management as a Tool” organized by Quality Assurance and Planning Unit (QAPU) in conjunction with Office and Grants and Research, KNUST held at the Faculty of Law Auditorium from 26<sup>th</sup> August to 2<sup>nd</sup> September, 2013.
2. The Information Training and Outreach Centre for Africa (ITOCA) in collaboration with The Essential Electronic Agricultural Library (TEEAL) and Access to Global Online Research in Agriculture (AGORA) organized a three day Train-the Trainer workshop at the Main University Library, from 29-31<sup>st</sup> October, 2013

### **Afia Densi Asare Kyire (Mrs.)**

1. 3<sup>rd</sup> KNUST Summer School under the theme “Repositioning KNUST as Global Institution: Effective Research Management as a Tool” organized by Quality Assurance and Planning Unit (QAPU) in conjunction with Office and Grants and Research, KNUST held at the Faculty of Law Auditorium from 26<sup>th</sup> August to 2<sup>nd</sup> September, 2013.
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### **PUBLICATIONS**

In the year under review, some members of staff published in some journals. These can be found in the University’s Quality Assurance Bulletin for the year under review.

### **SERVICE TO THE COMMUNITY**

Dr. Helena Asamoah-Hassan in June 2013 was elected as Chairperson of the International Advisory Committee (IAC) of UNESCO’s Memory of the World Programme, and is the 1<sup>st</sup> African to chair the Committee in the Programme’s 20 years of existence.

Messrs K. Agyen-Gyasi and Richard Bruce Lamptey still served as members of the Development of Research Uptake in Sub-Saharan Africa (DRUSSA).

Mr. K. Agyen-Gyasi was appointed by the Board of the Ghana Bible College to reorganize the institution’s Library to meet the standards set by the National Accreditation Board for the latter’s visit.

Mr. Michael Sakyi Boateng was elected as the National Secretary of the Boa Amponsem Past Students’ Association (BAPSA) for a two year term.

Mr. Michael Sakyi Boateng also assisted in the setting up of the KNUST-African Institute of Sanitation and Waste Management (K-AISWAM) Library at Adjiriganor, Accra.

### **CHALLENGES**

The College Libraries faced a number of challenges in the year under review. Almost all the libraries apart from The Colleges of Agriculture and Natural Resources (CANR) and Science have a problem with adequate space for efficient service delivery. The Colleges of Architecture and Planning (CAP), and The Art and Social Sciences complained about the absence of current textbooks. Two College Libraries, CAP and Science complained about the problem of uploading and retrieving soft copies of the students’ project work unto the Ubuntu software for their local repositories. The College of Science Library reported of a theft of two desk top computers and their accessories from the Library due to numerous outlets of the College of Science Complex and absence of security personnel. Among the mitigating measures taken were the reinforcement of the doors to the Library and the recruitment of four permanent security personnel to protect lives and property in the college.

### **CONCLUSION**

The KNUST Library System during the 2013/2014 academic year satisfactorily performed its core function of providing relevant information to support the teaching, learning and research and

innovative training in the university. The Library System did very well to provide a comprehensive collection of print and electronic resources mainly in science and technology to achieve these goals. With the successful completion of the automation process in the library's services and the measures being put in place to enable users access the resources of the libraries from any remote location, it is hoped that the University Library System would be able to offer quality services to its cherished users if the challenges such as inadequate textbooks, lack of reading space, erratic power supply and the unreliable Internet service are given the needed attention.