WORK OF THE DEPARTMENT

During the 2007/8 academic year the department sought to broaden and strengthen its course offerings. It achieved some of its objectives and made progress towards moving forward with others. The outreach programme was successfully launched, a new laboratory designed and constructed, and constructive cross-campus discussions held on collaborative research and new teaching programmes.

Though crippled by inadequate academic staffing which deteriorated significantly towards the end of the year, and ongoing infrastructural paucities, the Department however, successfully hosted its 60th Anniversary Homecoming Conference, July 11-12, 2008, which was organized by Dr. Michael Taylor, with participants/graduates from the Caribbean and the United States. The launch of a Physics Alumni Society resulted in the compilation of a database of over 200 graduates. The Climate Studies group benefited significantly from the world wide recognition of the work by some of its members; they have presented over fifteen refereed journal and conference papers.

Course Development

The academic year 2007-2008 presented an opportunity for the Department to focus on the development of its curricula resulting in the introduction of a major in Materials and Nuclear Sciences. Key thrusts also incorporated: revision and reintroduction of the MSc in Digital Technology course; revisitation of the MPhil in Alternative Energy; and the construction of a state of the art Virtual Laboratory.

Through joint collaboration with the Electronics Unit, the Department was able to provide internship and practical experiences for undergraduate applied Physics students through summer projects and placements in Industries such as Digicel.
An MOU was signed between Wigton Wind Farm Ltd, The Centre for Excellence in Renewable Energy and the UWI through the Physics Department to amalgamate research efforts in Renewable Energy, to provide training opportunities to students, and to improve their marketability. Advanced discussion is underway for the creation of an MOU with McMasters University, Canada, for collaboration and benchmarking of our Medical Physics Programme.

Outreach

Fruition came to the Department from its efforts to develop within the secondary school system, an appreciation for Physics, with the second CAPE Workshop being hosted in January 2008 through the efforts of Dr. Ponnambalam and others. This incorporated students from twenty two (22) secondary high schools, an increase from nineteen (19) in its first year. Much effort is being made to introduce a practical component to the course and collaboration is being sought with selected industries. The department in October 2007 had its Outreach programme involving the primary and preparatory schools through workshops, using lively Physics demonstrations and experiments to show that Physics is fun. The department also included the general public in its outreach activities through a Science Fair organized by the Scientific Research Council in October 2007 and Research Day organized by the UWI. The Climate Studies group had 3 environmental expos during the year.

Teaching

The ongoing shortage of academics intensified in 2007/8, as three Lecturers did not seek an extension of their contracts. This saw the number for academic staff at the end of 2007/8 being twelve (12) full-time, with five (5) part-time appointments. Students’ assessment of teaching and the undergraduate courses offered was satisfactory. The average student evaluation for undergraduate courses was 4.08 ± 0.49 for lecturers and 3.79 ± 0.34 for courses.

The department is attempting to re-evaluate some of its outdated policy decisions which currently exist in order to fulfill the growing demands to offer exceptional teaching and reference guide. For example, the procedure for the recruitment of academic and technical staff in terms of the career path of the applicant needs to be revised. The objective is to introduce professional chairs in Physics which would create a positive impact on teaching, research, co-operation with foreign institutions and attract research funds.
Staff Development

Dr. Karol Grondzak hosted a seminar on “How to solve time-consuming scientific problems on computers” at the Department of Mathematics, UWI, September 21, 2007.

Dr. Paul Aiken hosted a Workshop at Clarendon College High School on November 28, 2007 to demonstrate the capabilities of LabPro device for CXC Physics experiments.

Drs. P. Aiken, M. Taylor and M. Ponnambalam hosted a successful weeklong workshop on Motion in 1 and 2 Dimensions – Unit 1, Operational Amplifiers – Unit 2, for CAPE students from 23 high schools, January 7-11, 2008.

Dr. M. Voutchkov and Mr. V. Douse developed and demonstrated a model for the heat shield coating material “KOOLKAT” for Spectrum at the Trade Fair, National Arena September 27-30, 2008, thus establishing an important link with the private sector in the field of Material Science.

Targets for 2008/9

The Department’s key objectives for the period 2008/9 include the following: the introduction of a new minor in Medical Physics and to upgrade it to a major for the next academic year; to make the Virtual Lab fully functional; upgrade laboratories and infrastructure and recruit 4 academic staff members to replace those who left the department. Constructive discussions arose at the Cross Campus meetings in April 2008 to explore collaborative research and taught masters’ programmes and it was agreed to prepare syllabuses to launch an M.Sc in Alternative Energy in 2009.

PAPERS PRESENTED


• Chen, A.A., and T.S. Stephenson “Climate Change Renewable Energy and Small Islands”. CARICOM Workshop


• Clarke L and J.Skobla “A Microntroller Cellular Based Network for GPS Tracking Systems in Jamaica”, 21st Annual
Conference on Science and Technology, Kingston, Jamaica, November 20 -22, 2007


PUBLICATIONS

Books and Monographs


Refereed Journal Articles


Funding

Generating Climate Change Scenarios for the Caribbean for the 2100s using the PRECIS regional model. US$6,000 from Campus Research and Publications, UWI (2007).

INCOME GENERATION

During the year 2007/2008 the department generated the following income:

Dr. J. Skobla and Dr. Mitko Voutchkov received a research grant award from the International Atomic Energy Agency (IAEA) to support the project JAM004, “Development of National Capacity for Applications of Nuclear Science” in the amounts of US$284,720, for the period 2009-210.
Dr. Mitko Voutchkov received US$3500 research grant from IAEA for the interregional ARCAL project RLA60601, “Training and Updating of Knowledge in Medical Physics” (2009-2011).

Dr. T. Stephenson received approval for work to be done on a Research Fellowship, “Caribbean Climate Dynamics and Global Warming: A Regional Climate Model Intercomparison Project”. The amount of the grant is not yet available.

The income generated from the MSc Digital Technology programme is $4.2 million and the Coordinator is Dr. Joseph Skobla.

The income generated for Summer School $789,381.00, Consultation $805,399.05, and Departmental activities $301,240.00


PUBLIC SERVICE

P. Aiken
- CAPE Workshop Co-organizer
- Member, UTech Appointment Committee
- Chair, Education Activities, IEEE Section

V. Douse
- Chairman, National Cement Technical Committee, Bureau of Standards

J. Skobla
- Reviewer, IEEE, Intelligent Transportation
- Convener, Caribbean Advanced Proficiency Examination (CAPE)
- Chair, Physics Panel
M. Taylor

– External Examiner, CASE

M. Voutchkov

– Council member, Jamaica Society of Scientists and Technologists
– Member, BSJ/NEPA Phosphate Technical Committee
– Member, SRC Product Research & Development Subcommittee Board
– Life Member, International Society of Environmental Geochemistry and Health
– TC Expert in nuclear science of the International Atomic Energy Agency
– Reviewer, West Indian Medical Journal (WIM) The Jamaican Journal of Science and Technology

INFORMATION ON STUDENTS

The department offered a total of 17 undergraduate courses in 2007/8 with an enrolment of 572 in Semester 1 and 497 in Semester 2. The number of students in undergraduate courses for Semesters I and II are shown below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Semester I</th>
<th>Semester II</th>
<th>Year Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intro &amp; Prelim</td>
<td>268</td>
<td>241</td>
<td>509</td>
</tr>
<tr>
<td>Year 2 courses</td>
<td>142</td>
<td>144</td>
<td>286</td>
</tr>
<tr>
<td>Year 3 courses</td>
<td>162</td>
<td>112</td>
<td>274</td>
</tr>
<tr>
<td>Semester Total</td>
<td>572</td>
<td>497</td>
<td>1069</td>
</tr>
</tbody>
</table>

For postgraduate students the department offered five taught courses. There were 31 post graduate students enrolled in the taught MSc Digital Technology programme in Semester 1 for three of these courses. In Semester 2 the number increased to 34 for all five courses offered. The
taught courses were Solid State Electronic Devices and Applications, Digital Control Systems and Signal Processing, Computer Networks, Digital Communication Links and Project Management Fundamentals. The MPhil programme had an enrolment of 12 students. The areas of study included Electronics, Climate Studies, Materials Science, Microprocessors and Microcontrollers, Statistical Methods in Atmospherical Physics, Astronomy and Cosmology. The postgraduates are being supervised as follows J. Skobla (5 MPhil, 1 PhD); M. Taylor (5 MPhil); A. Amarakoon (3 MPhil); D. Walwyn (3 MPhil), A. Chen (1 MPhil). The department’s Summer School 2007/8 offered 6 courses, based on, exam only and taught courses. The 39 students who enrolled were taught by 10 lecturers. Dr. T. Stephenson was the Coordinator.

Awards

Professor Anthony Chen, Head of the Climate Studies Group, was part of a United Nations Intergovernmental Panel on Climate Change (IPCC) which was named winner of the prestigious Nobel Peace Prize for 2007. Professor Chen, along with former US VP, Al Core et al, were awarded for their attempts to increase knowledge about man-made climate change and for laying the framework for counteracting these changes.

Five members of staff were awarded at the Research Day Awards Ceremony as follows:

The Research Project with the Greatest Business/Economic Development Impact for FPAS – Dr. J. Skobla and Dr. F. Ionica: Monitoring System of the Hunt’s Bay Bridge on Highway 2000”.

The Best Research Activity for FPAS:

Prof. A. Chen and Dr. M. Taylor “The Scientific Basis of Climate Change as it impacts Small Island Developing States

The Best Publication for FPAS:

Dr. T. Stephenson, A.A. Chen and M A. Taylor “Towards the Development of Prediction Models for the Primary Caribbean Dry Season”.

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Prizes

Ojay Morrison Level II
Departmental Prize: Yanique Bedward
Michael Jharma
Nathan Bursary

Delano Thomas - Level II
Departmental Prize: Natalie McLean – Dean’s List
Tricia Evans – Dean’s List
Francois Brown – Francis Bowen Bursary