Surveying Education and Training in Jamaica

- *The role of the University of Technology*

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to the

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Historical Background

- Traditionally post high school apprenticeship training system with a professional surveyor for three(3) years
- pass the qualifying examination
- awarded a Commission (license) to practice, hence taking on the designation "Commissioned Land Surveyor".

Survey School - Mona

- Survey School at the Mona Campus of the University of the West Indies in Jamaica
- Started under a Major Quinton, a British army surveyor
- three (3) months per year for three (3) years
- Lecturers included the late RCW "Bob" Byles - "father of Surveying" in Jamaica

The CAST programme

- Land Surveyors Association of Jamaica (LSAJ) lobbied intensely for the establishment of a formal tertiary education
- a three (3) year Diploma programme for students with the potential to become professional surveyors -1973
- a two (2) year certificate course to prepare students to become competent Land Surveying Technicians -1974

The Undergraduate Degree

- CAST became University in 1995
- Bachelors degree (4 years) in Surveying and Geographic Information Sciences commenced in 2002

Philosophy

- Aim is to produce graduates proficient in the necessary skills to operate as professional Land Surveyors within the Geographic Information Sciences and Built Environment Industries
- Graduates would have achieved the minimum or higher entry level required, since the programme was formulated through close consultation with the managers and professionals operating within the Surveying, Built Environment and GIS industries.

Philosophy cont'd

- Curriculum designed to train students in the main disciplines of Land Surveying (Plane,Geodetic,Engineering,Topographical, Cadastral, Hydrographic and Satellite Surveying, Photogrammetry and Satellite Surveying) and LIS/GIS as well as developing students' research skills, professional ethics and general knowledge related to the Built Environment and Geographic Information Sciences industry

Philosophy cont'd

- provide graduates with a foundation that will enable them to cope with the rapid technological changes that takes place in the Land Surveying and Geographic Information Sciences environments.
- SGIS programme designed not only as the minimum level academic benchmark for professional qualification but also to enable graduates to access to higher education.

Entry requirements

- minimum of two(2) subjects at the GCE Advanced Level or the CXC Advanced Proficiency Examination - Mathematics, Physics, Geography, Computer Science and Technical Drawing.
- one year Preliminary Course of Study (PCS) in Advanced Mathematics, Physics and Geography for Ordinary level subjects holders - minimum GPA of 2.30
- Certificate graduates - minimum GPA of 2.70

The Curriculum

- Four (4) year Bachelors Degree
- 146 Credits
- Include GIS to expand programme offering and stimulate a wider interest
- maintains its flavor as a strong Surveying and Mapping Degree
- Modules such as Physics retains its relevance, principally because of the advances in the technology that make up surveying instrumentation

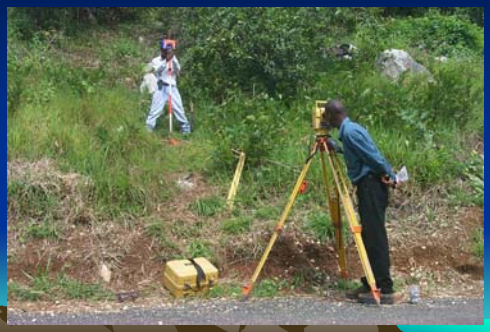
- University policy of requiring a minimum of 30 % of the courses to be General Education
- GPS Satellite Surveying
- Satellite Remote Sensing
- Land Development
- Practical excercises on and off campus practicums each year

Spirit Levelling

Geomatics Lab

Topographic Surveying

Cadastral Surveying



Hydrographic Surveying

Female Student Surveyor

Geodetic Surveying

Utech CORS

Surveying Practicum

Surveying Practicum

Surveying Practicum Activities

Intake

- Diploma - 20 to 25 students per year for the first six (6) years,15 students or less per year since then
- substantially reduced numbers from the wider Caribbean
- Total 434 to date
- Bachelors – over 60 students admitted so far

Approaches to teaching surveying at UTech

- Student-centered approach.
- Intimate involvement of students in the teaching-learning process – lectures and tutorials interwoven.
- Small groups (largest 15) allows for interaction with teachers who assume a the role of a facilitator for learning and not merely a repository of knowledge.
- Use of modern technology in the process (computer software and modern surveying instrumentation)

Approaches to teaching surveying at UTech cont'd

- Practicum for years 1, 2 & 3 – Field exercises simulating real-life experiences executed by students under the supervision of instructors.
- Viva Voce done in the form of an interview with a panel of professional surveyors.
- Competency-building in the application of principles and the operation of specialized surveying and GIS equipment
- Corporative education – students assigned to professional surveyors during 4th year to develop industry readiness

Theoretical Underpinnings

- Surveying is a physical science
- Geography and Physics play a major role in conveying the concepts of Data acquisition and analysis as well instrumentation.
- Mathematics is also fundamental in Error Analysis and teaching Geodesy

Course Management

- Diploma was first headed by an English expatriate Mr. George Russell Brimacombe
- more staff was recruited from the United Kingdom
- need for local staff recognized, training at NELP, forms the core of staff to date
- need now exists for lecturers for upper level courses as well as research activities

External Support

- National Land Agency
- North East London Polytechnic - advice, visiting lecturers and opportunities for further training.
- Spatial Innovision Ltd. - GPS equipment, GIS software and teaching/training
- LSAJ - donations and bursaries to students, advisory committee, guest lectures in the areas of Professional Practice and Cadastral Surveying, quality assurance (evaluate students' practicum work).

Facilities

- Intra Faculty - SBLM Geomatics Lab., Carto. and Surveying equipment stores
- Inter Faculty - School of Computing and the School of Health and Applied Science's Mathematics and Physics Departments.
- University and Faculty libraries. Recently benefited from a generous donation of books from retired CLS's Cecil Phillips and Trevor Carnegie.

Equipment

- Global Positioning System receivers
- Total Stations, Electromagnetic Distance Measuring equipment, Digital Levels.
- Optical theodolites and levels, a subtense bar, observing targets, Radios Magnetic Bar Finder and the usual pieces of auxiliary Surveying equipment.

Teaching Aids

Teaching aids available to the lecturers include:

- Large Govt. Projects eg. LAMP
- Multimedia & Surveying Equipment
- IKONOS Satellite Imagery (partnership)
- GIS Software and sample data
- Practising Surveyors work
- Students' Research Projects
- Field visits & Practicums

Our Graduates

- 234 diplomas, 20 so far successful in the Bachelors Degree Post Diploma course.
- Two (2) P.HD's
- About 50 graduates are Commissioned Land Surveyors (ie. some 70 % of the Surveyors practicing in Jamaica today).
- Majority in private practice - Cadastral, Topographic and Engineering Surveys.
- Eight (8) of the nine (9) council members of the LSAJ are CAST graduates. Three (3) graduates done three (3) year terms as President of that association.

Our Graduates cont'd

- Three (3) female CLS, Two (2) female Lecturers
- Satisfied full demand for Surveyors for 30,000 parcel LAMP pilot project
- Our graduates from the other Caribbean Islands are leaders in their respective territories including: Antigua, Grenada, St. Vincent, St. Kitts, Nevis, St. Lucia, Dominica, Anguilla ……

Limitations

- Staffing
- No Postgraduate to prepare graduate
- Cost to keep up with dynamism of technology in Surveying and Software in GIS

The Way Forward

- Accreditation - The UCJ and RICS.
- Resources adopted from the Diploma Programme must be continually strengthened – acquired new Total Stations and GPS equipment, Geomatics Laboratory upgrading.
- Academic staff complement needs to be strengthened, if more research, generation of teaching material and facilitating accreditation is to be realized.
- More aggressive marketing.

Conclusion

- Now to move swiftly to build on the already hard work that has been invested, if UTech is to maintain its place as a leader in educating and training surveyors.
- High demand for our graduates within the Caribbean region.
- As we intend to preserve and build on this legacy, we are committed to the process of constantly re-evaluating our programmes so that the necessary adjustments can be made that will ensure that the high standards our students and their employers have come to expect, are never compromised.


THANK YOU