

## MONA SCHOOL OF ENGINEERING



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Head of School

### WORK OF THE DEPARTMENT

#### Overview

The Mona School of Engineering has added the BSc. in Biomedical Engineering to our list of engineering programmes, with the first cohort to be admitted for the academic year 2018//2019. In an effort to increase access to our engineering programs, a 1-year preliminary engineering programme was also added, consisting of the essential components of mathematics, science, computer and laboratory techniques and communications skills. Jamaican students entering this program have been awarded a US\$5,000 bursary (50%) toward their tuition. Total applications for engineering programs continue to increase with more than 2,300 applicants for the 2018–19 academic year.

MSE continues to strengthen partnerships made with local and international industries. Our Electronics Engineering team has entered into an MOU with ZTE Telecommunication's Jamaica to offer internship opportunities

to students. We launched the first shared engineering project design with Binghamton University, where four of our final year electronics and computer systems engineering students will work with four of their final year electronics and computer engineering students on two Capstone Projects. The MSE continues in its endeavour towards creating a world class teaching and research facility, with strong synergies with our industrial and commercial partners. We have also successfully attracted two new academic staff; one hailing from the Caribbean and the other from Africa. ABET International Accreditation conducted a site visit on October 8–10 for assessment of our BSc Electronics Engineering program. This is our first attempt at international accreditation and we will use the learning experience from this exercise to facilitate accreditation of all our engineering programmes.

### **Enrolment Statistics**

The number of applicants for engineering continues to increase, with the largest numbers applying for Preliminary Engineering with Civil Engineering garnering the second highest numbers.

### **Academic Partnerships**

***University of Florida (UF):*** The MOU with the University of Florida continues on its intended path, with MSE continuing to benefit from improved teaching capacity from the UF's academic staff.

***SUNY/Binghamton University:*** The UWI Mona/ MSE signed a Memorandum of Understanding (MOU) with SUNY/Binghamton University to support partnerships in teaching and research. two points of collaboration discussed are now being implemented:

2 joint final year projects with students from MSE and SUNY Binghamton

### **Accreditation**

The Mona School of Engineering made a formal application to ABET for the accreditation of our BSc Electronics Engineering programme.

The ABET accreditation team visited the UWI campus on October 8–10, 2017 to assess the facilities and meet with students, staff, employers and alumni.

## **OUTREACH ACTIVITIES**

***UWI Research Days 2018:*** This academic year, the Mona School of Engineering's participation in Research Day continued to expand. The faculty displayed a number of research projects that our engineering students worked on throughout the year. In the main public display area of the Tent, the UWI-IEEE Mona Robotics Team displayed a project consisting of autonomous robots that were designed and built by students to do a number of prescribed tasks in a particular time frame and that Robot was also later presented at the Hardware Challenge at the IEEE South Eastern Conference, USA.

***High School visits:*** Representatives from the Mona School of Engineering in collaboration with the Marketing, Recruitment and Communications Office visited a number of high schools and community colleges during the academic year. This has always been one of our major marketing space for our programmes and we make every effort to ensure that we fully participate.

***Marketing Opportunities:*** The Mona School of Engineering took advantage of the opportunity to advertise on Television Vision Jamaica (TVJ) and Palace Amusement.

Mr. Lindon Falconer conducted computer network installation and configuration at Jamaica Society for the Blind. Students from the Mona School of Engineering participated in the work.

## **DONATIONS/CONTRIBUTIONS**

***Engineering Bursaries:*** Every year, needy students who meet the minimum eligibility requirements are offered an engineering bursary in the range of J\$200,000 to J\$400,000. The recipient can be at any level in the program and must maintain a minimum GPA of 3.0 to continue the bursary.

### **Energy Management Unit**

During November 2017, the Energy Management Unit (EMU) contributed to the Campus Community by assisting in addressing inefficient building and equipment operation and maintenance strategies.

The EMU submitted an article to the Research for Development 2017 Booklet.

The EMU continues to work with the Bureau of Standards Jamaica and CARICOM Regional Organisation for Standards and Quality (CROSQ) in the development of an energy efficiency building code intended for use by CARICOM member states.

### **Employee Engagement and Development:**

The Mona School of Engineering hosted its first Staff Retreat at the Royalton White Sands on July 11–13, 2018. This fostered meaningful interaction among new and existing staff as well as facilitated strategic and operational planning for the new faculty.

Ms. Cherri-Ann Scarlett–Senior Administrative Assistant; successfully completed the Certified Energy Manager exam in April 2018.

Ms. Shanique Gray – Administrative Assistant II; successfully completed the Master in Business Administration program in July 2018.

### **Internal Operational Processes:**

***Graduate Research Degrees:*** Mona School of Engineering (MSE) accepted applications for the first cohort of students for Graduate Research Degrees in Biomedical Engineering, Civil Engineering, Electronics and Computer Systems Engineering.

The Mona School of Engineering continued with the initiative to employ student assistants to grant access to visitors and provide reception and technical assistance.

Student assistantship opportunities were provided by Mona School of

Engineering to allow students to get hands-on experience working on external projects guided by staff members.

**Internship:** A partnership has been created between The UWI Campus Projects Office and the Mona School of Engineering to create internship opportunities for students. This partnership utilized the new Faculty of Social Science building as test sample.

## **PAPERS PRESENTED**

### **Dr. David Smith**

- “*The Impacts of Climate Change on Transport Infrastructure*” at UNCTAD Workshop in Barbados, December 2017
- “*Climate Change Adaptation Strategies for Caribbean Nations*” at the Caribbean Tourism Conference in St Kitts, December 2017

### **Dr. Paul Aiken**

- “LNG Applications to Reduce Energy Cost at the Mona Campus of The University of the West Indies Kingston, Jamaica” October 2017 at the first National Gas Conference in Jamaica, looking at new opportunities for business and investment in the country from Natural Gas.

## **SEMINARS /WORKSHOPS**

- Dr. Nicolas McMorris attended SPAR 3D Construction conference in Anaheim, California.
- Dr. David Smith attended the UN Climate Change Conference (COP23) in Bonn, Germany as part of the Government of Jamaica’s delegation, November 2017.
- Fourteen students and one staff member represented the Mona School of Engineering at the Office of the Prime Minister, International Women’s Day Activity in March 2018. Their participation included displaying their research and interactive demonstrations to students

from various high schools. The ladies also participated in a forum on Women in STEM.

- Dr. Paul Aiken acted as The UWT's representative on a panel discussion on the BPO industry, Outsource to the Caribbean: Caribbean Talent, Montego Bay December 2017.
- Dr. Paul Aiken represented the Faculty of Science and Technology at the 2018 Business & Economy Leadership for Trade Sessions for Measuring for Success, 2017.

## PUBLICATIONS

- Ayar, Muharrem, Serhat Obuz, Rodrigo Trevizan, Arturo Bretas, and **Haniph Latchman**. "A Distributed Control Approach for Enhancing Smart Grid Transient Stability and Resilience." IEEE Transactions on Smart Grid (2017).
- Ayar, Muharrem, Rodrigo Trevizan, Serhat Obuz, Arturo Bretas, **Haniph Latchman**, and Newton Bretas. "A Cyber-Physical Robust Control Framework for Enhancing Transient Stability of Smart Grids." IET Cyber-Physical Systems: Theory & Applications (2017).
- Park, B., Hwang, A. and **Latchman, H.**, 2017. Design of Optimized Multimedia Data Streaming Management Using OMDSM over Mobile Networks. Mobile Information Systems, 2017.
- Colen, Guilherme R., Hugo Schettino, Diogo Fernandes, Lucas M. Sirimarco, Fabrício PV Campos, Weiler A. Finamore, **Haniph A. Latchman**, and Moises V. Ribeiro. "A temporal compressive resource allocation technique for complexity reduction in PLC transceivers." Transactions on Emerging Telecommunications Technologies 28, no. 2 (2017).
- Park, Byungjoo, Ankyu Hwang, and **Haniph Latchman**. "Design of Optimized Multimedia Data Streaming Management Using OMDSM over Mobile Networks." Mobile Information Systems 2017 (2017).
- **Smith, D.A.Y.** "Climate change impacts on critical international transportation assets of Caribbean Small Island Developing States (SIDS): The case of Jamaica and Saint Lucia". Published in Regional

Environmental Change (2018). In addition, the paper will be included in the IPCC Special Report on 1.5 degrees itself, as part of the literature considered.

## INCOME GENERATION

***Income for MSE:*** MSE generated revenue of J\$195,463,621.00 million from tuition collected for its Preliminary program and four BSc programmes for the 2017/2018 academic year. Income of \$511,500 was also generated from other commercial activities primarily from the use of our laboratories for testing of samples for industry.

***Expenditure:*** The Mona School of Engineering expended J\$123,036,499.23 during the academic year 2017/2018.

***Mona-Tech Engineering Services:*** Mona-Tech Engineering Services was operationalized on April 7, 2015 and represents the commercial arm of the Mona School of Engineering. Its mandate is to provide internship type training to graduates of the MSE and to provide expert engineering support services to the Mona Campus, Jamaica and the Caribbean region. In doing so, Mona-Tech will generate a revenue stream for the Mona Campus, its majority shareholder. The commercial arm of the MSE successfully completed its third year of operations. Some notable achievements during 2017–18 were:

The AC Services Park has now switched from LPG to LNG as the fuel source to generate cooling. This switch to LNG has saved the campus approximately \$25M in the first year. The AC Services Park is now undergoing upgrades to become a full Cogeneration facility which will be providing the Mona campus with its own electricity as well as cooling. The JVC Print Center was introduced, which provides a number of printing services for the campus. Special rates are offered to UWI Departments.

A proposal is being prepared to improve Staff Engagement and Development. The main objective of the proposal seeks to motivate, re-engage, develop talents and recognize staff in order to garner high performance, which will invariably increase productivity. Once implemented, the different

activities will be executed over a two (2) year period with high priority needs being addressed in the short term or first six (6) months to a year.

Implemented an internship arrangement for finalizing students enrolled in the Faculty of Engineering.

Partnered with Placement and Career Services to offer internship to UWI students and recent graduates

## **PUBLIC SERVICE**

### **McMorris, Nicolas**

- Appointed to the Board of Directors of the Professional Engineering Registration Board (PERB)

### **Rannie, Richard**

- Appointed to the Board of the St. Joseph's Teacher's College in May 2018.

### **Aiken, Paul**

- The UWI Mona's representative on the BPO Task Force Committee chaired by the Honorable Dr Horace Chang.
- Senior member of the Institute of Electrical and Electronics Engineers (IEEE).
- Serves as a member of the continuing education committee of the Professional Engineers Registration Board (PERB)
- Serves on the engineering accreditation committee of the University Council of Jamaica (UCJ).

### **Smith, David A. Y.**

- Board member for the Engineering Standards Committee, University Council of Jamaica.

### **Lindon Falconer;**

- Member of the IEEE and the Acoustical Society of America.
- Writes exam questions for the Board of Examiners (Licensing of



Electricians) Ministry of Science, Technology, Energy and Mining (MSTEM).

**Thomas, Omar**

- Council Member at the Jamaica Institution of Engineers (JIE).
- Registered Professional Engineer in Jamaica.
- Member of the Financial Committee of the Karen Peart Memorial Scholarship Foundation Trust.
- Friends of the ASCE Transportation & Development Institute (T&DI) Infrastructure Systems Committee
- Civil Engineering Divisional Chair at the Jamaica Institution of Engineers (JIE) Council.
- Lead Facilitator of the Macaroni Bridge Competition – JIE Engineers' Week Conference 2017 (September 2017)

**Lawrence, Adrian**

- Acted as a peer reviewer on two research papers/manuscripts submitted for publication to the American Concrete Institute's (ACI) Journal.
- Participates in teaching preparation sessions for the Professional Engineering (PE) License exam in the United States.

**STUDENTS**

**Awards**

Five B.Sc. students across the Engineering programs were awarded with laptops from the Elaine Bryan Foundation, Atlanta USA in July 2018.

**International Recognition**

A seven member delegation of students and facilitator, Mr. Yekini-Wallen Bryan participated in the Institute of Electrical and Electronics Engineers (IEEE) Southeast Conference Robotics Competition, which was held on April 19 to April 22, 2018 in Tampa Florida. Participants included

members of the Institute of Electrical and Electronics Engineers (IEEE) UWI Student Branch.

### **Student Clubs and Societies**

For 2017/2018, the students of the Mona School of Engineering were actively involved in the student chapters of:

- Institute of Electrical and Electronics Engineers (IEEE)
- Jamaica Institution of Engineers (JIE)
- Institute of Structural Engineers (IStructE)

### **Scholarships and Bursaries**

**Bursaries:** The Mona School of Engineering bursaries for the B.Sc. programs were awarded to 32 students for a total of \$28,530,475.56 for the academic year 2017/2018. Preliminary Engineering bursaries were awarded to 37 students for a total of USD\$185,000.00 for the academic year 2017/2018.

### **2017 Graduation**

The second cohort of Civil Engineering and Computer Systems Engineering students were awarded degrees in November 2017. Engineering students graduated with six First Class Honours from the Civil Engineering Program and one First Class Honours from Computer Systems Engineering.