

## **MEDIA RELEASE**

*For Immediate Release*

Date: 12<sup>th</sup> August 2022

### **Award of UNESCO Chair on Advanced Manufacturing (UCAM) to BIUST**

The Botswana International University of Science & Technology (BIUST) has been awarded the UNESCO Chair on Advanced Manufacturing (UCAM). The UNESCO Chair was awarded through the UNITWIN/UNESCO Chairs Programme that was launched in 1991, and currently involving over 850 institutions in 117 countries. Its main aim is to promote international inter-university cooperation and networking mainly to enhance institutional capacities through knowledge sharing and collaborative work. The programme supports the establishment of UNESCO Chairs and UNITWIN Networks in key priority areas related to UNESCO's fields of competence which are Education, Natural Sciences, Social Sciences, Culture and Communication.

The UNESCO Chair at BIUST is held by Associate Professor Eytayo O. Olakanmi and is hosted in the Department of Mechanical, Energy & Industrial Engineering (DMEIE) of the Faculty of Engineering & Technology. UCAM, whose activities comprise of both teaching and research, will:

- (i) train 40 industry-ready postgraduates within the four years (2022 to 2026) of project implementation;
- (ii) update advanced manufacturing (AM) Masters curriculum;
- (iii) develop a unique African e-learning platform for AM instructional delivery and innovating AM training equipment, frames for drones and satellites, radiation shields and medical implants; as well as
- (iv) promote science, technology and innovation for peace and sustainable economic development.

UCAM is an inter-disciplinary team which draws from knowledge and expertise of the Advanced Manufacturing and Engineering Education (AMEE) research group (led by Associate Professor Olakanmi), the Applied Nuclear Science and Technology (ANST) research group (led by Professor Gregory. Hillhouse), the Applied Radiobiology (ARB) research group led by Dr. David Nkwe; and the Mining Centre directed by Dr. Bonnie Matshediso. Other members of the UCAM team include Dr. Shima Batlokwa, Dr. Oduetse Matsebe, Dr. Mosalagae Mosalagae, Dr. Keketso Orapeleng, and Dr. Prasad Raghupatruni

The AMEE had researched on AM for equipment repair and design/fabrication of metal powder atomiser in collaboration with the Council for Scientific and Industrial Research/ Laser Enabled Manufacturing research group (CSIR/LEM) in South Africa. Since 2016, Professor Olakanmi has been coordinating the activities of Education for Laser-based Manufacturing (ELbM: <https://elbmmobility.org/>) consortium. ELbM comprises of Universities from Botswana, Kenya, Nigeria, South Africa and Italy. ELbM combines academic and industrial resources to empower teaching staff to impart postgraduate students with employable skills in AM corresponding to the needs of industries. Prof. Olakanmi, supported by the AMEE, SMaRT, ANST, SPNS, ARB and the Mining Centre teams, brings in his training, leadership, research and teaching experience, attracting training/ research funding, and extensive ELbM network to deliver the objectives of UCAM.

UCAM will engage knowledge domains of laser-based manufacturing (LbM); powder metallurgy; machine design; mechatronics, satellite/drones technology and biomedical engineering to train a critical mass of engineers who transform will Botswana to a knowledge-based economy; create avenues for exploitation of ELbM technology for job creation in Botswana; and enhance the quality of teaching at ELbM institutions. The Chair will deliver

its mandate with BIUST making in-kind contribution of US\$4,286,167 while LEM/CSIR makes in-kind contribution of availing the Chair and the ELbM partnership with access to her LbM facilities. The Chair is also leveraging on US\$1.67 million which the ELbM consortium has generated in research, training and mobility funding from 2020 to 2024. With BIUST successfully coordinating all fund-raising activities for ELbM partnership, it is anticipated that additional US\$1.556 million needed for curriculum development and design/fabrication of machines would be successfully obtained by UCAM.

UCAM has adopted the working theme “*Botswana Manufactures for Sustainable Development*”, with a view to attaining accelerated industrial development of Botswana as well as building a solid foundation for technology and innovation. This would lead to creation of a critical mass of high-level expertise in LbM, powder metallurgy and machine design/fabrication; building of institutional, national and regional capacities for quality teaching programmes; undertaking applied research and promotion of information sharing in AM. In particular, the long-term objectives of the UCAM at BIUST include:

1. effective postgraduate teaching and research at BIUST;
2. regional knowledge transfer from BIUST to ELbM partners, African institutions and industries;
3. empowerment of Batswana researchers to solve engineering problems especially in machine design/fabrication and products/service development;
4. increased employability of Batswana engineering graduates;
5. promotion of postdoctoral training to improve research expertise of AMEE researchers;
6. Increasing the capacity of Batswana students to study, research and employ AM specialised knowledge for undertaking projects for infrastructural development (drones, satellites, biomedical implants, radiation shields), including the possibility to experience new methods of studying and learning;
7. increasing the number of Batswana academic staff awarded with doctoral degree in AM;
8. increasing the number of co-tutored programmes and projects to integrate PhD and Master programs between ELbM universities;
9. improving the capacity of academic and support staff to develop and design curricula that responds to labour market and societal needs, exploiting the opportunities offered to share best practices with partners; and
10. improve international visibility of BIUST through joint ELbM publications, conference presentations, amongst others.

Contacts:



G Baitshephi  
[Gbaitshephi@gov.bw](mailto:Gbaitshephi@gov.bw)  
Tel: 363-1364

K.M. Rafifing  
[rafifingk@biust.ac.bw](mailto:rafifingk@biust.ac.bw)  
Tel: 493-1071