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UniMAP to set up research group on biomedical devices

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UNIVERSITI Malaysia Perlis (UniMAP) is planning to set up a specialised Biomedical Devices Research Group at its School of Mechatronic Engineering by next year that will champion the research, development as well as production of locally developed orthopaedic implants.

According to vice-chancellor Professor Dr R Badlishah Ahmad, the group is also expected to cover other biomedical areas such as non-invasive therapeutic devices and biomechanics systems.

"The medical industries in Malaysia has not yet matured to the stage of research and development in orthopaedics related technologies. The rate of orthopaedic implant usage is increasing and the need of locally made implants is crucial.

"We are lacking expertise and technologies on implant design and development and post- operative implant failure analysis. So, there is a need for human resource development specializing in the latest and current practices in orthopaedic device design and manufacturing," he shared with Higher ED in an email interview recently.

"Currently, medical devices and implants are imported from outside the country due to the lack of experts and industries that can produce local devices and implants that match international quality. Thus, this project aims to meet the country's aspirations to have its own implant or biomedical industry," R Badlishah said.

Dean of UniMAP's School Of Mechatronics Engineering, Dr Muhammad Juhairi Aziz Safar said the university is currently building up the talent needed to form the research group with three groups comprising of four researchers each already trained at Tohoku University in Sendai, Japan under a programme organised by the Public Service Department in collaboration with MIDA (Malaysia Investment Development Authority), JICA (Japan International Cooperation Agency) and UniMAP.

Group 1 underwent their training at the end of 2017 followed by Group 2 in February this year. Group 3 has recently concluded their three-week training which ran from July 8 to July 26. The entire training will be completed after a fourth batch attends the final training at the end of this year at Tohoku University.

"The intention of attending the programme is to enhance the specific knowledge and skills among the researchers in a move to realise the mission of making UniMAP and the School of Mechatronic Engineering the referral institution for medical devices for industries in the northern region of Malaysia,and contribute in disseminating knowledge through publications in the academic circle nationally and internationally," said Juhairi.

It is also in line with the School of Mechatronic Engineering's aim to provide world-class research and teaching programmes to reflect its growing strength in an exciting new area of engineering.

"Through this programme, we will be able to provide up-to-date and high quality training in both the foundation of engineering science and the application of the latest techniques and practices used throughout the industry," said Juhairi.

Among the areas of training that the UniMAP researchers have and will be trained in are the development of bioactive biomaterials bone-bonding ability for treatment of bone cancer; biodesign; steps involved in manufacturing medical devices from the engineering aspect, design standards compliance; nano precision mechanical fabrication; and medical bioelectronics — focusing on the development of wearable motion measurement systems.

R. Badlishah said further on to the setting up of the Biomedical Devices Research Group, UniMAP also has plans to establish a Centre of Excellence that focuses on biomedical devices where orthopaedic implants is one of the main focus areas.

"UniMAP will play a big role in the biomedical devices industry especially in orthopaedic implant technology in the near future by developing our own national orthopaedic implants by local expertise.

"We also have the intention to set up a training centre at UniMAP with the help of MIDA (funding, research grants, etc) and Medical Device Authority (MDA), and knowledge and technology transfer from industries in Japan through JICA. In future, we are hoping that a spinoff company which focuses on designing the implant and orthopaedic devices could be established," he said.