

News Release

Engineering, Medical and Biomedical Students Design Next Generation Medical Devices at ESEM Summer School at TCD

July, 10th, 2011 – Thirty engineering, medical and biomedical engineering undergraduate students from across Europe are designing next generation medical devices at the Trinity Centre for BioEngineering at Trinity College Dublin as part of the European Society for Engineering and Medicine (ESEM) Summer School this week (July 11th -22nd). This is the third year for this unique European summer school, organised in collaboration between eight leading universities in biomedical engineering and medicine, apart from Trinity College Dublin these are the University of Groningen (NL), Ghent University (B), Brno University of Technology (CZ), Czech Technical University in Prague(CZ), RWTH University Aachen (D), University of Regensburg (D) and the Royal College of Surgeons in Ireland (IRL).

“Current healthcare challenges, such as the ageing of Europe’s population as well as big killers such as cardiovascular disease, require multidisciplinary approaches for diagnosis and treatment. The focus therefore of this unique summer school is to establish a platform of cooperation between medicine and engineering across Europe starting at an undergraduate level,” explained Professor Richard Reilly, Director of the Trinity Centre of BioEngineering and organiser of the Summer School.

With different working cultures and educational backgrounds, the aim of the European Society for Engineering and Medicine Summer School at Trinity College has been to teach students how to work together efficiently by getting small groups to design new, novel medical devices targeting specific medical and clinical problems. These include the design of a system to monitor a patient’s weight and risk of sarcopenia on a daily basis, technologies to screen for aorta aneurisms, designing systems to preserving mobility of patients and looking at how to move rehabilitation treatments to the home situation.

To have the educational basis to undertake this challenge, the students are taking courses delivered by 15 leading Professors of Biomedical Engineering and Medicine, who also join the students at Trinity College. The medical students are instructed in bioengineering methods (materials science, mathematics, biomechanics, signals and systems) necessary to successfully work in biomedical engineering while engineering students are instructed in anatomy and physiology at the Royal College of Surgeons in Ireland. Both groups of students are taught design methodologies for furthering their understanding and capability to understand, analyse and successfully conceptualise innovative medical device concepts using a multidisciplinary team approach.

“We want future biomedical engineers and clinicians to understand each other’s discipline,” said Professor Bart Verkerke of the Department of Biomedical Engineering at the University Medical Center Groningen.

“The impact of this summer school has been to ignite enthusiasm and passion among undergraduate engineers and medical students for the challenges and opportunities in bioengineering,” continued Professor Richard Reilly, Director of the Trinity Centre for BioEngineering and President of the European Society of Engineering and Medicine. “This Summer School coincides with the opening of the new Trinity Biomedical Sciences Institute at Trinity College, within which there is a new centre for Advanced Medical Device Design”.

“There are currently over 11,000 medical technology companies in Europe, investing some €5.8 billion in R&D, exporting €65 billion worth of products annually and employing 500,000 people. It is critical that we can demonstrate to these students that engineering innovation and creative design can meet the challenges in healthcare, continue the growth of medical device sector and the delivery of the best medical care possible,” concluded Professor Reilly.

Students participating in the summer school are learning in a unique environment which was reflected in their comments of the programme:

“I am learning the differences in culture between medics and engineers. And I am learning to follow the Methodological Design Method for generating ideas concerning a specific problem and to optimise the organisation of a multidisciplinary project team.”

“The ESEM summer school will give me the opportunity to improve my knowledge of engineering in medicine and healthcare, meet other students from different countries and discuss with them in a constructively critical atmosphere.”

“I am amazed by what can be done and the directions one can take with this specialisation. I also have gained an overall understanding of modelling and simulation.”

‘I gained a lot of knowledge from the medical environment provided through the ESEM Summer School and the participating professors. It helped me carry out our project and to understand other participants’ projects as well. “

The outcome of the collaboration will lead to continued interaction of the students throughout their undergraduate and also postgraduate career through the network established by ESEM. The novel project outcomes will be published on the society’s website (www.esem.org) to further disseminate to the medical device industry and wider community.

This is the 3rd Summer School organised by the Trinity Centre for BioEngineering at Trinity College Dublin with the European Society for Engineering and Medicine (ESEM). Professors

Verkerke and Reilly both highlighted that fact that students from previous Summer Schools are now successful postgraduate students in biomedical engineering programs at different universities across Europe, such as the new Erasmus Mundus MSc in Biomedical Engineering. This underscores the benefit of the Summer School in providing extra knowledge but more importantly increased awareness of educational and career opportunities to those interested in biomedical engineering and medical device design.

Erasmus Mundus MSc in Biomedical Engineering postgraduate programme is also organised by the same consortium of European universities as the Summer School and is focused on preparing students for an international career in Biomedical Engineering.

The 2012 ESEM Summer School is already being planned and scheduled. There is considerable opportunity for the medical device sector to get involved in the Summer School and participate in the lectures and project assignments. Interested industries can contact Prof. Reilly (tcbe@tcd.ie).

For media queries contact, TCD Press Officer, Caoimhe Ní Lochlainn, tel: 8962310\ 087-9958014

Professor Richard Reilly and visiting experts at the ESEM Summer School are available for interview on request.