

“Next Generation Medical Devices Designed in Dublin”

27 engineering and medical undergraduate students from across Europe are designing next generation medical devices at the Trinity Centre for BioEngineering as part of the International Medical & Engineering Summer School. This is the first cooperation in Europe between seven of the leading universities in biomedical engineering and medicine and has been organised by the important European Society of Engineering and Medicine (ESEM).

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, treatment and design of medical devices. Therefore, the focus of this unique summer school is to establish a platform of cooperation between medicine and engineering across Europe starting at an undergraduate level.

With different working cultures and educational backgrounds, the aim of the Summer School at Trinity College has been to enable students how to work together efficiently by getting small groups designing new, novel medical devices targeting specific medical and clinical problems. These include the design of a total replacement for a degenerated ankle, solutions for revascularisation of the lower limbs, technologies to empower the elderly and the design of artificial ventilation and gas exchange systems.

To have the educational basis to undertake this challenge, the students are taking courses delivered by the European leading Professors of Biomedical Engineering and Medicine who also came to Trinity College. The medical students are being instructed in bioengineering methods (materials science, biomechanics, mathematics), necessary to successfully work in biomedical engineering while engineering students are being instructed in anatomy and physiology. All students are taught design methodologies for furthering their ability to understand, analyse and successfully conceptualize innovative medical device and active implant concepts using a multidisciplinary team approach.

“We want future biomedical engineers and clinicians to understand both disciplines” mentioned Professor Bart Verkerke of the Department of Biomedical Engineering at the University Medical Center Groningen and President of the European Society of Engineering and Medicine.

Professor Richard Reilly of the Trinity Centre of BioEngineering also explained that *“the impact of this summer school has been to ignite enthusiasm and passion among undergraduate engineering and medical students for the challenges and opportunities in bioengineering”*. He went on

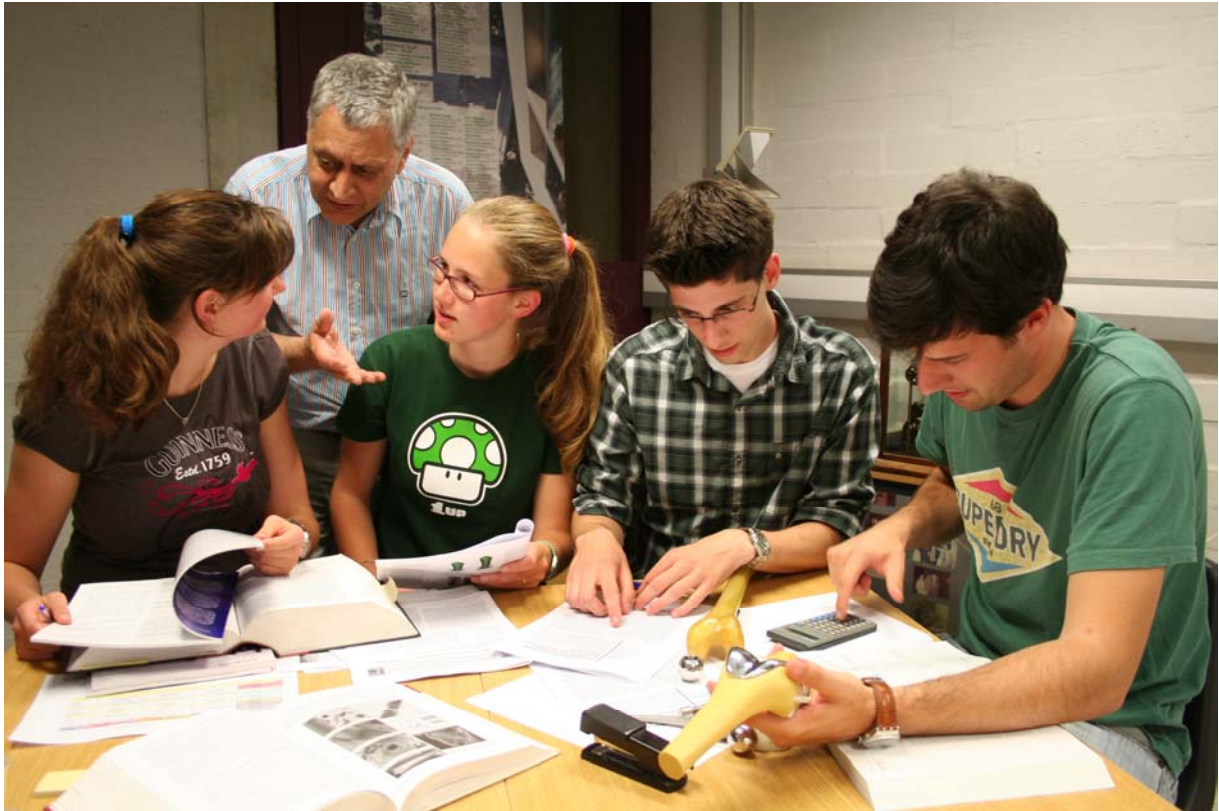
to explain that given that there are currently over 11,000 medical technology companies in Europe, exporting €65B worth of products annually and employing 500,000 people, *"it is critical we can demonstrate to these students that engineering innovation and creative design can meet the challenges in healthcare, continue the growth of the medical device sector and facilitate the delivery of the best medical care possible"*.

On Friday 17th July the students will present their final designs and will receive their certificate by the Vice Provost of Trinity College Professor Patrick Prendergast, himself a bioengineer.

The outcome of the collaboration will lead to continued interaction of the students throughout their undergraduate career through the network established by ESEM and 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 in Europe.



Bernard Depypere a Medical Student from the Gent University volunteers for EEG testing during the International Summer School in Engineering and Medicine at the Trinity Centre for BioEngineering.



Engineering and Medical students from across Europe participating in the International Summer School in Engineering and Medicine at the Trinity Centre for BioEngineering.