EE7B12 CURRENT TOPICS IN NEURAL ENGINEERING – [10 Credits]

Coordinator: Prof. Richard Reilly (reillyri@tcd.ie)

Semester: 1 AND 2

Module Organisation
The module runs for the entire academic year and comprises of 1-hour discussion tutorial per week.

Module Description
This weekly module will introduce students to cutting-edge research in neural engineering and many of the skills required to engage in such research. Each class will consist of a 1 hour discussion of a relevant cutting-edge neural engineering related research paper. This will take the form of an open discussion and critical assessment of the paper chaired by the module co-coordinator. All students will be required to spend a minimum of approximately 3 hours reviewing the paper in advance of the meeting, as well as preparing a short report on each week’s paper in advance of the class. All students will be asked to express their opinion or interpretation on various aspects of the paper being reviewed during the session.

Learning Outcomes
On successful completion of this module, students should have developed:
1. The ability to extract, through literature search, information pertinent to an unfamiliar problem.
2. Develop a broad knowledge and understanding of emerging neural engineering approaches.
3. Develop a broad knowledge and understanding of emerging signal processing and experimentation methods relevant to the field of neural engineering.
4. Develop a broad knowledge and understanding of developing methods that will impact on the field of neural engineering.
5. The ability to critically assess the scientific literature.
6. The ability to recognise the interactions between different technologies (including those outside the discipline of Biomedical Engineering) that will impact on the fields of cell and tissue engineering.
7. The ability to write technical reports that synthesise the work of others.
8. The ability to lead an oral discussion of emerging technologies related to their field of study.
Assessment Modes
There will be no formal examination for this module. Students will be required to submit a short report (maximum 2 pages) in advance of each class (30 in total), which will be graded by the course coordinator. These reports will be worth 70% of the total grade (attendance at the weekly class is mandatory and required to receive a mark each week). In addition, each student will be required to submit a literature review on a topic defined by the module coordinator and the student’s project supervisor. This review has to be submitted at the start of Trinity Term. This review will be worth 30% of the total grade.