ME4E2 BIOMEDICAL ENGINEERING PROJECT – [15 Credits]

Coordinator(s): Prof. Conor Buckley (conor.buckley@tcd.ie)
               Prof. Caítriona Lally (lallyca@tcd.ie)
               Prof. David Hoey (dahoey@tcd.ie)

Semester: 2

Mandatory module for students not continuing to Year 5
Not available for 1 year visiting students

Aims/Objectives
As part of the fulfilment of the final year of the BAI, students in the Biomedical Engineering stream are required to carry out an individual engineering project. To this end, each student is assigned a project topic and a supervisor who will guide the course of the project throughout the second term of the academic year.

Syllabus
Projects are allocated in areas of research expertise and interest of members of the academic staff with bioengineering expertise in the School of Engineering and the Trinity Centre for Bioengineering. The project content is decided by the supervisor for each individual project. Descriptions of projects will be circulated during semester 1. Students will be asked to rank their project preferences and allocations will be made based on merit from 3rd year grades. The nature and content of the project is then discussed by the supervisor and student during the first semester, with the bulk of the project work undertaken during the second semester.

Learning Outcomes
On successful completion of project work, the students will be able to:
1. derive, apply and adapt solutions from the discipline specific knowledge gained in lectures and coursework, to address a real world biomedical problem;
2. undertake a project involving independent enquiry and investigation of a practical biomedical engineering problem, clinical application or topic;
3. identify, formulate, analyse, and solve a biomedical engineering or clinical problem
4. formulate a project outline, including the project goals and schedule to achieve the aims of the project
5. design a system, component or process to meet a specified biomedical goal;
6. analyse and interpret results from experiments conducted during the module in order to modify, improve or explain the functionality of the system, component or process being created;
7. communicate effectively in technical and scientific writing, and present scientific/technical ideas concisely to a technical audience that may not be expert in the specific domain of the project;
8. manage workflow and task scheduling within the constraints of the resources available to meet specific design goals and deadlines;
9. work in a team, particularly with technical staff members and peers to achieve the project goals;
10. use industry standard hardware and/or software tools and codes of practice for all aspects of design including analysis and presentation;
11. examine and discuss the impact of the project on society, giving consideration to ethical norms and standards.

Teaching Strategies
Students are expected to fully engage and dedicate the time necessary to make reasonable progress. Scheduled clinics will be arranged during Semester 2 whereby students will engage with supervisors, teaching assistants and technical support staff.

Assessment Mode(s)
The final year project is assessed by means of three submissions which will be marked by both the project supervisor and an assigned second reader. The combined submissions are marked out of a total of 150 marks. The submissions are as follows:

Project Summary: 10 marks
A two-page summary outlining the nature of the project (1 page) as well as a plan of work for its completion (1 page). This must be submitted at the end of week 1 of the second semester.

Updated: 03/08/2018
Presentation: 40 marks
At the end of week 6 of the second semester, students will be required to give an 8-minute oral presentation on their project, followed by questions from their supervisor and other staff members from the School of Engineering. This is then marked in confidence by the supervisor and second assessor(s).

Typed Report: 100 marks
A full typed report on the project is submitted, which should not exceed 40 pages. This report should be properly structured and typed in accordance with instructions given. The report should contain an introduction outlining in detail the aims and objectives of the project, as well as some background information on the project. The bulk of the report should discuss in detail the main technical work carried out by the student with appropriate results, explanations and deductions. A final conclusion should comment on the overall outcome of the project. This is then marked by the supervisor and second reader according to established guidelines (see handbook).

Submission Deadline: Friday 12th April 2019 @ 12pm
Submit two soft bound copies to the BME Administrator office. An electronic copy of the thesis must also be uploaded to ME4E2 blackboard and checked for plagiarism.

Plagiarism
The college’s policy on plagiarism is outlined in section H of the College Calendar. There is no substitute to reading the regulations but here are a few of the key points:

Plagiarism arises from;
- copying another student’s work;
- enlisting another person or persons to complete an assignment on the student’s behalf;
- quoting directly, without acknowledgement, from books, articles or other sources, either in printed, recorded or electronic format;
- paraphrasing, without acknowledgement, the writings of other authors.
It is the responsibility of the student to ensure that he/she does not commit plagiarism

Plagiarism is serious whether the plagiarism is deliberate or has arisen through carelessness. Remember, the project dissertation must be your own piece of work and written in your own words. Where material is being repeated verbatim from published, web or other sources, you should use inverted commas, italics and/or present the material in a separate paragraph, to make it clear to the reader that you are quoting directly (and you must reference the source).