ELEC6200/ELEC6247

Group Design Project 2018/2019
Overview

• This module provides an introduction to intensive group project work in collaboration with an industrial or academic customer.

• Students work in groups of four or five on a challenging project which is typically based on

1) an idea from an industrial partner,
2) a research project looking to transfer technology to industry
3) build a demonstrator/proof of concept.
What this means....

The project specification is defined by an external customer

At the start of the project you will have received a very basic overview of the project requirements (1 para.)

The group will
• usually meet and discuss the project with the customer
• return a project brief (specification) to be agreed with the customer
• deliver the specified objective(s) and product
• create report, presentations, poster for dissemination
Aims and Objectives:
Knowledge and Understanding

Having successfully completed this module, you will be able to demonstrate knowledge and understanding of:

• A range of subject areas that are relevant to your project, including some from outside engineering, and their application to your project

• Design processes, methodologies, specialist tools and techniques used to design, analyse, implement and verify systems in your area of engineering
What this means....

The project will
1) Require self-study of areas that you have no previous training or knowledge
2) Provide an opportunity to work in a team composed of individuals with different skills and expertise
3) require that a robust, well engineered product is delivered (highly product focused, highly multidisciplinary)
Aims and Objectives:
Subject Specific Intellectual

Having successfully completed this module, you will be able to:

• Acquire specialist knowledge through critical study of the relevant research literature

• Solve unfamiliar problems and address challenges encountered during the course of your project

• Relate your project to current activities in research and development, and identify any potential novel contributions that might arise from your project

• Analyse and report on the financial, economic, social and environmental issues arising from your project
What this means....

The project will
1) be challenging
2) contain many technical elements that you have no prior expertise in
3) at the forefront of a research and development area with very strong ‘drivers’ for commercial, clinical, environmental or other end-user application
4) You will need to develop a ‘high level’ understanding of financial, economic, social and environmental issues
Aims and Objectives: Transferable and Generic

Having successfully completed this module, you will be able to:

• Work as part of a team to manage your project, by planning and allocating tasks, and by coordinating your activities with those of your team mates

• Make effective use of available resources (human, economic and time)

• Present and explain joint technical work, both in written form and in formal group and individual presentations
What this means....

You will
1) draw on all your skills and tools learnt in management modules for project management
2) develop teamwork and leadership skills
3) develop efficient communication skills
4) balance your study/life commitments to contribute within the team
5) develop your time management skills

https://dptinkyfinga.wordpress.com/exam-cartoon/
Aims and Objectives: Subject Specific Practical

Having successfully completed this module, you will be able to:

• *Liaise with customers* in order to determine the scope and requirements of your project, and the criteria for judging its success

• Apply design processes and methodologies and adapt them in unfamiliar situations

• Generate innovative designs for products, systems, components or processes to fulfill new needs

• Apply engineering techniques, taking account of a range of commercial and industrial constraints

• Apply mathematical and computer-based models for solving problems in engineering

• Assess the limitations of particular cases when solving engineering problems, and reflect on and critically evaluate the effectiveness of your chosen approach
What this means....

You will be better equipped for a career in a ‘challenge driven’ post in the engineering sector.
Group Design Project Examples 16/17

Electronics/Electrical/Electromechanical/Computer Science - GDP19
Project Information from Customer GDP19
Project Specification Agreed with Customer GDP19
Poster GDP19

Electromechanical/Electrical – GDP6
Project Information from Customer GDP6
Project Specification Agreed with Customer GDP6
Poster GDP6

Computer Science/Software Engineering - GDP2
Project Information from Customer GDP2
Project Specification Agreed with Customer GDP2
Poster GDP2
<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Location</th>
<th>Activity/Deadline</th>
</tr>
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<td>11th June 2018</td>
<td>2:00 PM</td>
<td>02/1089</td>
<td>Introduction to GDP</td>
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<td>2nd July 2018</td>
<td>23.59 PM</td>
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<td>Submission deadline of GDP Preferences/Options</td>
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<td>ENROL for study 18/19</td>
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<td>14th September 2018</td>
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<td>25th - 27th September 2018</td>
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<td>ELEC6200 notes pages</td>
<td>CHECK ALLOCATION, CONTACT TEAM MEMBERS, REQUEST REALLOCATION PERHAPS (?)</td>
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<td>8\textsuperscript{th} October 2018</td>
<td>12:00</td>
<td>C-BASS</td>
<td>Project Brief Submitted</td>
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<td>12.00-19.00</td>
<td>TBA</td>
<td>GDP presentation day</td>
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Assessments (85%)

Report (and appendices)
Individual Reflection Report
Presentation (15mins, + 5mins questions)
Poster
Project allocation – the challenges

Projects are designed for:
- four to five students
- Students with specific expertise (including module prerequisites)
- Multidisciplinary teams (often composed of CS, EE, EEE, EM students)
- Application areas broader than prior study topics

My allocation priorities
1\textsuperscript{st} Skills
2\textsuperscript{nd} Interest/Preference
3\textsuperscript{rd} Chosen colleague
Project allocation – Best efforts

Every effort will be made to allocate a project with at least one of your chosen team members – but there are no guarantees as the projects typically require group members with a mix of expertise defined by the customer/supervisor.

NOTE – Projects will be allocated right up until the 1st week of the semester – where your expertise will be matched as well as possible to the project.

Supervisors have no part in project allocation – so no canvasing!
Project re-allocation

Reallocation is possible.....if....

- A project will no longer run
- A well considered, well written request explaining the reasons for wishing to be reallocated to a different project is received by tm@ecs

This must be submitted before 28\textsuperscript{th} September 2018 (no requests for moving to a specific alternative group or swaps will be entertained).
Technology and Success

Individual assessment in the GDP

This course runs in semester 2 and adds to the individual aspects of the GDP

This part of the module asks some wider questions about how technology makes money. At the end of the day, we have to ask ourselves-

“All this cool technology is great, but what’s the point?”

Or, asking a slightly different question

“What’s the real world like and how can we use our new skills to exploit it?”

There is no straightforward answer.....

For example, the Apple watch generated a market from nothing of nearly $2 Billion, but it could be argued that it’s a failure. Discuss.
But we need to try and at least understand the question, even if the answer is not clear.

“The Answer to the Great Question... Of Life, the Universe and Everything... Is... Forty-two,' said Deep Thought, with infinite majesty and calm.”

So this part of the course is based around external speakers who will talk to you about aspects of engineering and technology that are equally important to success as the technology itself.

We want to make you think about the bigger picture
Speakers are not yet finalised – they are all busy and important people

They will all have 1 thing in common. Whatever their technical background, what they have to say will have relevance to all of you, whether you are computer science based or more electrical or electronic.

Previous speakers have included one of the founders of ARM, the European head of Amazon Prime, successful multiple start-up founders (and exiters), Intellectual property experts, venture capitalists....

We will get a similar bunch this year.
Assessment

This part of the course is worth 15%
There will be an individual coursework submission probably after easter.
This will be a written submission allowing you to express your thoughts and
opinions about how what is needed for success in technical fields.
More details will be given in my briefing session in semester 2.

Student feedback to me has been good, with typical comments

“This is the first time I’ve been allowed to write about a subject of my choice.”
“Some of these have been the best lectures of my entire time here”

Trending topics this year were Virtual Assistants, Electric Cars, Wearable tech,
Drones, Emerging mobile phone market, virtual banks, smart speakers.

More info later in the year!