

+ Final year project:  
An Introduction

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## + Why a final year project?

- The project allows you to use what you have learnt to solve a real problem
- The project is something unique to you that you can discuss with potential employers
- The project may be similar to the work you will be doing in employment, but with plenty of support from a supervisor
- This is one quarter of your final year work over both semesters – a significant task!

+ The project is...

- A large and important part of your degree classification because we believe this is the best showcase during your degree of what you can achieve
  - BEng EE students
    - 20% of your classification
    - You must pass in order to obtain a BEng/MEng degree

## + The project is...

- A large and important part of your degree classification
  - BEng EE students
    - 20% of your classification
    - You must pass in order to obtain a BEng/MEng degree
  - BSc CS students
    - 15% of your classification
    - You must pass a “problem-solving project” at the first attempt to qualify for partial exemption from the BCS membership examinations
    - But failing to do this does NOT affect your degree title or class (in itself)

## + The project is...

- A challenge (Scary?)
  - Your first piece of work of this scope, complexity and timescale
  - Your first largely independent piece of work, under supervision
- An exciting opportunity
  - You choose the topic and the supervisor so it should be interesting and motivating
  - An excellent talking-point with potential employers
- It should be
  - Something you will enjoy

## + Timeline



Image from forbes.com

## + Stages

| Timing                                | Stage  | Assessed       |
|---------------------------------------|--|----------------|
| Now to 2 weeks into next semester     | Find a supervisor and discuss titles               | No             |
| About 4 weeks into the first semester | Finalise a project specification                   | No             |
| Late in first semester                | Interim report and risk assessment                 | Yes - 5%       |
| Late in second semester               | Give draft final report to supervisor for feedback | No             |
| Before the beginning of exams         | Final Report                                       | Yes - 85%      |
| Before the beginning of exams         | Slides for a presentation on the project           | Yes - as below |
| During the exam period                | Presentation and demonstration of the project      | Yes - 10%      |

## Project types



Image from danceswithfat.wordpress.com

## + Project types

### ■ Implementation

- Hardware development
- Software development, including use of appropriate software engineering techniques

### ■ Research

- Must be technical-based, working with a researcher or an industrial supervisor
- Must be original work, NOT just a review, e.g. a business analysis project is NOT suitable

## + Project types

### ■ Industrial

- Needs an academic supervisor as well as an industry supervisor
- IPR needs to be agreed through College
- See your academic supervisor for further advice

### ■ Experimental

- E.g. user study, experimental evaluation
- Usually includes a small-scale implementation, e.g. a prototype

## + Project types

### ■ Other

- Theoretical, e.g. using proofs
- Simulation
- Anything else that is agreed with an academic supervisor

## Selecting a project



Image from kidslinkcares.com

## + Selecting a project

- A list of supervisors who are available is on the web
- Note that not all academic staff are available to supervise projects
- To find a supervisor...
  - Approach potential supervisors about potential topics
  - E-mail them for an appointment or visit them during office hours
  - Also possible to propose your own topic if you can find an appropriate supervisor
  - **NOTE – each supervisor has a given quota of students and will not accept any more**

## + The web link for project supervisors

- <https://intranet.eecs.qmul.ac.uk/courses/studentprojects/projects/type/ug/year/next> (available from w/c 4 June, but will continue to be updated over the coming weeks)
- Some supervisors will include a note about the areas in which they are offering projects
- Note that the list of project supervisors, especially the project quota for individual supervisors, is subject to change – this list is PROVISIONAL
- It is strongly recommended that you try to find an appropriate supervisor for your proposed project topic at an early stage

## + Selecting a project

- Once you have found a supervisor...
  - You have made a (provisional) commitment!
  - Your supervisor will “claim” you online at the beginning of next semester, unless you are informed otherwise
  - You will then see that you have been “claimed” on your home page
  - You will also need to record your project title through a labelled link on your home page
- Any students without a supervisor by the given deadline will be allocated to a supervisor and must then negotiate a suitable topic

## + Typical types of EE projects

- **Hardware** – design, build and construct hardware to perform some task – possibly using a microcontroller
- **Telecom** – investigate telecom protocols and/or traffic using special simulators
- **Antennas** – use special software to design an antenna, simulate the design and build a sample antenna, measuring its performance
- **Sensors**
- **Medical and other imaging**
- **Mobile Networks**

## + Some example project titles

- Automotive Tracking using Real-Time GPS and Cellular Communication
- Smart Table Tennis Bat
- Delay Distribution Analysis in Wireless Mobile Networks
- Bluetooth-based Remote Monitoring Station
- Body sensor network for health care monitoring applications
- Quality Of Service On Computer Networks
- Computer vision for robots

## + Typical types of CS projects

- Development of apps
- Games development
- Music- related software development
- Social media analysis
- Image analysis
- Database/website software
- Machine learning based software

## + Some example project titles

- Easy Budgeting with IOS App
- Sensory Analysis of Guitar Timbres
- Sentiment Analysis Tool using Twitter for Product Analysis
- Developing an Interactive Learning Resource to Teach Computing
- Developing Ripple – A Crime Solving Role Playing Game
- A comparison of Machine Learning methods applied to bond price forecasting
- Interactive exploration of 3-D X-ray models

## + Project strategy



## + Project management

- Take time to research, read, think and discuss with others before diving in
- Put some effort into **realistic planning**
- Plan for slippage and have a contingency plan
- Revisit and review your plans and progress regularly
- You need to be largely self-motivated
- Do not lie to yourself - or anyone else - about your progress! It does not help you!!

## + Time management: issues

- Your project is equal to the credit for two modules and should be at least a quarter of your time each semester i.e. at least 150 hours per semester
- Make sure you are aware of the many deadlines and demands you will have during the course of the year
- Make sure you allow for these issues in your time plans, including contingency time

## + Time management: more issues

- **Balance** between the project and other modules
- Maintaining discipline over a long timescale
- Management of **multiple tasks** and sub-tasks, some with dependencies
- Scheduling time for **writing the report**

## + Resource management

### ■ Keep a log book

- Document ideas, decisions, progress, meetings with your supervisor, references, ...
- Will help you keep track of progress, avoid plagiarism, write up your report, ...

## + Resource management

### ■ Research resources

- The internet – use it selectively and carefully
- Google Scholar, IEEE Explore
- **The Library** – books, articles in conference proceedings and journals, bibliographic databases, ...
- Your subject librarian, James Soderman – based in the Library

## + Next steps

- Start discussions with potential project supervisors
- Let me know of any problem issues or general advice needed
- Note: these lecture slides and the associated recording will be made available on a QMPlus page – I will email details of this shortly

## + Resource management

### ■ Your supervisor

- Help with academic content
- Help with project management
- The key to successful supervision is good communication and clear expectations (from both sides) – this is a shared responsibility!
- **Regular meetings**
- Prepare well and make good use of them
- Write them up in your log book
- Remember that your supervisor is also one of your examiners – so your conduct is important

## + Resource management

### ■ Project lectures

- Come to them!
- 4-5 times a semester
- Some will provide direct support for the assessment /requirements
  - Specification, Interim report + risk assessment, final report, project viva
- Some will provide more general support
- Tell me of any specific topics on which you would value advice!

### ■ Project 'workshops'

- Will run 'on demand' to cover specific technical skills
- Supervisors will suggest skills that need to be covered
- Will be delivered by PhD students

## + Questions?

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