6Z1101 - Final Year Projects
An Overview for Students

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What It Is

- A *Terms of Reference*, *report* and a *product* addressing a problem/need relevant to your course, and a *showcase presentation* on the project.
- **ToR**: the project proposal. A short document describing what, why and how you are going to do something.
- **Product**: usually, a piece of software (on desktop, web, mobile). Also, a set of experiments/analyses, a methodology/database, a multimedia artefact.
- **Report**:
  - explanation of problem/need (*relevance*, *degree of challenge*)
  - aim and objectives (*desiderata*)
  - review of related work (*acknowledgement*, *critical evaluation*)
  - description of solution (*analysis*, *design*, *implementation*)
  - evaluation (against aim, objectives, desiderata)

Scale, Time Frames

- **Amount of effort**: 300 hours over 30 weeks - about 10 hours a week, 2 a day (minimum).
  - This includes vacations!
- **Report size**: between 8,000 and 14,000 words
  - So about 40 to 70 pages of text.
- **Final report**: by the end of week 25
  - Showcase same week.
- **Is it too little or too much?**: *talk to your supervisor* - has the experience and is in a better position to judge that given the nature of the project, the (technical) challenges and the time constraints.

Where to Start

- Most students have picked options, everyone has been assigned topics
- All received emails giving name of supervisor
  - List also available on Moodle (real soon now).
- **See your supervisor as soon as possible**: discuss project topic and how to get going.
  - Approach meeting with topic **you want to do** in mind.
- Project lectures historically Thursday; documentation will be on the 6G6Z1101 Moodle area.
- Enrol in the **Project Writing Course** (`http://www.writingproject.mmu.ac.uk`).
- Electronic submission of product is via **OneDrive**; become familiar with it.

First Meeting with Supervisor

- Speak to your supervisor for initial discussions on project topic and plan.
- Agree a new topic if you don't like the current one.
- Supervisors are in the position to ensure non-triviality, sufficient academic content and appropriate degree of challenge.
- Be open about your skills and interests!
  - You must be keen on the topic...
- Do some initial work over the summer:
  - Read textbooks and papers on area.
  - Learn appropriate (computer) language?
  - Investigate libraries / packages / APIs?
  - Work on the Terms of Reference.

What the ToR needs:

- Title
- Course-Specific Learning Outcomes
- Project Background
- Aim
- Objectives
- Problems
- Required Resources
- Schedule

Total length should be not more than 2,000 words or 4 pages (pages are generally fairly sparse, so reduce the word count).

The course-specific learning outcome issue:

All projects must be clearly linked to your overall degree:

- British Computer Society (our professional body, validates the degrees) requirement,
- Partly managed by requiring you to choose from a degree-sorted list of topics,
- Also by allocating students to relevant staff.

But also

- you must show awareness of and response to this requirement,
- so include *relevant* part of the degree specification in the ToR (and then the introduction to Report).

Course-specific learning example:

BSc (Hons) Computer Science (CS) students will be able to:

- use knowledge, abilities and skills for further study and for a range of employment in areas related to scientific and technical computing;
- interpret legislation appropriate to computer professionals and also be aware of relevant ethical issues and the role of professional bodies;
- analyse, design, and implement algorithms using a range of appropriate languages and/or methodologies;
- design, implement and interrogate database systems;
- apply the principles and operation of languages, compilers and interpreters;
- demonstrate effective communication, decision making and creative problem solving skills, and identify appropriate practices within a professional, legal and ethical framework;
- critically appraise and apply suitable artificial intelligence techniques for a variety of software systems.

Course specific learning example

Project Title: Comparison between *Genetic and Traditional Algorithms used to address the Travelling Salesman Problem*

Student: [redacted] **Supervisor**: *Emma Norling*

Course-Specific Learning Outcomes: On successful completion of this unit, the student will be able to:

1. Independently plan, manage and successfully complete a project of substantial size in an area that is relevant to their Degree programme.
2. Demonstrate that they have the capacity to gain new skills and knowledge independently of teaching.
3. Critically reflect and evaluate existing work and their own work.
4. Integrate the learning obtained from the units taken on their Degree programme (MMU, 2014).
5. Develop an understanding of the nature of databases and be able to develop, maintain and interrogate databases.
6. Develop knowledge of computer hardware and an understanding of how the selection of hardware will affect the performance of an application.
7. Investigate the interaction between hardware and software and the influence of this interaction on the design of computer systems.
8. Study the fundamentals of computer network communications and communication protocols.
9. Study the management and security of networked systems (MMU, 2015).

Additional components:

- Title
  - Agree with your supervisor.
- Project Background
  - Paragraph or two on general area and challenge.
- Aim
  - Formal statement problem to be solved,
  - Generally one, might have more.
- Objectives
  - Stages you will go through to solve problem.
  - Approach you will take to address them.
- Problems
  - Are there any critical points where the project might fail?
  - Consider them now, with supervisor...

Additional components (2):

- Required Resources
  - The hardware and software needs of task
  - Have a list of hardware on Moodle
  - We may be able to buy a few things...
- Schedule
  - Table of weekly tasks, including interim documents.
  - A Gant-chart is probably over-kill.
- Your Ethics Form and Risk Assessment
  - All projects *must* have these!
  - University and BCS requirement.
  - Demonstrates that you have considered these issues of safety.

Your Supervision

Supervisors are there:

- to *guide*, *not* to *lead* projects. With time, it will be become **your** project.
- to *provide regular* informal, formative *feedback* on the student's work. Amount of support (within reason) varies according to supervision style, project nature, and student academic background and initiative .
- to advise students on *breaking down tasks and managing time*; not expected to solve technical problems, but to guide students on finding the solutions.

Managing your Project

- Make regular progress (see the *minimum 2-hours-a-day* above).
- Success depends on discipline and good time management.
- Plan around your assignment and examination schedule!
- For text editing and processing, LaTeX and something like TeXstudio.
- It is not all about the product - *write regularly* (e.g., notes, product documentation, literature survey).
- Do not spend time on anything that is not strongly related to your *project aim and objectives* - you won't get extra marks.

Managing Your Supervision

- Contact your supervisor regularly (see *make regular progress* above). How often? **Weekly** at start, then **by arrangement**.
- Supervisors are busy people; make appointments and turn up to your meetings! Also, make sure you come prepared, and provide material for discussion ahead of meetings.
- Make notes; have a *logbook* for project meetings.

Bear In Mind

- Supervisors are expected to provide constructive criticism; don't take it personally.
- Mental block? Go for a walk, have a bath, etc.. If you feel you are close to cracking a problem, persevere with it.
- Vary the nature of the tasks in a work day; research, reasoning, wider picture, problem-solving, implementation, . . .
- Uncertainty is a natural part of research; you will need to be comfortable with it. You are not the only one.

The Interim Deliverables

- **Product Design**: a brief report on the process involved in designing your product. UML? Story boards?
- **Literature Review**: a brief report on relevant techniques for your solution and a critical evaluation of relevant, reputable, existing work in the literature that address a similar problem.
- **Evaluation Design**: a brief report on your plans to assess your product. Black or White Box? Usability? Golden Data?
- **Report Structure**: outline of final report containing chapters, sections and subsections - explain what goes in each with one or two paragraphs.
- **Showcase Practice**: materials to talk about the project in front of your supervisor.

Marking

Important note: the assessment and schedule have changed significantly from previous years.
Do not go on what students in previous years may tell you.

- Three components:
  - Terms of Reference (5 %) due in Week 4
  - Product (30%) due in Week 18
  - Report and Showcase (65%) due in Week 25.
    - Week 25 is **before Easter.**
- For marking criteria, see assignment brief - marking sheets will be on Moodle.
- By two examiners: supervisor and **advisor**.

Issues?

- If there are issues affecting your project, try first to speak to your supervisor. They are your personal tutors.
- Problems with your supervisor (e.g., communication break-down)? Please let me know and I will try to help. Do not leave issues unaddressed.
- Mitigating circumstances: contact SIP; you may wish to discuss your personal factors with the student support officer.
- Writing and presentation skills, time management, among others: academic support officers.

Conclusion

- You all have appointments with your supervisors - go and see them.
- The Project is your opportunity to do a large piece of work on something you are interested in.
- Don't treat it as "I was allocated this task":
  - If you aren't interested, **say**!
  - If necessary change it to something else!
  - Your supervisor will want you to do something engaging!
- Have fun, please, have fun...