CM3070 Computer Science Final Project

Course Description

This module is aimed at students who are near to completing their BSc or Graduate Diploma in Computer Science. It is the culmination of your degree, in which you apply all of your learning to this project.

In this module you will undertake a substantial independent project that will allow you to demonstrate a wide range of skills: project planning, management, research, software implementation, and written presentation. You will integrate the knowledge gained throughout the programme and use skills acquired in other modules in the implementation of your final project in Computer Science. The work will consist of a combination of research and software development in various proportions. You will be able to make use of methodologies from various components of Computer Science.

Course Goals and Objectives

Upon successful completion of this course, you will be able to:

1. Select and apply appropriate Computer Science techniques to a particular problem.
2. Develop a project proposal that can be addressed using Computer Science techniques.
3. Evaluate previous work in areas related to your chosen project and write a literature review.
4. Design and develop a substantial piece of software that matches a project brief.
5. Test and evaluate a software project in terms of how it matches a project brief including such factors as user needs, software correctness and efficiency.
6. Report the results of the project in written and visual form.

Textbook and Readings

Given the nature of the module, there is no single recommended reading. You should select specific readings that are relevant to the topic of your project.

Course Outline

The course consists of ten topics divided into 20 weeks that focus on key concepts.

Topic 1: Project Concept	**Key concepts:** In this first week of your study on this module you will start thinking about your project idea and choosing your project template. **Learning outcomes:** • Develop a project proposal • Critique related work • Select an appropriate topic for a project
Topic 2: Project Proposal	**Key concepts:** This week you will start working on your project proposal and complete the very important Ethics quiz. Please do not miss it! **Learning outcomes:** • Identify ethical issues with a project • Select an appropriate scope for a project • Prepare a project proposal
Topic 3: Background Research	**Key concepts:** In this week you will be doing some background research and evaluating previous work and literature found in the Online Library. **Learning outcomes:** • Write a literature review • Evaluate previous work and literature • Search and discover appropriate literature and previous work
Topic 4: Design	**Key concepts:** In this week you will start designing your project. **Learning outcomes:**

	• Design a project • Critique project designs • Prototype key functionality
Topic 5: Planning and Evaluation	**Key concepts:** In this week you will be start the project planning, learn about prototyping and evaluation. **Learning outcomes:** • Plan the development of a substantial project • Plan the evaluation of a project relative to a project brief • Report the results of project design, prototyping and planning
Topic 6: Development	**Key concepts:** In this week you will be setting up development environment and will be given some advice on development. **Learning outcomes:** • Select appropriate computer science techniques for your project • Set up an appropriate development environment • Develop a first iteration of a substantial project
Topic 7: Testing and Iteration	**Key concepts:** In this week you will be learning about testing and defining your test criteria. **Learning outcomes:** • Respond to peer feedback • Gather feedback from peers • Choose appropriate evaluation criteria for your project
Topic 8: Academic Writing	**Key concepts:** In this week you will start the project report outline and get some advice on academic computer science writing. **Learning outcomes:** • Write descriptions and evaluations of computer science development work

	• Critique academic computer science writing • Write a draft project report
Topic 9: Your project and your career	**Key concepts:** Career planning is the focus of this week. You will watch the interview about careers in Computer Science and given advice how access UoL Career Services. **Learning outcomes:** • Evaluate your project in the context of your future careers plans • Present your project as a portfolio piece
Topic 10: Completing your project	**Key concepts:** In this week you will be learning about evaluating your project as a whole and how to present your project by creating a demo video. **Learning outcomes:** • Prepare your project for final presentation • Evaluate your project as a whole • Create a demo video

Learning Activities of This Course

The course is comprised of the following elements:

Lecture videos. In each week the concepts you need to know will be presented through a collection of short video lectures. You may stream these videos for playback within the browser by clicking on their titles or download the videos. You may also download the slides that go along with the videos.

Readings. Each topic may include several suggested readings. These are a core part of your learning and, with the videos, will cover all the concepts you need for this course.

Practice Quizzes. Each week will include one or more practice quizzes, intended for you to assess your understanding of the topics. You will be allowed unlimited attempts at each practice quiz. Each attempt may present a different selection of questions to you. There is no time limit on how long you take to complete each attempt at the quiz. These quizzes do not contribute toward your final score in the module.

Discussion Prompt. Each week includes one or more discussion prompts. You will see the discussion prompt alongside other items in the lesson. Each prompt provides a space for you to respond. After responding, you can see and comment on your peers' responses.

Staff Graded work. In progress milestones to receive timely feedback from a project supervisor.

How to Pass This Course

The module has two major assessments, i.e. coursework and written examination. There will be four submissions of various parts of the coursework throughout the study session:

- Two submissions are formative ones that do not count towards the final grade but are required to receive timely feedback from your project supervisor. In the grading formula they have 0% weighting.
- Two submissions are summative ones that do count towards the final grade and take place in the mid-term and at the end of the course.

The mid-term coursework consists of several activities that you do on the Coursera platform, and which will be assessed halfway through the course (after week 10).

A written examination will take place in weeks 21 and 22.

The table below shows a detailed breakdown of all the submission deadlines and the marks:

Activity	**Required?**	**Deadline week**	**Estimated time per course**	**% of final grade**
Project Proposal	Yes (formative)	Approximately week 4	10 hours	0%
Preliminary Project Report	Yes	Approximately week 10	50 hours	10%
Check in quizzes	Yes	Approximately weeks 1-20	2 hours	5%
Draft report	Yes (formative)	Approximately week 16	3 hours	0%
Written examination	Yes	Approximately week 22	3-4 hours	20%

Project presentation video	Yes	Approximately week 25	4 hours	5%
Final project report and code	Yes	Approximately week 25	150 hours	60%