Engineering Tripos Part IIA Project, GF2: Software, 2025-26

Leader

Prof A Gee [1]

Timing and Structure

Thursdays 11-1pm, Mondays 9-11am plus afternoons (set P2) or Fridays 11-1pm, Tuesdays 9-11am plus afternoons (set P3)

Prerequisites

Part I computing assumed

Aims

The aims of the course are to:

- Introduce students to various issues in the development of large software systems.
- Develop and test a logic simulator in Python.

Content

The aim of this project is to develop a logic simulation program using the programming language Python. The project introduces students to all major phases of software engineering practice, viz. specification, design, implementation, testing and maintenance.

The project is organised in the form of a 'real life simulation'. You are asked to imagine that you have joined a software development company. You have been assigned to a team of programmers who have just begun work on a contract to develop a logic simulation program. You are given the 'client's' original requirements document and asked to produce a detailed specification for part of the system. Following this, you move onto the design stage. You are told that the program has been divided into eight functional modules and your team has been given the responsibility for designing and implementing four of them. When you have completed these, you have to integrate them with the remaining four modules of the system and test it. Finally, the client requests some changes to be made to the program and you are asked to implement these.

FORMAT

Students work in groups of three. Each student in the group will write different parts of a large software system, test them independently and then integrate into a complete simulator.

Week 1

Introductory exercises in Python. Lecture on formal language theory, lexical analysis, grammars and parsing. Form development team. Start designing the logic specification language.

Week 2

Finish designing the logic specification language, document it in an interim report. Familiarization with provided software modules. Software design, implementation and unit testing.

Week 3

Software design, implementation and unit testing (continued).

Week 4

Integration and testing of the complete system. Implement the client's requested modifications and write a final report.

Coursework

Coursework	Due date	Marks
Interim report 1	4pm Saturday 23 May 2026 (set P2) 4pm Sunday 24 May 2026 (set P3)	15 (all group)
Interim report 2	11am Thursday 4 June 2026 (set P2) 11am Friday 5 June 2026 (set P3)	15 (7 group 8 individual)
Final report	4pm Thursday 11 June 2026 (set P2) 4pm Friday 12 June 2026 (set P3)	50 (all individual)

Examination Guidelines

Please refer to Form & conduct of the examinations [2].

Last modified: 01/12/2025 07:15

Links
[1] mailto:ahg13@cam.ac.uk
[2] https://teaching.eng.cam.ac.uk/content/form-conduct-examinations