Software Design

Imagine that you are responsible for the design of a computer system that will be used to automate the definition, evaluation and examining of the academic content for a course in the Cambridge Computer Science Tripos. This system should allow the syllabus, lectures, supervision exercises and examination papers to be defined in consultation with a variety of stakeholders, including students and future employers.

(a) How would you go about determining the detailed requirements for this system? Be sure to mention any obstacles that you would expect to arise. [2 marks]

(b) Construct one or more UML use case diagrams and a single UML class diagram, showing the overall structure of a system that includes the elements described above. [10 marks]

(c) Using another type of UML diagram, illustrate the runtime behaviour of one of the use cases. [3 marks]

(d) Explain why you chose the specific UML diagram used in part (c). [1 mark]

(e) What precautions could you take to ensure that the introduction of the system was as smooth as possible? [2 marks]

(f) What technical precautions could you take to ensure that the system could be modified in response to future changes in regulations or user requirements? [2 marks]