2011 Paper 2 Question 9

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]