

Systems design 1

Name:

1. What are the activities involved in the system design/specification process?

Concept formulation, Problem understanding
High-level requirements proposal
Feasibility study, Requirements Engineering,
Architectural design

2. Explain why the problem understanding activity does not end at an early stage of the process?

1. System stakeholders do not provide all information about the problem and realise this as the design progresses.
2. As the design is developed, areas where the problem is not well-defined become obvious.
3. New stakeholders may emerge during the design process.

3. What is impact assessment important when designing complex systems?

Because the decision to deploy a system is, ultimately, a political decision and the impact assessment provides politicians with a basis for assessing the political risks associated with system deployment.

4. Why is it important that high-level requirements should not be too tightly defined?

If the requirements are too specific, this will exclude some technical solutions. At this stage in the process, requirements should be flexible so that the expertise of the system designers can be deployed to explore all solution options.

5. What are the stages of a feasibility study?

Assessment of existing systems
Technology assessment
Solution proposals
Cost-benefit analysis

6. What questions should be asked during a technology assessment?

What hardware is required? Is it available commercially or will it have to be designed?
Are there existing software solutions that can be used?
Can hardware/software meet the performance demands on the system?

7. What major problem of satellite tracking was not covered in Slide 20?

The problem of ensuring that satellites have enough capacity to handle the volume of communications that would result from the introduction of this system.

8. What is cost-benefit analysis

Cost-benefit analysis involves considering the costs of each solution proposal and the benefits that it offers and objectively comparing these costs and benefits.