UE17CS402:
SOFTWARE ENGINEERING (4-0-0-0-4)

UNIT 1

Introduction to Software Engineering: Understand the Context of Software Engineering, Contrasting System Development, Product Development, Software Products, Project Engineering, Generic Process Framework, Phases in the Development of Software, Product Life Cycle Phases, Roles in Product Development, Product Development Eco-System, Introduction to Software Development Models including Waterfall Model, Incremental Model, Evolutionary Model, Agile Model, CBSE etc. Software Maintenance Lifecycle. **Requirements Engineering and Modelling:** Requirements Engineering Tasks, Requirements Documentation / Specification and Management, Requirements Traceability**.**

1. Define the term software engineering.
2. What are the essential characteristics of software engineering?
3. What are the major phases in a software development project?
4. What is the difference between software development and software maintenance?
5. ~Do you think the linear model of software development is appropriate? In which cases do you think an agile approach is more appropriate? You may wish to reconsider this issue after having read the remainder of this text.
6. ~Discuss the major differences between software engineering and some other engineering discipline, such as bridge design or house building. Would you consider state-of-the-art software engineering as a true engineering discipline?
7. Discuss a generic SDLC
8. Discuss a generic phase in a SDLC
9. Discuss the Product Development Life Cycle
10. Discuss the Software Maintenance life cycle
11. Describe the waterfall model of software development.
12. Describe the V model of software development
13. Describe the incremental model of software development
14. Describe the iterative model of software development
15. Describe the prototype model of software development
16. Discuss the main differences between prototyping and incremental development.
17. How does the prototyping, incremental development, and the waterfall model differ from each other?
18. Discuss the SCRUM model from the perspective of people and their roles
19. Discuss the SCRUM model from the perspective of the Events in the model
20. Discuss the SCRUM model from the perspective of the artifacts in the model
21. Discuss the Scrum model as a whole and discuss how the model functions with people, events and artifacts
22. Discuss CBSE lifecycle
23. Characterize a component in CBSE

24. What is a software product line?
25. Discuss the key values of the agile movement.
26. Discuss the relative merits of throwaway prototyping as a means to elicit the ‘true’ user requirements and prototyping as an evolutionary development method.
27. One of the reasons for using planning-driven approaches in software projects is that the plan provides some structure to measure project progress. Do you think this measure is adequate? Can you think of better ways to measure progress?
28. What are the four major types of activity in requirements engineering?
29. What is requirements elicitation?
30. In which circumstances is ethnography a viable requirements elicitation technique?
31. How does the presence of COTS components affect requirements engineering?
32. Discuss various activities which are part of analyzing requirements elicited
33. Discuss fish-bone analysis of requirements
34. Discuss the Pareto analysis? Why is it relevant in requirement analysis process?
35. Discuss various approaches which can be used for requirement validation
36. Discuss the need for good documentation of requirements
37. Discuss an SRS and its contents and the rationale for the standards
38. Why is requirements traceability important?
39. Discuss the forward and backward requirement traceability using RTM
40. What does MoSCoW stand for?