

## CN7021 – Advanced Software Engineering: Software Process: Questions

Please answer the following questions in this section and upload your answers in the submission link for formative feedback. Save your answers with your name and student ID for revision during the mock exam in week 10.

1. Giving reasons for your answer based on the type of system being developed, suggest the most appropriate generic software process model that might be used as a basis for managing the development of your chosen software project for component 1 coursework.

**ANS:** Spiral Model is an adequately suitable model for the system we are developing software in course work. The motive behind selecting the Spiral model is that it is an agile model in which development can be done phase-wise. The spiral loops, each stand for a stage in the development of software. As a result, the innermost loop can be focused on the viability of the system, followed by the determination of the requirements, the design of the system, and so forth. Change avoidance and change tolerance are combined in the spiral model. It assumes that project hazards are what cause changes and includes explicit risk management efforts to lower the risks.

2. Explain why change is inevitable in complex systems and give examples (apart from prototyping and incremental delivery) of software process activities that help predict changes and make the software being developed more resilient to change.

**ANS:-** Errors occur in complex systems from the beginning of their development. Then, as these systems operate, they generate errors and bugs, and because such errors must be corrected, the need for changes arises.

Traceability of changes, code refactoring, and keeping the history of requirement changes to understand why some changes were made are examples of software process activities that help predict changes and make the software being developed more resilient to change.

3. What is a process in software engineering?

**ANS:-** To produce software as a product we need to follow a series of processes. There are different types of models that use the processes needed to create software:

### Processes of Developing software:

1. Requirements are Gathered first.
2. Then the architecture and components are designed also the user interface is also designed.
3. Coding is done.

4. After coding is completed, the code is tested.
5. As soon as the code has been tested system testing is done.
6. Then the final acceptance testing is done.
7. After the product is launched the maintenance is done.

The whole software development process is then been practiced by developers by applying the models and models are as follows:

- Waterfall Model.
- V Model.
- Prototyping Model.
- Phased Development (Increments and iterations).
- Evolutionary.
- Spiral Model.

Waterfall Model: -

In this model, there are no iteration is possible, whereas most of the time the software development process requires frequent iterations just in case there are any problems in any phase while developing the project.

V Model: -

This Model is like the waterfall model, but it focuses more on testing like acceptance tests with requirements or unit tests written while designing.

Prototyping Model: -

Producing partial copies of the software program under development, or "Software prototyping," is the process of generating software applications. It is a task that may be included in software development and is like prototyping.

Phased Development Model: -

This model consists of two types of development:

1. Incremental development: - In this methodology, small steps are emphasized toward the goal.
2. Iterative development: - This method divides large application development into small parts. In this code is developed, features coded are designed and developed and this whole cycle repeats itself.

Evolutionary Model: -

It is just like the incremental model the requirements keep on changing with each iteration And it can correspond to prototyping.

Spiral Model: -

This model looks like a spiral in which each iteration is represented by four major activities:

- Plan.
- Goal Setting, Alternatives, Constraints.
- Evaluate and Manage Risk.
- Develop and Test.