

NORTH-EX PUBLIC SCHOOL
(Senior secondary, affiliated to CBSE)
School block, Jain Nagar, Sector-38, Rohini, Delhi-81
LESSON PLAN FOR CLASS XII (Informatics Practices)

***Note- Before reading about the topic you must check [this link](#) which will help you in understanding the topics.**

You can download this or if you do not have facility to get printout then you can ask your ward to copy it in a simple notebook and must do exercise in the notebook.

TOPIC: - Software Process

1. Software Process:

A software process is a structured set of activities required to develop a software system. A software process is a flow chart for developing a software product, which comprises different phases such as gathering requirements, analysing those requirements, scheduling development phases, checking developments, implementing changes etc. & this is carried out till the delivery of final software product.

A software process which is also known as Software methodology comprises a set of related activities that leads to production of software. These activities may involve development of the software from scratch or modifying an existing system.

2. Software Process Activities

Software process activities are set of conceptually related activities that are systematically carried out & eventually end up in the production of a software.

There are some fundamental activities that are common to all software processes:

- a. **Software specification.** In this activity the functionality of the software and constraints on its operation must be defined.
- b. **Software design and implementation.** The software that meets the specification is produced.
- c. **Software validation.** The software must be validated to ensure that it has all the functionalities what the customer needs.
- d. **Software evolution.** The software must evolve to meet changing customer needs.

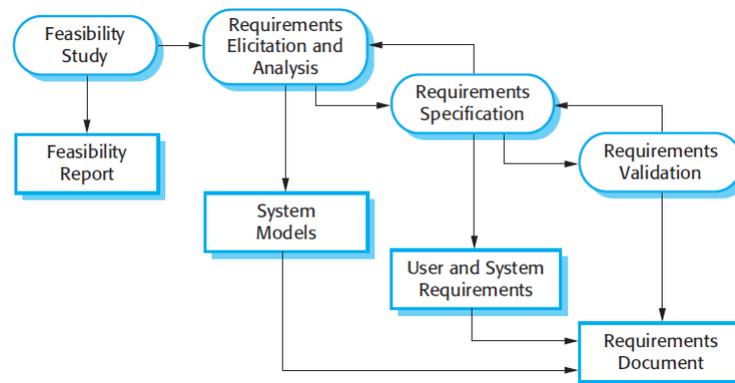
2.1. Software Specification:

Software specification also known as requirement engineering, is the process of understanding & defining what services are required from the system and identifying the constraints in system's operation and development.

Software specification is carried out in four phases

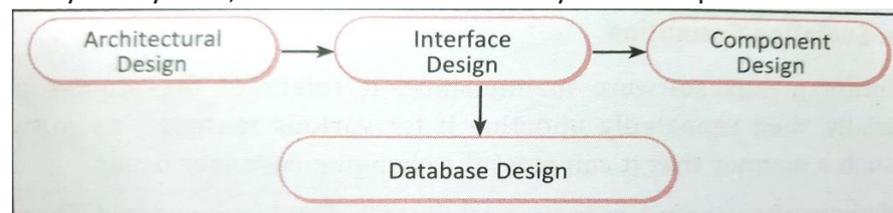
- a. **Feasibility Study:** It aims at providing an estimate which defines whether the identified user needs can be satisfied or not using the current software and hardware. It considers whether the proposed system will be cost effective from business viewpoint or not.
- b. **Requirement elicitation & analysis:** In this system requirements are analysed through observation of existing systems, discussions with potential users and buyers. It helps developer under the system to be specific.

- c. **Requirement Specification:** It's process of gathering information through analysis to define a set of user requirements. User requirements are abstract statements of the system requirements for customers and end users of the system.
- d. **Requirements validation:** This phase check weather all user requirement has been met or not. Any error that are discovered are rectified int this process.



2.2. Software Design & Development

A software design is a description of the structure of the software to be implemented, the data models and structures used by the system, the interface between system components and the algorithms used.



Stages of design process are sequential. This phase comprises three main sub-activities along with their specifications at every level:

- a. **Architectural Design**, where software engineer identifies overall structure of the system, principal components, relation between these components and how they are distributed.
- b. **Interface design**, where software engineer designs and develops the interfaces required between system components.
- c. **Component design**, where the software engineer takes each system component and design the correct way it will operate.
- d. **Database design**, design the system data structures and how these are to be represented in a database.
- e. **Programming & Implementation**, where on basis of defined algorithm, database design and determined data structure, the programming is done.

2.3. Software Validation (Testing)

Software Validation is a process of evaluating software product, to ensure that the software meets the pre-defined and specified business requirements as well as the end users/customers' demands and expectations.

Software testing is performed at three different stages.

- a. **Development or Component Testing:** It is done by the team developing the system. In it each component is tested independently, without other system components.
- b. **System Testing:** It involves finding errors that result from interaction between components. However, components are designed, developed and tested simultaneously.

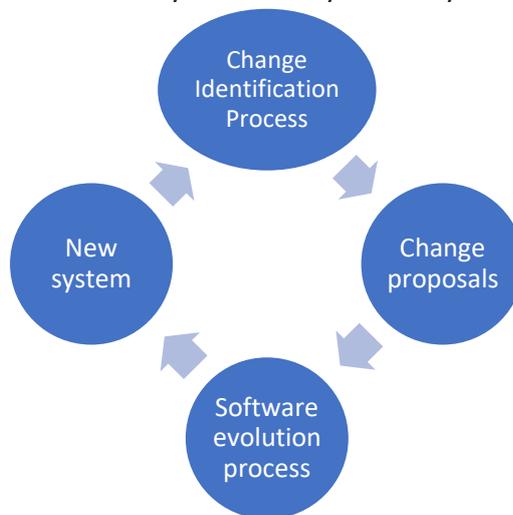


c. **Acceptance Testing:** It's final stage in testing process before the system is accepted for operational use.

2.4. Software Evolution/Evaluation

It means software maintenance. It refers to the process of developing a software initially, then repeatedly updating it in such a manner that it can meet the changing customer needs.

Main objective of it is to ensure reliability & flexibility of the system.



Software evolution aims at evolving the software at every stage so that it keeps on performing reliability & is flexible to incorporate changes.

Worksheet

Note : Attempt all questions mentioned below in your notebook.

Q1) What is software process?

Q2) What are software process activities?

Q3) Write Short notes on:

- a. Software Specification.
- b. Software design & development.

Q4) Explain the three different stages of software testing.

Q5) What is the importance of Software Evolution?

Ruchika