

<b>Name of the Subject: Software Engineering</b>	
<b>Course Code: 302</b>	<b>Semester: I</b>

## **Unit-01**

### **SOFTWARE: Characteristics, Components, and Applications**

**1. Which of the following is NOT a characteristic of software?**

- A) Intangibility
- B) Modifiability
- C) Reusability
- D) Physical durability

**Answer: D) Physical durability**

### **SOFTWARE ENGINEERING - A Layered Technology**

**2. Which layer in the software engineering layered technology focuses on defining the software's structure and its interactions with external entities?**

- A) Process layer
- B) Methods layer
- C) Tools layer
- D) Quality layer

**Answer: A) Process layer**

### **SOFTWARE PROCESS MODELS**

**3. The Linear Sequential Model is also known as:**

- A) Waterfall Model
- B) Spiral Model
- C) Incremental Model
- D) RAD Model

**Answer: A) Waterfall Model**

### **SOFTWARE PROJECT MANAGEMENT**

**4. In project management, "process metrics" typically refer to:**

- A) Measures of project performance and progress

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- B) Measurements related to the software development process
- C) Metrics for evaluating the project team
- D) Financial metrics of the project

**Answer: B) Measurements related to the software development process**

## **SOFTWARE METRICS AND MEASUREMENT**

### **5. Which of the following is a function-oriented metric?**

- A) Lines of Code (LOC)
- B) Function Points (FP)
- C) Cyclomatic Complexity
- D) Code Churn

**Answer: B) Function Points (FP)**

## **Unit-02**

## **SOFTWARE PROJECT PLANNING**

### **6. Which technique is commonly used for decomposing a software project into smaller, manageable parts?**

- A) Work Breakdown Structure (WBS)
- B) Risk Assessment
- C) Quality Assurance
- D) Change Management

**Answer: A) Work Breakdown Structure (WBS)**

### **7. Which of the following is a common empirical estimation model used in software project planning?**

- A) COCOMO
- B) Waterfall
- C) Spiral
- D) RAD

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**Answer: A) COCOMO**

## **ANALYSIS CONCEPTS AND PRINCIPLES**

**8. What is the main goal of requirement analysis in software engineering?**

- A) To design the user interface
- B) To identify and document what the software should do
- C) To develop the software
- D) To test the software

**Answer: B) To identify and document what the software should do**

**9. Which technique is essential for effective communication during requirement analysis?**

- A) User Interviews
- B) Code Reviews
- C) Software Testing
- D) Performance Tuning

**Answer: A) User Interviews**

## **ANALYSIS MODELING**

**10. What does functional modeling emphasize in analysis modeling?**

- A) The flow of data within the system
- B) The behavior and interactions of the system
- C) The system's functionality and processes
- D) The database schema

**Answer: C) The system's functionality and processes**

**11. Which modeling technique represents the flow of information and data through a system?**

- A) Data Flow Diagram (DFD)
- B) Entity-Relationship Diagram (ERD)
- C) State Diagram

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- D) Use Case Diagram

**Answer: A) Data Flow Diagram (DFD)**

## **12. What is behavioral modeling used for in analysis modeling?**

- A) To represent how data is structured and related
- B) To show the interactions and states of the system
- C) To illustrate the flow of information
- D) To document system requirements

**Answer: B) To show the interactions and states of the system**

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## **SHORT ANSWERS:**

### **Unit-01**

#### **SOFTWARE: Characteristics, Components, and Applications**

##### **1. What are the main characteristics of software that differentiate it from hardware?**

**Answer:** Software is intangible, meaning it cannot be touched or physically manipulated like hardware. It is also modifiable and can be easily updated or changed, unlike hardware. Additionally, software can be reused across different applications, and its quality depends on the design and coding practices used, rather than physical durability.

##### **2. What are the core components of software architecture?**

**Answer:** The core components of software architecture include modules (which are functional units of the software), interfaces (which define how modules interact with each other), and data (which is managed and processed by the software). These components together form the structure and organization of the software system.

#### **SOFTWARE ENGINEERING - A Layered Technology**

##### **3. What is included in the methods layer of software engineering?**

**Answer:** The methods layer encompasses the various techniques and approaches used in software development, such as design patterns, coding practices, and testing strategies. It provides a set of guidelines and procedures to effectively develop and manage software projects, ensuring best practices are followed.

#### **SOFTWARE PROCESS MODELS**

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#### **4. What is the key feature of the Spiral Model in software development?**

**Answer:** The Spiral Model emphasizes iterative development with a focus on risk analysis. It involves repeating cycles or spirals, where each iteration includes planning, risk analysis, engineering, testing, and evaluation. This approach helps in managing risks and incorporating changes throughout the development process.

### **SOFTWARE PROJECT MANAGEMENT**

#### **5. Why are project metrics important in software development?**

**Answer:** Project metrics are essential for evaluating the performance and progress of a software project. They help in measuring aspects such as time, cost, and quality, and provide insights into project health and potential issues. Metrics assist in making informed decisions, improving processes, and achieving project goals effectively.

### **SOFTWARE MEASUREMENT**

#### **6. What does size-oriented measurement focus on in software metrics?**

**Answer:** Size-oriented measurement focuses on quantifying the amount of code or the size of the software. Metrics such as Lines of Code (LOC) or code volume are used to assess the software's size, which can help in estimating effort, cost, and time required for development and maintenance.

#### **7. What is the advantage of using extended function points in software measurement?**

**Answer:** Extended function points provide a more comprehensive measurement of software size by considering additional factors such as complexity and additional functionality. This approach offers a better understanding of the software's true complexity and helps in more accurate estimation of effort and resources required for development.

## **Unit-II**

### **SOFTWARE PROJECT PLANNING**

#### **8. What is the main objective of software project planning?**

**Answer:** The main objective of software project planning is to establish a clear roadmap for the project's execution. This includes setting goals, defining deliverables, creating a schedule, and allocating resources. Effective planning helps manage risks, control costs, and ensure that the project meets its deadlines and objectives.

#### **9. How is project scope defined, and why is it important?**

**Answer:** Project scope defines the boundaries of the project, specifying what will be included and excluded. It details the deliverables, objectives, and constraints. Defining the scope is crucial to prevent scope creep, ensure stakeholder alignment, and focus efforts on achieving the project's goals without unnecessary additions.

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## **ANALYSIS CONCEPTS AND PRINCIPLES**

### **10. What is the goal of requirement analysis in software development?**

**Answer:** The goal of requirement analysis is to gather and document what the software needs to accomplish from the user's perspective. This process ensures that all stakeholder requirements are understood and captured accurately, which guides the design and development phases and helps ensure the final product meets user expectations.

### **11. Why are effective communication techniques important during requirement analysis?**

**Answer:** Effective communication techniques, such as interviews, surveys, and workshops, are essential for accurately gathering and clarifying requirements. They help in building a shared understanding between stakeholders and the development team, reducing misunderstandings, and ensuring that all requirements are comprehensively captured.

## **ANALYSIS MODELING**

### **12. What are the key elements of analysis modeling?**

**Answer:** The key elements of analysis modeling include data modeling, functional modeling, and behavioral modeling. Data modeling represents data structure and relationships, functional modeling describes system functions and processes, and behavioral modeling captures how the system behaves in response to various events or conditions.

### **13. How does data modeling contribute to software analysis?**

**Answer:** Data modeling focuses on defining the data entities, attributes, and relationships within the system. It helps in designing a coherent database schema and ensures that data is organized and managed effectively. This modeling is crucial for understanding data requirements and designing data storage and retrieval mechanisms.