



# SOFTWARE ENGINEERING

## Assignment – 3

UNIT – 3 SEM- 2 ,

(DEP – IT)

### Short Answer type questions:

#### 1. What is Cost estimation?

**Ans -** Cost estimation is the process of forecasting the monetary value required to complete a project, task, or activity within a specified scope and timeframe.

#### 2. Write any four common attributed of cost estimation.

**Ans – 1 - Accuracy:** The degree of closeness between estimated and actual costs.

**2 - Precision:** The level of detail and specificity in the estimation process.

**3 - Reliability:** Consistency and dependability of the estimation results.

**4 - Flexibility:** Ability to adjust estimations based on changing project conditions or requirements.

#### 3. Define factorbased method.

**Ans -** The factor-based method in cost estimation involves using predetermined factors or ratios to estimate costs based on specific project characteristics, such as size, complexity, or type.

#### 4. What is Risk?

**Ans -** Risk refers to the uncertainty or potential for loss, damage, or negative impact on objectives or outcomes. In project management, it typically involves identifying and assessing potential events or situations that could affect the project's success.

#### 5. Write 2 Risk strategies.

**Ans – 1- Risk Mitigation:** Involves taking actions to reduce the probability or impact of identified risks. This can include implementing preventive measures or contingency plans.

**2 - Risk Transfer:** Involves shifting the responsibility for managing a risk to another party, typically through contractual agreements such as insurance or outsourcing.

## Long Answer type questions:

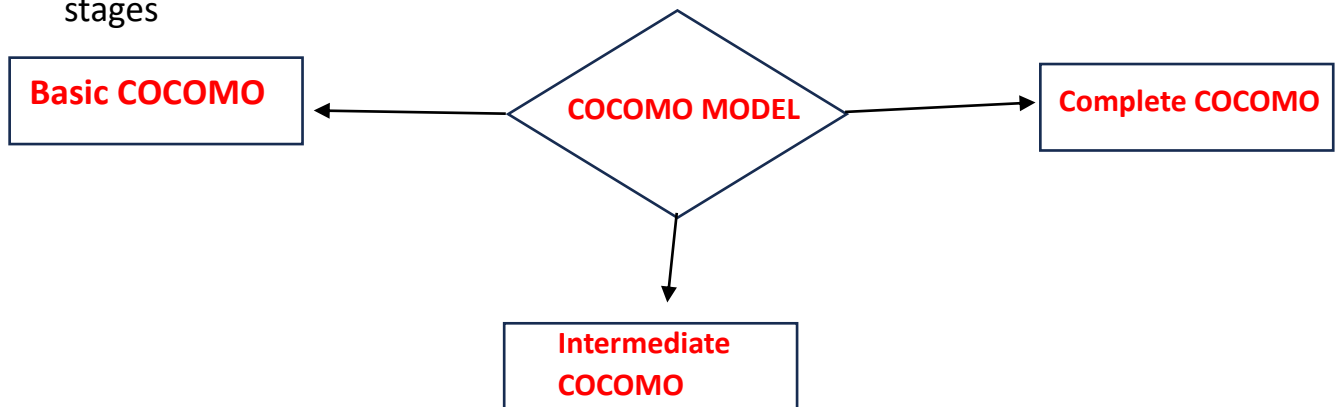
### 6. Explain COCOMO Model of cost estimation in detail.

**Ans – 1** - COCOMO stands for "Constructive cost model". It is One of the Very famous model which is used to estimate the cost of the project.

2. COCOMO model was proposed by boehm in the year 1981

3. Using this model we can estimate the time(month) and no of people(member) needed to develop a project

4. According to boehm , project cost estimation should be done through three stages



- **Basic COCOMO:-**

The basic cocomo model gives an approximate estimate of the project parameters, it means it predict the effort & cost of project

- **Intermediate COCOMO:-**

This is an extension of the basic cocomo model the intermediate cocomo model uses 15 additional predictoves, considering its environment to estimate a value or cost

- **Complete COCOMO**

The complete cocomo model is an extension of the intermediate cocomo model this model is sensitive it does not depend on any phase, it is used to calculate the amount of effort required to complete each phase

- **SIX PHASES**

1 – Planning and requirement

2 System Design

3 – Detailed design

4 -Module code & test

5 - Integration & Test

6 - Cost constructive module

## 7. Explain is Risk management in detail with suitable diagram.

**Ans** - Risk management in software engineering is the process of identifying, assessing, prioritizing, and mitigating risks that could impact the success of a software project.

### • Steps in Risk Management:

- **Identification:** Identify potential risks that could affect the project. This can include technical, schedule, budget, and external risks.

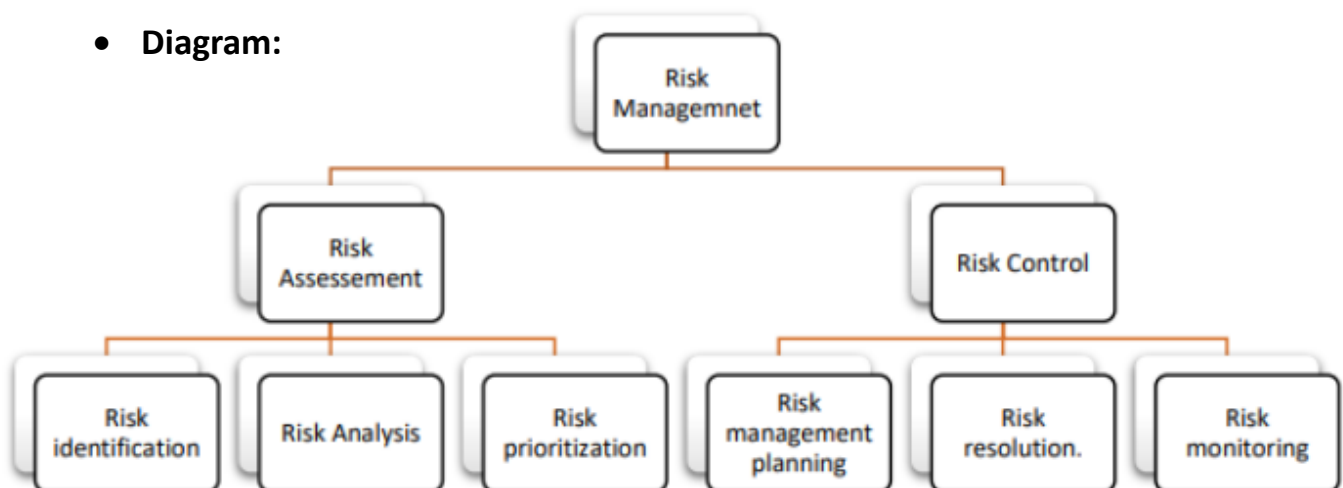
- **Assessment:** Evaluate the likelihood and impact of each identified risk. This helps prioritize risks based on their severity.

- **Planning:** Develop risk mitigation strategies and contingency plans to address high-priority risks. This may involve risk avoidance, risk reduction, risk transfer, or acceptance.

- **Implementation:** Implement the risk management plan by executing the identified strategies and monitoring their effectiveness.

- **Monitoring:** Continuously monitor and review the project for new risks or changes in existing risks. Regularly assess the effectiveness of risk mitigation measures and adjust the risk management plan as necessary.

### • Diagram:



## 8. Write a detail note on steps of cost estimation.

**Ans** - Steps of Cost Estimation in Software Engineering:

### 1. Define Scope:

- Clearly define the scope of the project, including objectives, deliverables, and constraints.

## **2. Identify Tasks:**

- Break down the project into smaller tasks or work packages that can be easily estimated.

## **3. Estimate Resources:**

- Determine the resources (e.g., labor, materials, equipment) required for each task.

## **4. Quantify Costs:**

- Assign monetary values to the estimated resources and tasks to determine the overall project cost.

## **5. Consider Contingencies:**

- Account for uncertainties and risks by including contingency reserves in the cost estimation.

## **6. Review and Validate:**

- Review the cost estimation with relevant stakeholders to ensure accuracy and completeness.

## **7. Document and Communicate:**

- Document the cost estimation process and results, and communicate them to stakeholders for transparency and accountability.

## **9. Mention all phases of COCOMO model, support your answer with related diagram.**

**Ans** – Here are the six phases of the detailed COCOMO model along with a corresponding diagram:

**1. Planning and Requirements:** Gathering project requirements and planning the development process.

**2. System Design:** Designing the overall architecture and system components.

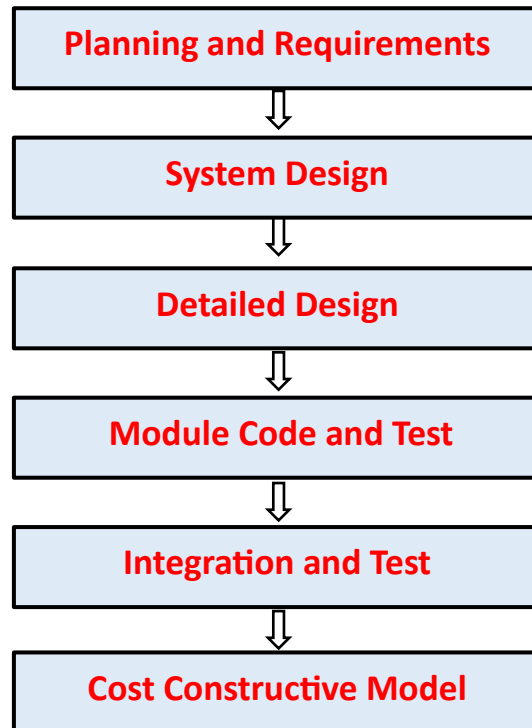
**3. Detailed Design:** Creating detailed specifications for individual system components.

**4. Module Code and Test:** Writing code for modules and conducting unit testing.

5. **Integration and Test:** Integrating modules into the system and conducting system testing.

6. **Cost Constructive Model:** Applying the COCOMO model to estimate project cost based on effort estimates from the previous phases.

**Diagram:-** Six phases of the detailed COCOMO model along



### 10. Explain all-importance of COCOMO cost estimation model

**Ans -** Importance of the COCOMO Model:

- **Cost Estimation:** To help with resource planning and project budgeting, COCOMO offers a methodical approach to software development cost estimation.
- **Resource Management:** By taking team experience, project size, and complexity into account, the model helps with efficient resource allocation.
- **Project Planning:** COCOMO assists in developing practical project plans that include attainable objectives, due dates, and benchmarks.
- **Risk management:** Early in the development process, COCOMO assists in identifying and mitigating potential hazards by including risk elements.
- **Support for Decisions:** During project planning, the model provides a quantitative foundation for choices about scope, priorities, and resource allocation

- **Benchmarking:** To compare and assess various software development projects to industry standards, COCOMO offers a benchmark.
- **Resource Optimization:** The model helps to maximize the use of resources, which raises productivity and lowers costs

**Disclaimer:** Answers are based on available data and calculations. We strive for accuracy but cannot guarantee it. Users should verify information independently. We are not responsible for any errors or outcomes.

**THANK YOU SO MUCH, SAURABH SHELKE**

"Believe you can and you're halfway there." - Theodore Roosevelt