SOFTWARE ENGINEERING (ECS-202)

Teacher Name:

Dr. Mousumi Dhara

Course Structure

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Prerequisite:

Course Content:

Unit-1:


Unit-2:


Unit-3:

Halestead’s Software Science, Function Point (FP) Based Measures, Cyclomatic Complexity Measures: Control Flow Graphs.

**Unit-4:**


**Unit-5:**


**UNIT 1**

**UNIT 2**

**UNIT 3**

**UNIT 4**

**UNIT 5**

**Lab Work:**

Lab exercises or a Mini Project (as per list given below) to be carried out using languages like C++, Java, C# and tools like Visio, ARGOUML, Rational Rose etc. Design and Implementation of an Object based application using any one of the above languages/tools is desirable.

- Hotel Automation System
- Book Shop Automation Software
- Word processing Software
- Software Component Cataloguing Software
- Payroll System
- Banking System
- Purchase Order System
- Library Management System
- Railway Reservation System
- Bill Tracking System
- University Admission System
- Estate Management System.

**Text and References Books:**


**Course Outcomes:**

1. Understand and explain various concepts of software engineering and software life cycle development models. (Understand)
2. Prepare SRS and Compute cost and effort required to complete a given project, using various estimation techniques and models. (Apply)
3. Understand various concepts of Software design and Construct Data Flow Diagrams, Data Dictionaries and UML diagrams for a given software requirement specification. (Understand, Apply)
4. Understand various testing techniques and use these concepts to design optimal test cases. (Understand, Apply, Analyze)
5. Understand software configuration management, version control, reverse engineering, defect tracking etc. (Understand)
6. Build a project report as a team which contains the requirement specification, plan, schedule and design documents based on the knowledge of software development lifecycle. (Apply)

**Assignments**

**Assignment#1**

1. What do you mean by prototyping in a SDLC model?
2. Draw a decision table and decision tree for educational management system.
3. Discuss significant points regarding SRS document.
4. How SRS is helpful in structural design and analysis.
5. What is the role of validation and verification for SDLC?
6. Describe disadvantages of iterative waterfall modelling approach

**Assignment#2**
1. Define the meaning of software quality and detail the factors which affect the quality not productivity of a software product?
2. Define the meaning of quality assurance. Explain the role of testing in Quality assurance.
3. What is the major difference between structured English and Pseudo Code?
4. What is mean by level-0 Data flow diagram?
5. Describe the difference between Interface-oriented, Object-oriented and Aspect-oriented programming.

Assignment#3

1. What are the difference between white box testing and black box testing techniques?
2. What are the difference between alpha testing and Beta testing?
3. Explain software reliability and define how software and hardware reliability related to each other.
4. Write short note on Black box testing, White box testing and Stress Testing.
5. What are CASE tools?