

**DEPARTMENT OF INFORMATION TECHNOLOGY & COMPUTER
ENGINEERING**



LESSON PLAN

SUBJECT: SOFTWARE ENGINEERING

BRANCH: 5TH SEM, IT

FACULTY NAME: DR. ANITARANI BRAHMA

OBJECTIVE:After completion of this course the student will be able to:

- **Understand the concept of Software Engineering.**
- **Understand how costs, schedule and quality drive a software project.**
- **Understand the role of software process and a process model in a project.**
- **Understand planning and estimation of a software project.**
- **Understand the role of SRS in a project and how requirements are validated**
- **Know the key design concepts of software engineering.**
- **Learn the structured code inspection process.**
- **Learn how testing is planned and testing done.**

SUBJECT NAME: SOFTWARE ENGINEERING
SUBJECT CODE: TH 3
FACULTY NAME: DR ANITARANI BRAHMA
HOOR: 60 HR (WEEKLY LOAD 4HR)

Sl. No.	Lecture No.	Topic	Subtopic	Methodology to be Followed
1	1	Introduction to Software Engineering	-	Lecture + PPT + Discussion
2	2	Program vs Software Product	Difference, Examples	Lecture + Real-life Examples
3	3	Emergence of Software Engineering	History, Need, Evolution	Chalk & Talk + Timeline Chart
4	4	Computer Systems Engineering	Definition, Role, Application	Lecture + Case Study
5	5	Software Life Cycle Models	Overview	Lecture + Diagram on Board
6	6	Classical Waterfall Model	Stages, Advantages, Disadvantages	PPT + Real-world Example
7	7	Iterative Waterfall Model	Iteration, Flexibility	Comparison Chart + Discussion
8	8	Prototyping Model	When to Use, Benefits	Case Study + Diagram
9	9	Evolutionary Model	Continuous Delivery	Video Example + Flowchart
10	10	Spiral Model	Risk Handling, Phases	Diagram + Group Activity
11	11	Software Project Management	Overview	Lecture + Real-world Scenarios
12	12	Responsibility of Project Manager	Roles & Skills	Role Play + Discussion
13	13	Project Planning	Scheduling, Resources	Case Example + Gantt Chart
14	14	Project Size Estimation Metrics	LOC & FP	Demo Calculation + PPT
15	15	Project Estimation Techniques	Expert Judgment, Delphi, etc.	Activity + Lecture
16	16	COCOMO Models	Basic, Intermediate, Complete	Example Calculation + Chart
17	17	Scheduling	Gantt, PERT, CPM	Chart-based Demo
18	18	Organization and Team Structure	Types & Features	Diagram-based Explanation
19	19	Staffing	Roles, Planning	Lecture
20	20	Risk Management	Types of Risks	Brainstorming + Case
21	21	Configuration Management	Version Control Tools	Demonstration (Git/Other)
22	22	Requirement Analysis	Gathering Techniques	Group Activity
23	23	Software Requirements Specification	Overview	Template-based Exercise
24	24	Contents of SRS	Sections, Format	PPT + Sample
25	25	Characteristics of Good SRS	Measurable, Traceable	Discussion
26	26	Organization of SRS	Logical Flow	Whiteboard Explanation
27	27	Representing Complex Logic	Flowcharts, Decision Tables	Diagram Practice
28	28	Software Design	What is a Good Design	Lecture
29	29	Cohesion and Coupling	Types and Examples	Group Discussion
30	30	Software Design Approaches	Top-Down, Bottom-Up	Case-Based Discussion
31	31	Data Flow Diagrams	Symbols Used in DFD	Board Practice
32	32	Designing DFD	Rules and Practices	Hands-on Practice
33	33	Developing DFD Model	Example System	Practice Activity
34	34	Structured Design	Modules, Interfaces	Explanation with Examples

35	35	DFD to Structure Chart	Transformation Principles	Step-wise Conversion
36	36	Transform vs Transaction Analysis	Definitions	Compare Table
37	37	Design Review	Walkthrough, Inspection	Role Play
38	38	User Interface Design	Characteristics of Good UI	Interface Evaluation Activity
39	39	Types of Interfaces	GUI, CLI, Menu Driven	Demo
40	40	GUI Development	Component-based (VB/Swing)	Practical
41	41	Software Testing	Unit Testing, Black Box Testing	Demo + Examples
42	42	White Box Testing	Coverage Techniques	Diagram + Practice
43	43	Debugging	Approaches and Guidelines	Demonstration
44	44	Integration & System Testing	Alpha, Beta, Acceptance	Case Study
45	45	Software Reliability & Quality	Metrics & Management	Charts + Discussion

Signature of faculty

Signature, HOD i/c