LESSON PLAN

Subject: Software Engineering **Subject code: PE-IT-302A**

Session: 2022-23 **Semester: VI**

SNo	Topic	No. of Lectures	CO Covered	Teaching Methodology
1	Program vs. software products, emergence of software engineering,software life cycle, models: waterfall, prototype, evolutionary and spiral model	1	CO1	Board
2	Software Characteristics, Applications, Software crisis.	1		PPT
3	Project management concepts, software process and project metrics Project planning	1		Board
4	Project size estimation metrics, project estimation techniques	1		Video
5	Empirical estimation techniques, COCOMO	1		PPT
6	A Heuristic estimation technique, staffing level estimation, team structures, staffing	1		Video
7	Risk analysis and management	2		Video
8	Project scheduling and tracking	2		Board
9	Requirements engineering, system modeling and simulation, Analysis principles modeling,	1	CO2	PPT
10	partitioning Software, prototyping, Prototyping methods and tools	1		Board
11	Specification principles, Representation, the software requirements specification and reviews	1		Video
12	Analysis Modeling: Data Modeling, Functional modeling and information flow: Data flow diagrams, Behavioral Modeling	1		Video
13	The mechanics of structured analysis: Creating entity/relationship diagram, data flow model, control flow model, the control and process specification, The data dictionary, Other classical analysis methods.	1		PPT
14	Design concepts and principles: the design process: Design and software quality, design principles	1		Flip Learning
15	Design concepts: Abstraction, refinement, modularity, software architecture, control hierarchy	1		Board
16	structural partitioning, data structure software procedure, information hiding	1		Board

17	Effective modular design: Functional independence, Cohesion, Coupling, Design Heuristics for effective modularity	1		Video
18	The design model; Design documentation. Architectural Design: Software architecture, Data Design: Data modeling, data structures, data bases and the data warehouse,	2		PPT
19	Analyzing alternative Architectural Designs, architectural complexity;	1		Board
20	Mapping requirements into software architecture; Transform flow, Transaction flow; Transform mapping;Refining thearchitecturaldesign.	2		PPT
21	Software Testing Techniques, software testing fundamentals: objectives, principles, testability; Test case design	1	CO3	PPT
22	Software Testing Techniques, software testing fundamentals: objectives, principles, testability; Test case design	1		PPT
23	Unit testing: white box testing, basic path testing	1		PPT
24	Control structure testing; Black Box Testing, testing for specialized environments	1		PPT
25	Software Testing Strategies: Integration testing, Validation testing, alpha and beta testing.	1		Board
26	System testing: Recovery testing, security testing, stress testing performance testing; the art of debugging process debugging approaches	1		Board
27	Software re-engineering: Reverse engineering, restructuring, forward engineering.	1		PPT
28	Quality concepts, Software quality assurance, SQA activities; Software reviews: cost impact of software defects, defect amplification and removal	2		Video
29	formal technical reviews: The review meeting, review reporting and record keeping, review guidelines;	1		PPT and Video
30	Formal approaches to SQA; Statistical software quality assurance; software reliability: Measures of reliability and availability,	2		Video
31	The ISO9000 Quality standards, SEI-CMM Capability Maturity Model.	1		PPT
32	CASE, building blocks	1		PPT

33	Integrated case environments	2		PPT
34	Architecture, repository	2		PPT