

Lesson Plan

Name of the Faculty : Mr.NEERAJ KUMAR

Discipline : B.TECH

Semester : 5th

Subject : Principle of Software Engineering

Lesson Plan Duration : 15 Weeks (from Aug., 2020 to Nov, 2020)

** Work Load (Lecture/Practical) per week (in hours): Lectures-03

Week	Theory	
	Lecture Day	Topic (including assignment/test)
1 st	1 st	Introduction: The process, software products, emergence of software engineering
	2 nd	evolving role of software, software life cycle models, Software Characteristics, Applications, Software crisis.
	3 rd	Software project management: Project management concepts, software process and project metrics Project planning, project
2 nd	1 st	project estimation Techniques, empirical estimation techniques, COCOMO- A Heuristic estimation techniques
	2 nd	ASSIGNMENT-1 COCOMO Model
	3 rd	staffing level estimation, team structures, staffing, risk analysis and management, project scheduling and tracking
3 rd	1 st	REVISION
	2 nd	Requirements Analysis and specification requirements engineering, system modeling and simulation Analysis principles modeling
	3 rd	partitioning Software, prototyping: , Prototyping methods and tools; Specification principles, Representation, the software requirements

4 th	1 st	Analysis Modeling: Data Modeling, Functional modeling and information flow
	2 nd	Data flow diagrams, Behavioral Modeling
	3 rd	The mechanics of structured analysis: Creating entity/ relationship diagram, data flow model,
5 th	1 st	Control flow model, the control and process specification; The data dictionary; Other classical analysis methods.
	2 nd	ASSIGNMENT-2
	3 rd	System Design: Design concepts and principles: the design process: Design and software quality
6 th	1 st	Design principles; Design concepts: Abstraction, refinement, modularity
	2 nd	software architecture, control hierarchy, structural partitioning, data structure, software procedure, information hiding; Effective modular design
	3 rd	Functional independence, Cohesion, Coupling; Design Heuristics for effective modularity; The design model; Design documentation.
7 th	1 st	Architectural Design: Software architecture, Data Design: Data modeling, data structures
	2 nd	Data structures, databases and the data warehouse, Analyzing alternative Architectural Designs ,architectural complexity
	3 rd	Mapping requirements into a software architecture; Transform flow, Transaction flow; Transform mapping
8 th	1 st	Refining the architectural design. Testing and maintenance: Software Testing Techniques
	2 nd	software testing fundamentals: objectives, principles, testability; Test case design, white box testing, basis path testing: Control structure testing: Black box testing, testing for specialized environments
	3 rd	Architectures and applications. Software Testing Strategies: Verification and validation
9 th	1 st	Unit testing, Integration testing; Validation testing, alpha and beta testing . ASSIGNMENT-3
	2 nd	System testing: Recovery testing, security testing, stress testing, performance testing
	3 rd	The art of debugging, the debugging process debugging approaches. Software re-engineering
10 th	1 st	Reverse engineering ,restructuring, forward engineering.
	2 nd	Software Reliability and Quality Assurance :Quality concepts, Software quality assurance , SQA activities

	3 rd	Software reviews: cost impact of software defects
11 th	1 st	review guidelines; Formal approaches to SQA; Statistical software quality assurance
	2 nd	software reliability: Measures of reliability and availability
	3 rd	The ISO 9000 Quality standards: The ISO approach to quality assurance systems
12 th	1 st	The ISO 9001 standard, Software Configuration Management
	2 nd	Computer Aided software Engineering: CASE,
	3 rd	Building blocks, integrated case environments and architecture, repository ASSIGNMENT-4
13 th	1 st	Requirements Analysis and specification requirements engineering, system modeling and simulation Analysis principles modeling
	2 nd	partitioning Software, prototyping: , Prototyping methods and tools; Specification principles, Representation, the software requirements specification
	3 rd	Analysis Modeling: Data Modeling, Functional modeling and information flow: Data flow diagrams, Behavioral Modeling
14 th	1 st	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.
	2 nd	System Design: Design concepts and principles: the design process: Design and software quality, design principles; Design concepts: Abstraction, refinement, modularity
	3 rd	Analysis Modeling: Data Modeling, Functional modeling and information flow: Data flow diagrams, Behavioral Modeling
15 th	1 st	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. ASSIGNMENT-5
	2 nd	System Design: Design concepts and principles: the design process: Design and software quality, design principles; Design concepts: Abstraction, refinement, modularity
	3 rd	Revision of Syllabus