

Lesson Plan

Name of the Faculty member: **Raj Kumar**

Discipline: **Computer Engineering**

Semester: **5th**

Subject: **Software Engineering**

Lesson Plan duration: **w.e.f. July 2018 to Nov, 2018**

Week	Theory	
	Lecture day	Topic Covered (Including Assessment and Sessionals)
1 st	1.	Introduction to s/w engg, Programmes, S/W products and their comparison
	2.	Emergence of s/w engg: Early Comp. Prog, High level Programming
	3.	S/W Design: Definition, Different approaches to S/W design, Introduction to Control flow design
2 nd	4.	Description of Control flow design & Data structure oriented design
	5.	Object Oriented Design: Features, advantages, and comparisons to others
	6.	S/W Life Cycle Models: Introduction, Requirement and Different life cycle models
3 rd	7.	Description of Classical Waterfall model, it's different phases, advantages and Disadvantages
	8.	Description of Iterative Waterfall model and its advantages & disadvantages
	9.	Description of Evolutionary model and its advantages & disadvantages
4 th	10.	Explanation of Spiral model, Spiral model as meta model, and its advantages & Disadvantages
	11.	Comparison among different life cycle models and their usage
	12.	Revision of 1 st and 2 nd Unit
5 th	13.	Introduction to S/W planning and the activities involved
	14.	Role of S/W Project Manager and Project size estimation
	15.	Metrics for Project size estimation: Size oriented metrics and LOC (Line of code) as key measure, advantages and shortcomings
6 th	16.	Function oriented metrics and FP (Function Point) as key measure, advantages and Shortcomings

	17.	Examples of LOC based technique and FP based technique
	18.	Study of Project parameter estimation technique
7 th	19.	Introduction to COCOMO, Difference b/w Organic ,semi detached and embedded Project
	20.	Description of basic, intermediate and complete COCOMO with appropriate graphs
	21.	Halstead s/w science
8 th	22.	1st Sessional Test
	23.	Requirement Engg and different phases- Requirement gathering and others
	24.	Different tools of information gathering – Interview, Questionnaire, Brainstorming, On site observation etc.
9 th	25.	Formal specification techniques: Logical notations and state oriented notations
	26.	Decision table, Event table, Transition table, and finite state machine
	27.	SRS: Definition, Components, Characteristics, and advantages of SRS
10 th	28.	Revision of unit 3 rd and 4 th
	29.	Design: Definition, Characteristics and features of a good s/w design
	30.	Design methodology: Function Oriented and Object oriented design
11 th	31.	Design Concepts: Abstraction, Encapsulation, Inheritance, Modularity etc.
	32.	Coupling: Definition and types
	33.	Cohesion: Definition and types, and comparison b/w Coupling & Cohesion
12 th	34.	Structured coding techniques and styles
	35.	Documentation and Design tools: DFD, Data dictionary, Structured flow chart, Pseudo code etc.
	36.	2nd Sessional Test
13 th	37.	Testing: Definition, Need, Objective, and principle also Verification and validation
	38.	Difference b/w Verification and Validation, Verification techniques
	39.	Detailed study of Unit, Integration, and system testing
14 th	40.	Validation testing techniques: Black box and White box techniques, Black box techniques and its types

	41.	White box techniques and its types
	42.	Comparison b/w Black box and White box techniques
15 th	43.	Maintenance: Definition and types- Corrective, Adaptive, Perfective, and Preventive Maintenance
	44.	Introduction to capability maturity model
	45.	Quality standard techniques: ISO 9000 and Six Sigma
16 th	46.	Description of both techniques and their comparison
	47.	Configuration management
	48.	Revision of 6 th and 7 th Unit
		3rd Sessional Test