

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
MCA12	Software Engineering	3	1	--	3	1	--	4
		Examination Scheme						
		ISE		MSE		ESE		
		10	30	100 (60% Weightage)				

Pre-requisite Course Codes		--
Course Outcomes	CO1	Identify process model for given Problem
	CO2	Design and Develop Software Project
	CO3	Formulate Project Plan & apply estimation techniques.
	CO4	Evaluate quality of software and its maintenance.

Module No.	Unit no.	Topics	Ref.	Hrs.
1		Introduction to Software Engineering	1	3
	1.1	The evolving role of software, Importance software engineering, Changing nature of software, Software Myths.		
2		Software Process Models	1,2	6
	2.1	Software Process Models:-Waterfall Model. Evolutionary Process Model: Prototype and Spiral Model. Incremental Process model: Iterative approach, RAD, JAD model. Concurrent Development Model. Agile Development: Extreme programming, Scrum		
3		Software Analysis	1,2	4
	3.1	Feasibility Study and its type , Software requirement specification		
	3.2	Requirement Elicitation: Interviews, Questionnaire, Brainstorming, Facilitated Application Specification Technique(FAST)		
4		Software Project Planning	1	5
	4.1	Measures ,Metrics and Indicators, Software Measures : Size oriented, Function Oriented, Software Project Estimation, Decomposition Techniques, LOC based, FP based, Empirical Estimation: COCOMO, COCOMO-II		
5		Software scheduling and tracking	1,2	4
	5.1	Relationship between people and effort: Staffing level estimation, effect of schedule change on cost		
	5.2	Selecting software engineering tasks: Degree of rigor, task set selector		
	5.3	Task network schedules: Work breakdown structure, task network/activity network Gantt chart, pert chart, CPM,Earned Value Analysis		
6.		Software Design Activities	1,2	5

	6.1	Design Concepts :Abstraction ,Modularity, Cohesion and Coupling		
	6.2	Function oriented design : structured design Methodology		
	6.3	Architectural Design : What is Architecture ,why is Architecture important Architectural design and Pattern		
7		Software Testing	1,2	3
	7.1	Software testing fundamentals ,Black box and white box testing, types of Testing : Unit ,Integration ,Validation and system testing, Overview of Non functional testing types		
7		Software Risk management	1,2	3
	7.1	Risk strategies, Software risks, Risk Identification, Projection, RMMM		
8		Software Quality Management	1,3	3
	8.1	Quality Concepts, SQA activities, Software reviews,FTR, Software reliability and measures, SQA plan		
9	9.1	Software Change Management	1,3	3
	9.2	Software Configuration Management, elements of SCM, SCM Process, Change Control		
10		Software Reliability and Maintenance	1,3	3
	10.1	Software reliability , Reliability metrics , Reliability growth modeling , Refactoring		
	10.2	Software reverses engineering , Software maintenance cost , Estimation of maintenance cost		
			Total	42

References :

- [1] Roger Pressman ,”Software Engineering” , Tata McGraw Hill ,sixth edition.
- [2] Pankoj Jalote, ,”Software Engineering”, Wiley Publication, fourth edition.
- [3] KK Agarwal, Software Engineering, New age Publication, third edition.