SCHEME OF COURSE WORK

Course Details:

Course Title	**:SOFTWARE REQUIREMENTS AND ESTIMATION**			
Course Code	**:15IT2101**	**L T P C**	**:3 1 0 3**	
Program:	**: M.Tech**			
Specialization:	**: Software Engineering**			
Semester	**:I**			
Prerequisites	**:Software Engineering**			
Courses to which it is a prerequisite	**:SOFTWARE METRICS**			

Course Outcomes (COs):

1	Discuss requirements elicitation techniques.
2	Identify the software requirements for a given project.
3	Explain software estimation.
4	Estimate the software in terms of effort, schedule and cost.
5	Describe the tools for requirements management and estimation.

Program Outcomes (POs):

A graduate of Software Engineering will be able to

1	Ability to demonstrate in-depth knowledge of Software Engineering with analytical and synthesizing skills.
2	Ability to analyze complex problems critically and provide viable solutions.
3	Ability to evaluate potential solutions to a problem and arrive at optimal solutions.
4	Ability to apply research methodologies to develop innovative techniques for solving complex Information Technology related problems.
5	Ability to apply techniques and tools to solve complex problems.
6	Ability to work as an effective team member in a collaborative and multidisciplinary project to achieve common goals.
7	Ability to manage a software team and to maintain financial records as per standards.
8	Ability to effectively communicate with clients, peers and society at large.
9	Ability to take up lifelong learning to be in tune with the fast-changing software related technologies.
10	Ability to follow ethical practices in the software industry and accept social responsibility.
11	Ability to learn independently from mistakes and surge forward with positive attitude and enthusiasm.

Course Outcome Versus **Program Outcomes:**

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**
CO-1	S			S		M	S	S	S		S
CO-2	M								M		
CO-3	M	M		M	S	S					
CO-4	S						M	M			
CO-5	M	S	M	S	S	S			S		

S - Strongly correlated, *M* - *Moderately* correlated, *Blank* - *No correlation*

Assessment Methods:	Assignment / Quiz / Seminar / Case Study / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	Essential Software requirement	CO-1	Write about Essential software requirements	▫ Lecture ▫ Demonstration	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
2	Good practices for requirements engineering	CO-1	What are the good practices of software engineering	▫ Lecture / Discussion ▫ Problem solving	Mid-Test 1 (Week 9)
3	Improving requirements processes, Software requirements and risk management	CO-1	Describe about risk management	▫ Lecture ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
4	Requirements elicitation, requirements analysis documentation, review, elicitation techniques	CO-2	List and explain elicitation techniques	▫ Lecture	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
5	analysis models, Software quality attributes, risk reduction through prototyping	CO-3	Explain risk reduction through prototyping	▫ Lecture ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
6	setting requirements priorities, verifying requirements quality, Requirements management Principles and practices, Requirements attributes,	CO-3	What are requirement attributes explain them	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
7	Requirements management Principles and practices, Requirements attributes, Change Management Process, Use Case Modeling, Object analysis, Problem Frames.	CO-2	Draw Use case diagram for ATM	▫ Lecture ▫ Problem solving	Mid-Test 1 (Week 9)
8	Components of Software Estimations, Estimation methods, Problems associated with estimation, Key project factors that influence estimation. Size Estimation	CO-3	What are the problems associated with estimation	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
9	**Mid-Test 1**			▫ Lecture ▫ Problem solving	Mid-Test 2 (Week 18)
10	Two views of sizing, Function Point Analysis, Mark II FPA, Full Function Points	CO-2	What is Function point analysis explain	▫ Lecture ▫ Discussion ▫ Problem solving	Mid-Test 2 (Week 18)
11	LOC Estimation, Conversion between size measures.	CO-2	Explain about LOC estimation method	▫ Lecture ▫ Discussion	Mid-Test 2 (Week 18)
12	What is Productivity? Estimation Factors, Approaches to Effort and Schedule Estimation, COCOMO II, Putnam Estimation Model	CO-3	Describe about COCOMO II model	▫ Lecture ▫ Problem solving	Assignment (Week 10-14) Mid-Test 2 (Week 18)

13	Algorithmic models, Cost Estimation.	CO-4	What are the factors affecting cost estimation	▫ Lecture ▫ Discussion	Assignment (Week 10-14) Mid-Test 2 (Week 18)
14	Benefits of using a requirements management tool, commercial requirements management tool, Rational Requisite pro	CO-5	List the benefits of using a requirements management tool	▫ Lecture	Assignment (Week 10-14) Mid-Test 2 (Week 18)
15	Caliber – RM, implementing requirements management automation,	CO-5	What is Caliber RM tool explain it	▫ Lecture ▫ Discussion Problem solving	Assignment (Week 10-14) Mid-Test 2 (Week 18)
16	Desirable features in software estimation tools, IFPUG,	CO-4	Describe the features in software estimation tools	▫ Lecture ▫ Discussion	Assignment (Week 10-14) Mid-Test 2 (Week 18)
17	USC's COCOMO II, SLIM (Software Life Cycle Management) Tools.	CO-5	Explain about SLIM tools	▫ Lecture	Assignment (Week 10-14) Mid-Test 2 (Week 18)
18	**Mid-Test 2**				
19/20	**END EXAM**				