SCHEME OF COURSE WORK

Course Details:

Course Title	**:SOFTWARE REQUIREMENTS AND ESTIMATION**			
Course Code	**:13IT2101**	**L T P C**	**:4 1 0 4**	
Program:	**: M.Tech**			
Specialization:	**: Software Engineering**			
Semester	**:I**			
Prerequisites	**:Software Engineering**			
Courses to which it is a prerequisite	**:SOFTWARE METRICS**			

Course Outcomes (COs):

1	Gain knowledge about software requirements.
2	Analyze requirement elicitation techniques and prototyping.
3	Gain knowledge about requirement management, their principles and practices
4	Analyze use case modeling and different data diagrams.
5	Estimating the software in terms of size, cost, effort and schedule.

Program Outcomes (POs):

A graduate of mechanical engineering will be able to

1	Ability to plan and execute software project modules, testing and delivery mechanisms.
2	Ability to use industry ready modern technologies through advanced data structures, expertise in web technologies.
3	Ability to think critically on the software related issues to provide viable solutions.
4	Ability to solve software related problems effectively and efficiently.
5	Ability to conduct research on up-coming fields of software development and to innovate into new directions
6	Ability to manage a software team and to maintain financial records as per standards
7	Ability to effectively communicate with clients, peers and society at large.
8	Ability to take up lifelong learning to be in tune with the new software related technologies.
9	Ability to follow ethical practices in the software industry and accept social responsibility.
10	Ability to learn independently from mistakes and surge forwards with positive attitude

Course Outcome Versus **Program Outcomes:**

COs	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**
CO-1	S			S		M	S	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**	CO-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	CO-3	Describe about COCOMO II model	▫ Lecture ▫ Problem solving	Assignment (Week 10-14)

	Schedule Estimation, COCOMO II, Putnam Estimation Model				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**				