SCHEME OF COURSE WORK

Course Details:

Course Title	**:SOFTWARE METRICS**		
Course Code	**:15IT2102**	**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 Quality Assurance and Testing**		

Course Outcomes (COs):

1	Identify various software metrics.
2	Classify software measures and methods.
3	Measure the quality of software.
4	Apply the measurement techniques in a project.
5	Measure and Analyze Customer Satisfaction.

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		M					
CO-2	M	S	M	S		M			M		
CO-3	S	M		M		M		M			
CO-4	M	S									M
CO-5	M	M	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	Measurement in Everyday Life	CO-1	What is Measurement? How Measurement is used in daily life	▫ Lecture ▫ Demonstration	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
2	Measurement in Software Engineering	CO-1	Define Measurement with respect to software Engineering	▫ Lecture / Discussion ▫ Problem solving	Mid-Test 1 (Week 9)
3	Scope of Software Metrics.	CO-1	Describe the properties of software metrics	▫ Lecture ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
4	Representational Theory of Measurement	CO-2	Elaborate theory of Measurement	▫ Lecture	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
5	Measurement and Models, Measurement Scales and Scale Types	CO-3	List Different types of Models and its Measurements	▫ Lecture ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
6	Classifying Software Measures	CO-3	Write down the Classification of Software Measures	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
7	Applying Frame Work	CO-2	Explain the Framework	▫ Lecture ▫ Problem solving	Mid-Test 1 (Week 9)
8	Software Measurement Validation	CO-3	Different Techinques for software Measurement Validation	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
9	**Mid-Test 1**				
10	Good Data, Definition of Data, Collecting Data	CO-2	How to Collect Data for a Project	▫ Lecture ▫ Discussion ▫ Problem solving	Mid-Test 2 (Week 18)
11	Storing and Extracting Data	CO-2	How to store and Extract data from a Database	▫ Lecture ▫ Discussion	Mid-Test 2 (Week 18)
12	Measuring Size and Structure	CO-3	What are the methods for measuring size	▫ Lecture ▫ Problem solving	Mid-Test 2 (Week 18) Assignment (Week 10-16)
13	Modeling Software Quality, Measuring	CO-4	List different aspects of quality	▫ Lecture	Assignment

	Aspects of Quality			▫ Discussion	(Week 10- 16)
14	Planning a Measurement Program, Measurement in Practice.	CO-5	How to use Measurement in projects	▫ Lecture	Seminar Mid-Test 2 (Week 18)
15	Empirical Research in Software Engineering	CO-5	Write about properties of empirical research	▫ Lecture ▫ Discussion Problem solving	Seminar (Week 10-16) Mid-Test 2 (Week 18)
16	Measuring and Analyzing Customer Satisfaction	CO-4	How to Analyze customer satisfaction	▫ Lecture ▫ Discussion	Seminar
17	Analyzing Satisfaction Data, Satisfaction with Company	CO-5	Write different Methods for Analysing Data	▫ Lecture	Assignment (Week 10- 16) Mid-Test 2 (Week 18)
18	**Mid-Test 2**				
19/20	**END EXAM**				