SCHEME OF COURSE WORK

Course Details:

Course Title	**:SOFTWARE REFACTORING**		
Course Code	**:15IT2111**	**L P C**	**:3 0 3**
Program:	**: M.Tech**		
Specialization:	**: Software Engineering**		
Semester	**:II**		
Prerequisites	**:Software Engineering**		
Courses to which it is a prerequisite	**:Software Quality Assurance and Testing**		

Course Outcomes (COs):

1	Gain knowledge about Refactoring, need and problems with refactoring
2	Learn building test, composing methods and removing parameters
3	Identify and know how to organizing data, rep lace, remove,preserve objects
4	Capture about generalization, able to replace field, class, object and perform big refactoring
5	Gain proficiency in refactoring reuse and tools for refactoring

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	M		M			M		
CO-3	S	S		M		M		M			
CO-4	M	M									
CO-5	M	M	M								

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	Refactoring, a First Example	CO-1	What is Measurement? How Measurement is used in daily life	▫ Lecture ▫ Demonstration	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
2	Problems with Refactoring	CO-1	Define Measurement with respect to software Engineering	▫ Lecture / Discussion ▫ Problem solving	Mid-Test 1 (Week 9)
3	Bad Smells in Code - Duplicated Code	CO-1	Describe the properties of software metrics	▫ Lecture ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
4	Building Tests - The Value of Self-testing Code	CO-2	Elaborate theory of Measurement	▫ Lecture	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
5	Split Temporary Variable - Remove Assignments to Parameters	CO-2	List Different types of Models and its Measurements	▫ Lecture ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
6	Organizing Data - Self Encapsulate Field	CO-3	Write down the Classification of Software Measures	▫ Lecture / Discussion ▫ Problem solving	Assignment (Week 1 - 8) Mid-Test 1 (Week 9)
7	Consolidate Conditional Expression -Consolidate Duplicate Conditional Fragments	CO-3	Explain the Framework	▫ Lecture ▫ Problem solving	Mid-Test 1 (Week 9)
8	Remove Control Flag -Replace Nested Conditional with Guard Clauses	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	Consolidate Conditional Expression -Consolidate Duplicate Conditional Fragments	CO-3	How to Collect Data for a Project	▫ Lecture ▫ Discussion ▫ Problem solving	Mid-Test 2 (Week 18)
11	Replace Constructor with Factory Method	CO-3	How to store and Extract data from a Database	▫ Lecture ▫ Discussion	Mid-Test 2 (Week 18)
12	Dealing with Generalization - Pull Up Field - Pull Up Method	CO-4	What are the methods for measuring size	▫ Lecture ▫ Problem solving	Mid-Test 2 (Week 18) Assignment (Week 10-16)
13	Replace Inheritance with Delegation - Replace Delegation with Inheritance	CO-4	List different aspects of quality	▫ Lecture ▫ Discussion	Assignment (Week 10- 16)
14	Convert Procedural Design to Objects -Separate Domain from Presentation	CO-4	How to use Measurement in projects	▫ Lecture	Seminar Mid-Test 2

					(Week 18)
15	Refactoring, Reuse, and Reality	CO-5	Write about properties of empirical research	▫ Lecture ▫ Discussion Problem solving	Seminar (Week 10-16) Mid-Test 2 (Week 18)
16	Resources and References for Refactoring - Implications Regarding Software Reuse and Technology Transfer	CO-5	How to Analyze customer satisfaction	▫ Lecture ▫ Discussion	Seminar
17	Technical Criteria for a Refactoring Tool - Practical Criteria for a Refactoring Tool	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**				