Semester: VI					
SOFTWARE ENGINEERING WITH AGILE TECHNOLOGIES Category: PROFESSIONAL CORE COURSE (Theory) (Common to CS, IS, CD & CY)					
Course Code	:	IS364TA		CIE	:	100 Marks
Credits: L:T:P	:	4:0:0		SEE	:	100 Marks
Total Hours	:	60L		SEE Duration	:	3 Hours

Unit-I	12 Hrs

Overview: Introduction:
Professional Software Development, Software Engineering Ethics, Case studies.
Software Processes: Models, Process activities, Coping with Change, Process improvement.
Requirements Engineering and System Modeling:
Software Requirements: Functional and Non-functional requirements. Requirements Elicitation, Specification, Validation and Change

Unit – II	12 Hrs

System Modeling: Context models, Interaction models, Structural models, Behavioural models, Model driven architecture. Architectural Design: Design decisions, Architectural views, Architectural patterns and architectures Design and implementation: Object oriented design using UML, Design patterns, Implementation issues, Open-source development

Unit –III	12 Hrs

Software Testing: Development testing, Test-driven development, Release testing, User testing.
Software Evolution: Evolution processes. Legacy system evolution, Software maintenance
Component based software engineering: Components and component models, CBSE processes, component composition

Unit –IV	12 Hrs

Project Management: Risk Management, Managing People, Teamwork, Project Planning: Software Pricing, Plan driven development, Project Scheduling, Agile planning, Estimation Techniques, COCOMO cost modeling

Unit –V	12 Hrs

Agile Software Development: Introduction to agile methods, Agile development techniques, Agile project management and scaling agile methods.
Kanban, Flow, and Constantly Improving:
The Principles of Kanban, Improving Your Process with Kanban, Measure and Manage Flow , Emergent Behavior with Kanban
The Agile Coach : Coaches Understand Why People Don't Always Want to Change , Coaches Understand How People Learn , Coaches Understand What Makes a Methodology Work , The Principles of Coaching

Course Outcomes: After completing the course, the students will be able to:-	
CO1	Understand and apply key concepts and stages of the software development lifecycle, including requirements analysis, design, implementation, testing, deployment, and maintenance.
CO2	Demonstrate an ability to use the techniques and tools in the area of software engineering necessary for engineering practice
CO3	Examine the various software design and development solutions using appropriate techniques
CO4	Students will be able to apply various Agile methodologies such as Scrum, Kanban, or XP effectively in software development projects.

Reference Books	
1.	Ian Sommerville," Software Engineering", 9th Edition, Pearson Education, 2013, ISBN: 9788131762165
2.	Learning Agile- Understanding Scrum, XP, Lean and Kanban, Andrew Stellman& Jennifer Greene, O'Reilly Media, 2015, ISBN 978-1-449-33192-4
3.	Roger.S.Pressman," Software Engineering-A Practitioners Approach", 7th Edition, Tata McGraw Hill, 2007, ISBN: 9780071267823
4.	Pankaj Jalote," An Integrated Approach to Software Engineering", 3rd Edition, Narosa Publishing House, 2013, ISBN: 9788173197024
5	Rajib Mall, Fundamentals of Software Engineering, 3rd Edition, Prentice-hall Of India Pvt Ltd., 2012, ISBN: 9788120348981.

RUBRIC FOR THE CONTINUOUS INTERNAL EVALUATION (THEORY)		
#	**COMPONENTS**	**MARKS**
1.	**QUIZZES:** Quizzes will be conducted in online/offline mode. TWO QUIZZES will be conducted & Each Quiz will be evaluated for 10 Marks. **THE SUM OF TWO QUIZZES WILL BE THE FINAL QUIZ MARKS.**	**20**
2.	**TESTS:** Students will be evaluated in test, descriptive questions with different complexity levels (Revised Bloom's Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating). TWO tests will be conducted. Each test will be evaluated for 50 Marks, adding upto 100 Marks. **FINAL TEST MARKS WILL BE REDUCED TO 40 MARKS**	**40**
3.	**EXPERIENTIAL LEARNING:** Students will be evaluated for their creativity and practical implementation of the problem. Case study-based teaching learning (10), Program specific requirements (10), Video based seminar/presentation/demonstration (20) **Phase 2 will be done in the exhibition mode (Demo/Prototype/any outcome). ADDING UPTO 40 MARKS**.	**40**
	MAXIMUM MARKS FOR THE CIE THEORY	**100**

RUBRIC FOR SEMESTER END EXAMINATION (THEORY)		
Q. NO.	**CONTENTS**	**MARKS**
	PART A	
1	Objective type questions covering entire syllabus	20
	PART B (Maximum of TWO Sub-divisions only)	
2	Unit 1 : (Compulsory)	16
3 & 4	Unit 2 : Question 3 or 4	16
5 & 6	Unit 3 : Question 5 or 6	16
7 & 8	Unit 4 : Question 7 or 8	16
9 & 10	Unit 5: Question 9 or 10	16
	TOTAL	**100**