

NIRMA UNIVERSITY

Institute:	Institute of Technology
Name of Programme:	Integrated B.Tech.(CSE)-MBA
Course Code:	CSI0911
Course Title:	Agile Software Development
Course Type:	(<input type="checkbox"/> Core/ <input type="checkbox"/> Value Added Course / <input checked="" type="checkbox"/> Department Elective / <input type="checkbox"/> Institute Elective/ <input type="checkbox"/> University Elective/ <input type="checkbox"/> Open Elective / <input type="checkbox"/> Any other)
Year of Introduction:	2022-23

L	T	Practical Component				C
		LPW	PW	W	S	
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Course Learning Outcomes (CLOs):

At the end of the course, the student will be able to –

1. explain the business value of adopting agile approaches and development practices (BL2)
2. make use of tools to demonstrate agile framework and activities (BL3)
3. examine design principles, refactoring version control and continuous integration to achieve agility (BL4)
4. create testing activities within an agile project using various testing strategies (BL6)

Syllabus:

Total Teaching hours: 30

Unit	Syllabus	Teaching hours
Unit-I	Fundamentals of Agile: The Genesis of Agile, Introduction and background, Agile Manifesto and Principles, Overview of Scrum, Extreme programming, Feature driven development, Lean Software Development, Agile project management, Design and development practices in Agile projects	06
Unit-II	Agile Frameworks: Introduction to Scrum, Project phases, Agile Estimation, Planning game, Product backlog, Sprint backlog, Iteration planning, User story definition, Characteristics and content of user stories, Acceptance tests and Verifying stories, Project velocity, burn down chart, Sprint planning and retrospective, Daily scrum, Scrum roles – Product Owner, Scrum Master, Scrum Team, Scrum case study, Tools for Agile project management, Introduction of Kanban and compare it with Scrum	12
Unit-III	Agile Testing: The Agile lifecycle and its impact on testing, Test-Driven Development (TDD), xUnit framework and tools for TDD, testing user stories - acceptance tests and scenarios, Planning and managing testing cycle, Exploratory testing, Risk based testing, Regression tests, Test Automation, Tools to support the Agile tester.	05

Unit-IV **Agile Software Design and Development:** Agile design practices, 07
 Role of design Principles including Single Responsibility Principle, Open Closed Principle, Liskov Substitution Principle, Interface Segregation Principles, Dependency Inversion Principle in Agile Design, Need and significance of Refactoring, Refactoring Techniques, Continuous Integration, Automated build tools, Version control.

Self-Study: The self-study contents will be declared at the commencement of semester. Around 10% of the questions will be asked from self-study contents

- Suggested Readings/References:
1. Ken Schawber, Mike Beedle, Agile Software Development with Scrum, Pearson
 2. Lisa Crispin, Janet Gregory, Agile Testing: A Practical Guide for Testers and Agile Teams, Addison Wesley
 3. Robert C. Martin, Agile Software Development, Principles, Patterns and Practices, Prentice Hall
 4. Alistair Cockburn, Agile Software Development: The Cooperative Game, Addison Wesley
 5. Mike Cohn, User Stories Applied: For Agile Software, Addison Wesley

Suggested List of Experiments:	Sr. No.	Title	Hours
	1	Study of an Agile Approach to Software Development.	02
	2	Exploration and Comparative study of SCRUM Project Management Tools. Hands on practice on the tool which will be used in the project development for the system selected by the group.	02
	3	Creating User-Stories for the entire project and using the SCRUM Project Management tool to create and store those in the repository of the tool.	02
	4	Testing user stories - acceptance tests and scenarios. Creating Acceptance Criteria for each User-Stories created as a part of Practical-3. Also list down complexity of user stories using planning poker online tool.	04
	5	Product Backlog Creation & Sprint Planning and Product verification and validation for each Sprint outcome.	04
	6	Comparative study of various SCRUM based testing tools and hands-on practice. xUnit framework and exploration of tools for TDD.	04
	7	Create Test Cases for the project definition selected and implementation of test cases.	02

Suggested Case List: -NA-

