



**SARVAJANIK UNIVERSITY**  
**Sarvajanik College of Engineering and Technology**  
**Master of Computer Applications**



**MCA I Semester 1**

**Subject Name:** Agile Methodologies

**Subject Code:** MTCA23107

**Type of course:** Professional Core Course

**Prerequisite (if any):** NA

**List of Courses where this course will be a prerequisite:**

- Software Testing
- Software Quality Assurance
- Agile Project Development

**Rationale:**

- To Study technical and managerial aspects of Software Development.
- To Study Development Models and Agile Software Development Process Model.
- To Study Requirement Gathering and SRS Documentation.
- To Study Design Function Oriented and Object Oriented Design Approach.
- To Study Testing Strategies and Testing Tactics.
- To Study Git and be able to create and merge Git branches.

**Teaching and Examination Scheme:**

TEACHING SCHEME				Theory Marks		Practical Marks		Total
L	T	P	C	TEE	CAT	TEP	CAP	
2	0	0	2	60	40	0	0	100

**CAT:** Continuous Assessment Theory comprised of CA1 and CA2 **CA1:** Continuous Assessment (assignments/projects/open book tests/closed book tests **CA2:** Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems **TEE:** Term End Examination **TEP:** Term End Practical Exam (Performance and viva on practical skills learned in course) **CAP:** Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course.





**SARVAJANIK UNIVERSITY**  
**Sarvajani College of Engineering and Technology**  
**Master of Computer Applications**



**Content:**

Sr. No.	Content	Teaching Hrs.	Module Weightage
1	<b>Introduction to Software Engineering</b> Introduction to Software Engineering, Software Development Life Cycles	3	10%
2	<b>Testing</b> Introduction to Software Testing, Principles of Software Testing, Verification & Validation, Types of Testing, White box testing, and Black box testing	5	17%
3	<b>Agile Development</b> Introduction to Agile development model, Benefits of Agile model, Agility and Agile Process, Agile Process model, Adaptive Software Development, Dynamic Systems Development Method, Crystal, Feature Driven Development and Agile Modeling <b>UML Diagram:</b> Introduction to Use Case diagrams, Introduction to Deployment Diagram	7	23%
4	<b>Scrum and Extreme Programming (XP)</b> Scrum and Self-Organizing, Scrum Planning and Collective Commitment, Sprint, Scrum Master, Product Owner, Development Team, Retrospective, XP and Embracing change, Simplicity and Incremental Design, Kanban, Story Grooming	5	17%
5	<b>Agile Project Management</b> User Stories, Product Backlog, Sprint Backlog, and Increment, Sprint Planning, Execution, and Review, Agile Metrics: Burndown Charts and Velocity Tracking <b>Introduction to Agile Development Tools:</b> Overview of tools used in Agile web development. <b>Atlassian Jira:</b> Introduction, creating a project, adding tasks and subtasks, and managing sprints using tasks.	7	23%
6	<b>Introduction to Git and GitHub:</b> Overview of Git, GitHub and its repository structure. <b>Version Control with Git:</b> Adding code to a repository, creating branches, merging branches, and resolving conflicts.	3	10%





**SARVAJANIK UNIVERSITY**  
**Sarvajnik College of Engineering and Technology**  
**Master of Computer Applications**



**Suggested Specification table with Marks (Theory):**

%Distribution of Marks					
R Level	U Level	A Level	N Level	E Level	C Level
20	20	15	15	15	15

**Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate  
C: Create and above Levels (Revised Bloom's Taxonomy)**

**Note:** This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

**Reference Books:**

Sr. No.	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
1	Software Engineering- A practitioner's Approach	Roger S.Pressman,	McGraw-Hill International	2015	9 <sup>th</sup> Edition
2	Software Engineering – A Precise Approach	Pankaj Jalote	Wiley	2010	2 <sup>nd</sup> Edition
3	Software Engineering	Ian Sommerville	Pearson education Asia	2011	9 <sup>th</sup> Edition
5	Learning Agile	Andrew Stellman, Jennifer Greene	O'Reilly, Shorff Publishers and Distributors Pvt. Ltd.	2019	1 <sup>st</sup> Edition Fourth Indian Reprint
6	Scrum: The Art of Doing Twice the Work in Half the Time	Jeff Sutherland, J.J. Sutherland	Crown Publishing Group	2014	1st edition
7	Git Pocket Guide: A Working Introduction	Richard E. Silverman	O'Reilly Media	2013	1 <sup>st</sup> Edition





**SARVAJANIK UNIVERSITY**  
**Sarvajanik College of Engineering and Technology**  
**Master of Computer Applications**



**Course Outcomes:**

Sr. No.	CO Statement After learning this subject, students will be able to	Marks % Weightage
CO-1	Understand software engineering concepts and software development life cycles	10
CO-2	Apply the principles and techniques of software testing, including verification, validation, and various testing types	17
CO-3	Explore Agile development models and their principles, including the use of UML use case diagrams and deployment diagrams	23
CO-4	Gain knowledge of Scrum and XP practices, focusing on team collaboration, sprint planning, and iterative development	17
CO-5	Understand Agile project management concepts, including user stories, backlog management, and Agile metrics using agile development tool Jira	23
CO-6	Use code version control system using Git and GitHub	10

**Mapping with POs:**

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13
CO-1	3	2	2	3	1	2	2	1	2	2	1	1	2
CO-2	2	2	3	3	1	2	1	2	3	1	1	1	1
CO-3	2	3	3	3	1	3	2	2	2	2	2	2	1
CO-4	3	3	3	3	1	3	3	2	3	2	2	2	1
CO-5	2	3	2	3	1	2	3	3	2	3	3	2	2
CO-6	2	3	3	3	1	3	2	2	2	2	2	2	1
Rationale*													

Rationale\*: Explaining why it is matching this particular program outcome

**List of Open learning website:**

- <http://www.rspa.com/spi/>
- <https://www.atlassian.com/agile/>





**SARVAJANIK UNIVERSITY**  
**Sarvajnik College of Engineering and Technology**  
**Master of Computer Applications**



- <https://www.scrum.org/>
- <https://git-scm.com/docs/gittutorial>
- <https://product.hubspot.com/blog/git-and-github-tutorial-for-beginners>

**List of Open-Source Software:**

- <https://staruml.io/>
- **JIRA:** <https://www.atlassian.com/software/jira>
- **GitLab:** <https://about.gitlab.com>
- **Trello:** <https://trello.com>

**Major Equipment Needed: NA**

