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Syllabus for B. Tech. IV Year I semester
Computer Science and Engineering
AGILE SOFTWARE DEVELOPMENT
(Professional Elective –IV)

Code: 7FC12

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Prerequisite : Software Engineering

Course Objectives: To understand how an iterative, incremental development process leads to faster delivery of more useful software

Course Outcomes:

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

1. To understand the essence of agile development methods
2. To apply the principles and practices of extreme programming in real world problems.
3. To incorporate proper coding standards and guidelines in an agile process.
4. To optimize an agile process by exploring the possible risks and threats in the software process
5. To improve the process by eliminating waste
6. To design an agile process for a business application and deal with appropriate tradeoff.

UNIT I: Why Agile?: Understanding Success, Beyond Deadlines, The Importance of Organizational Success, Enter Agility, How to Be Agile?: Agile Methods, Don't Make Your Own Method, The Road to Mastery, Find a Mentor

UNIT II: Understanding XP: The XP Lifecycle, The XP Team, XP Concepts, Adopting XP: Is XP Right for Us?, , Assess Your Agility

UNIT III: Practicing XP: Thinking: Pair Programming, Energized Work, Informative Workspace, Root-Cause Analysis, Retrospectives, Collaborating: Trust, Sit Together, Real Customer Involvement, Ubiquitous Language, Stand-Up Meetings, Coding Standards, Iteration Demo, Reporting, Releasing:"Done Done", No Bugs, Version Control, Ten-Minute Build, Continuous Integration, Collective Code Ownership, Documentation.

UNIT IV: Planning: Vision, Release Planning, The Planning Game, Risk Management, Iteration Planning, Slack, Stories, Estimating. Developing: Incremental requirements, Customer Tests, Test-Driven Development, Refactoring, Simple Design , Incremental Design and Architecture, Spike Solutions, Performance Optimization, Exploratory Testing

UNIT V: Mastering Agility Values and Principles: Commonalities, About Values, Principles, and Practices, Further Reading, Improve the Process: Understand Your Project, Tune and Adapt, Break

the Rules, Rely on People :Build Effective Relationships, Let the Right People Do the Right Things, Build the Process for the People, Eliminate Waste :Work in Small, Reversible Steps, Fail Fast, Maximize Work Not Done, Pursue Throughput

UNIT VI: Deliver Value: Exploit Your Agility, Only Releasable Code Has Value, Deliver Business Results, Deliver Frequently, Seek Technical Excellence :Software Doesn't Exist, Design Is for Understanding, Design Tradeoffs, Quality with a Name, Great Design, Universal Design Principles, Principles in Practice, Pursue Mastery

TEXT BOOKS:

1. James Shore and Shane Warden, " The Art of Agile Development", O'REILLY, 2007.

REFERENCES:

1. Robert C. Martin, "Agile Software Development, Principles, Patterns, and Practices" , PHI, 2002.
2. Angel Medinilla, "Agile Management: Leadership in an Agile Environment", Springer, 2012.
3. Bhuvan Unhelkar, "The Art of Agile Practice: A Composite Approach for Projects and Organizations", CRC Press.
4. Jim Highsmith, "Agile Project Management", Pearson education, 2004
5. Elisabeth Hendrickson, "Agile Testing" Quality Tree Software Inc 2008.

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