VI Semester

AGILE TECHNOLOGIES			
Course Code	21CS641	CIE Marks	50
Teaching Hours/Week (L:T:P: S)	3:0:0:0	SEE Marks	50
Total Hours of Pedagogy	40	Total Marks	100
Credits	03	Exam Hours	03

Course Learning Objectives:

CLO 1. To understand basics of agile technologies
CLO 2. To explain XP Lifecycle, XP Concepts and Adopting XP
CLO 3. To Evaluate on Pair Programming, Root-Cause Analysis, Retrospectives, Planning, Incremental Requirements and Customer Tests
CLO 4. To become Mastering in Agility
CLO 5. To provide well Deliver Value

Teaching-Learning Process (General Instructions)

These are sample Strategies, which teachers can use to accelerate the attainment of the various course outcomes.

1. Lecturer method (L) does not mean only traditional lecture method, but different type of teaching methods may be adopted to develop the outcomes.
2. Show Video/animation films to explain functioning of various concepts.
3. Encourage collaborative (Group Learning) Learning in the class.
4. Ask at least three HOT (Higher order Thinking) questions in the class, which promotes critical thinking.
5. Adopt Problem Based Learning (PBL), which fosters students' Analytical skills, develop thinking skills such as the ability to evaluate, generalize, and analyze information rather than simply recall it.
6. Topics will be introduced in a multiple representation.
7. Show the different ways to solve the same problem and encourage the students to come up with their own creative ways to solve them.
8. Discuss how every concept can be applied to the real world - and when that's possible, it helps improve the students' understanding.

Module-1

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.

The Genesis of Agile, Introduction and background, Agile Manifesto, and Principles, Simple Design, User Stories, Agile Testing, Agile Tools

Textbook 1: Part I – Ch 1, Ch 2.

Textbook 2: Ch 1

Teaching-Learning Process	Chalk and board, Active Learning https://www.nptelvideos.com/video.php?id=904 https://www.youtube.com/watch?v=x90kIAFGYKE http://www.digimat.in/nptel/courses/video/110104073/L02.html https://onlinecourses.nptel.ac.in/noc19_mg30/preview

Module-2

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

Overview of Extreme Programming, The Practices of Extreme Programming, Conclusion, Bibliography, Planning Initial Exploration, Release Planning, Iteration Planning, Defining "Done", Task Planning Iterating, Tracking.

Textbook 1: Part I: Ch 3, Ch 4.

Textbook 3: Section 1: Ch 1

Teaching-Learning Process	Chalk and board, Active Learning https://www.nptelvideos.com/video.php?id=904 https://www.youtube.com/watch?v=x90kIAFGYKE http://www.digimat.in/nptel/courses/video/110104073/L02.html https://onlinecourses.nptel.ac.in/noc19_mg30/preview

Module-3

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. 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

Textbook 1: Part II: Ch 5, Ch 6, Ch 7, Ch 8, Ch 9.

Teaching-Learning Process	Chalk and board, Demonstration https://www.nptelvideos.com/video.php?id=904 https://www.youtube.com/watch?v=x90kIAFGYKE http://www.digimat.in/nptel/courses/video/110104073/L02.html https://onlinecourses.nptel.ac.in/noc19_mg30/preview

Module-4

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

Textbook 1: Part III- Ch 10, Ch 11, Ch 12, Ch 13.

Teaching-Learning Process	Chalk and board https://www.nptelvideos.com/video.php?id=904 https://www.youtube.com/watch?v=x90kIAFGYKE http://www.digimat.in/nptel/courses/video/110104073/L02.html https://onlinecourses.nptel.ac.in/noc19_mg30/preview

Module-5

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

Trade-offs, Quality with a Name, Great Design, Universal Design Principles, Principles in Practice, Pursue Mastery

Textbook 1: Part IV- Ch 14, Ch 15.

Teaching-Learning Process	Chalk and board https://www.nptelvideos.com/video.php?id=904 https://www.youtube.com/watch?v=x90kIAFGYKE http://www.digimat.in/nptel/courses/video/110104073/L02.html https://onlinecourses.nptel.ac.in/noc19_mg30/preview

Course outcome (Course Skill Set)

At the end of the course the student will be able to:

CO 1. Understand the fundamentals of agile technologies
CO 2. Explain XP Lifecycle, XP Concepts and Adopting XP
CO 3. Apply different techniques on Practicing XP, Collaborating and Releasing
CO 4. Analyze the Values and Principles of Mastering Agility
CO 5. Demonstrate the agility to deliver good values

Assessment Details (both CIE and SEE)

The weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The minimum passing mark for the CIE is 40% of the maximum marks (20 marks). A student shall be deemed to have satisfied the academic requirements and earned the credits allotted to each subject/ course if the student secures not less than 35% (18 Marks out of 50) in the semester-end examination (SEE), and a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together

Continuous Internal Evaluation:

Three Unit Tests each of **20 Marks (duration 01 hour**)

1. First test at the end of 5th week of the semester
2. Second test at the end of the 10th week of the semester
3. Third test at the end of the 15th week of the semester

Two assignments each of **10 Marks**

4. First assignment at the end of 4th week of the semester
5. Second assignment at the end of 9th week of the semester

Group discussion/Seminar/quiz any one of three suitably planned to attain the COs and POs for **20 Marks** (**duration 01 hours**)

6. At the end of the 13th week of the semester

The sum of three tests, two assignments, and quiz/seminar/group discussion will be out of 100 marks and will be **scaled down to 50 marks**

(to have less stressed CIE, the portion of the syllabus should not be common /repeated for any of the methods of the CIE. Each method of CIE should have a different syllabus portion of the course).

CIE methods /question paper has to be designed to attain the different levels of Bloom's taxonomy as per the outcome defined for the course.

Semester End Examination:

Theory SEE will be conducted by University as per the scheduled timetable, with common question papers for the subject (**duration 03 hours)**

1. The question paper will have ten questions. Each question is set for 20 marks. Marks scored shall be proportionally reduced to 50 marks

2. There will be 2 questions from each module. Each of the two questions under a module (with a maximum of 3 sub-questions), **should have a mix of topics** under that module.

The students have to answer 5 full questions, selecting one full question from each module

Suggested Learning Resources:

Textbooks

1. James shore, Chromatic, O'Reilly, The Art of Agile Development, 2007

Reference Books

1. Ken Schawber, Mike Beedle, "Agile Software Development with Scrum",Pearson, 2008
2. Agile-Principles-Patterns-and-Practices-in-C by Robert C Martin & Mic Martin.

Web links and Video Lectures (e-Resources):

Model wise mentioned

Activity Based Learning (Suggested Activities in Class)/ Practical Based learning

- Demonstration of the project based on Agile technologies.