GLA UNIVERSITY
MATHURA
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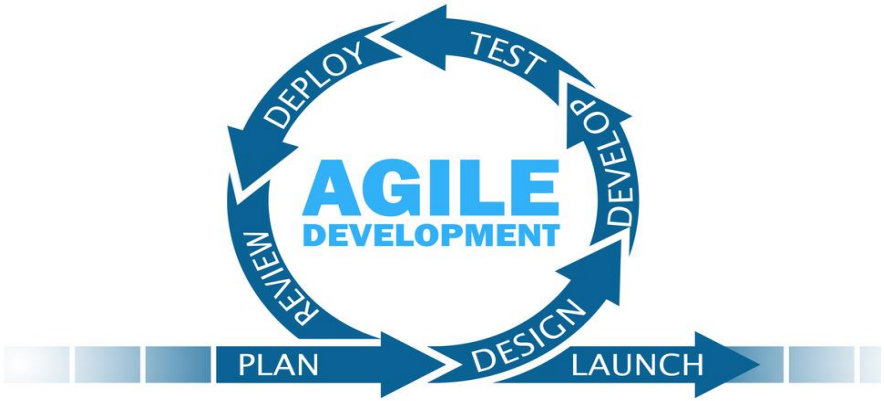
3.46 Score
12-B Status from UGC

Agile Software Development

Topic: Introduction to Agile Software Development



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Syllabus for BCA (Hons.)

Credits: 03 **Semester: V** **L-T-P: 3-0-0**

Module I	**Agile Software Development**: Fundamentals of Agile: Introduction and background. Agile Alliance. Agile Manifesto: Values and Principles. Overview of Agile Frameworks: Scrum, Extreme Programming, Feature Driven Development, Lean Software Development, Crystal, and Kanban. **Agile and Scrum Principles:** Agile Scrum Process: Pre game, Game & Post game. Agile-Scrum Framework: Applying Scrum. Need of Scrum, working of Scrum, Scrum practices, Scrum Roles, artifacts & user stories. **XP Framework:** Values, principles & practices. **FDD Framework:** Lifecycle, Strength, weakness & tools. **Lean Framework:** Lean Principles, Strength, Weakness. **Crystal Framework:** Key Principles, Advantages & Disadvantages of applying Crystal framework. **Kanban Framework:** Introduction, Kanban board, Core concepts, Benefits, Characteristics. **Agile estimation:** size estimation, velocity, effort estimation, estimation techniques. Code refactoring. Continuous integration. Pair programming. Agile Design Principles & Practices. Agile Project Management and Agile Testing.

Syllabus for BCA (Hons.)

Module II	Agile SOLID principles. Dependency Injection. **Agile Risk Management:** Risk and Quality Assurance, Agile Tools. **Version Control Systems:** Local VCS, Centralized VCS, Distributed VCS. Agile Terminologies. Agile Life Cycle. **Agile Testing:** Agile Testing Techniques, Test-Driven Development, User Acceptance Test. **Test Driven Development:** Process, Benefits, Drawbacks. **Acceptance Testing:** Types of acceptance testing, uses of acceptance testing. Regression Testing. Exploration Testing. **Risk Based Testing:** Types of risks, risk handling. Agile test automation. Agile ALM. Distributed Agile. Agile adaptation in cloud. **Industry Trends:** Market scenario and adoption of Agile, Roles in an Agile project, Agile applicability, Business benefits, Challenges in Agile, Risks and Mitigation, Balancing Agility with Discipline, Agile rapid development technologies.

Syllabus for B.Tech. (CSE)

Credits: 03 **L-T-P-J: 3-0-0-0**

Module No.	Content	Teaching Hours
I	**Introduction:** The Genesis of Agile, Introduction and background, Agile Manifesto and Principles, Overview of Scrum, Extreme Programming, Feature Driven development, Feature Driven development, Agile project management, Design and development practices in Agile projects, Test Driven Development, Continuous Integration, Refactoring, Pair Programming, Simple Design, User Stories, Agile Testing, Agile Tools. **Agile Scrum Framework:** 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 charts, Sprint planning and retrospective, Daily scrum, Scrum roles – Product owner, Scrum Master, Scrum Team, Scrum case study, Tools for Agile project management. **Agile Software Design:** Agile design practices, Role of design Principles including Single Responsibility Principles, Open Closed Principles, Liskov Substitution Principles, Interface Segregation Principles, Dependency Inversion Principle in Agile Design.	20

Syllabus for B.Tech. (CSE)

	Design	
II	**Agile Software Development:** Need and significance of Refactoring, Refactoring Techniques, Continuous Integration, Automated build tools, Version control. Current researches in Agile software development. **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. **Industry Trends:** Market scenario and adoption of Agile, Agile ALM, Roles in an Agile project, Agile applicability, Agile in Distributed teams, Business benefits, Challenges in Agile, Risks and Mitigation, Agile projects on Cloud, Balancing Agility with Discipline, Agile rapid development technologies.	20

Course Objectives

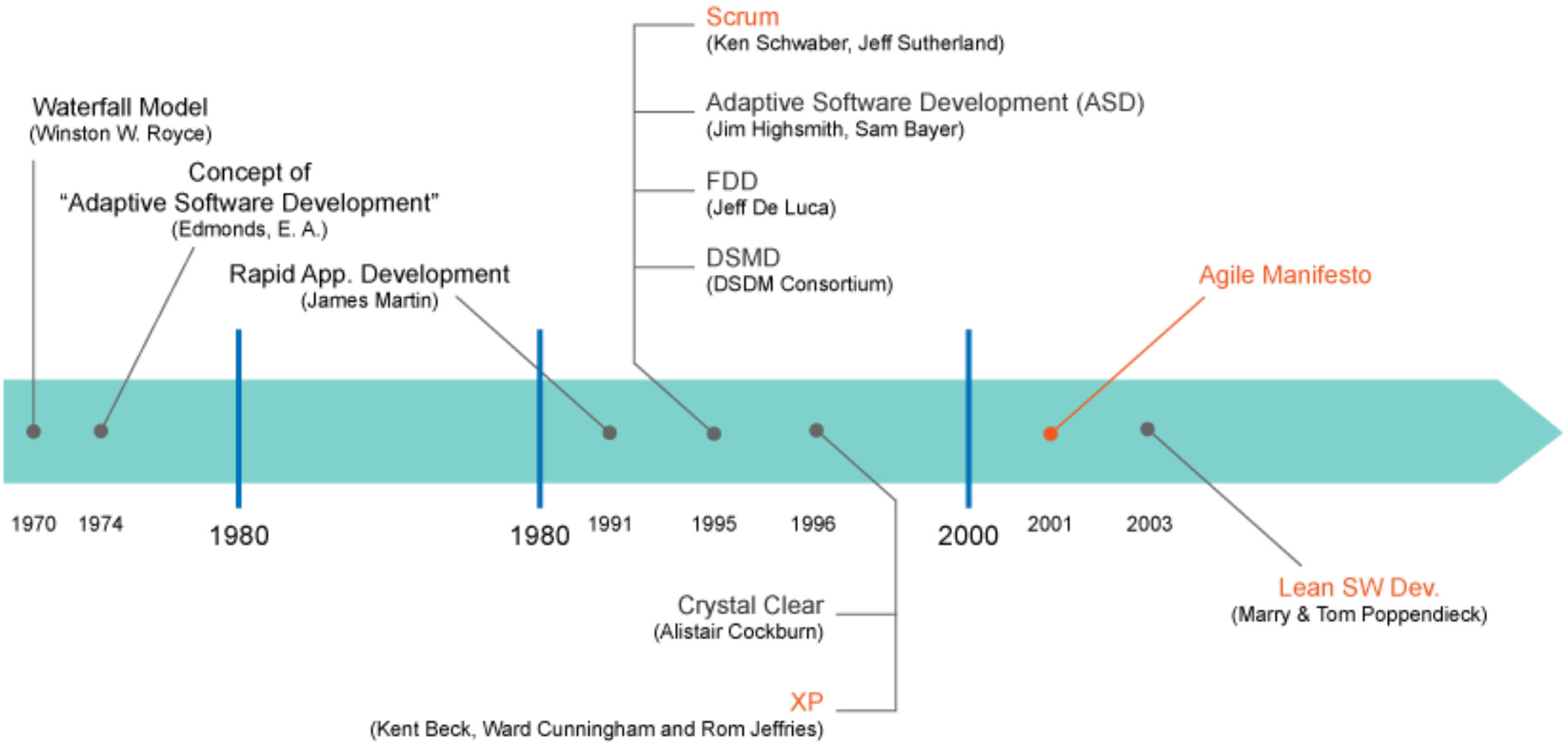
- To demonstrate an understanding of Agile development philosophies and methodologies,
- To practice human-centric design in Agile development,
- To evaluate Agile team-based practices used to create and deliver products,
- To build out a small team-based project using Scrum practices,
- To explore advanced and emerging topics in the domain of software development.

Learning Objectives

The students will be able to:

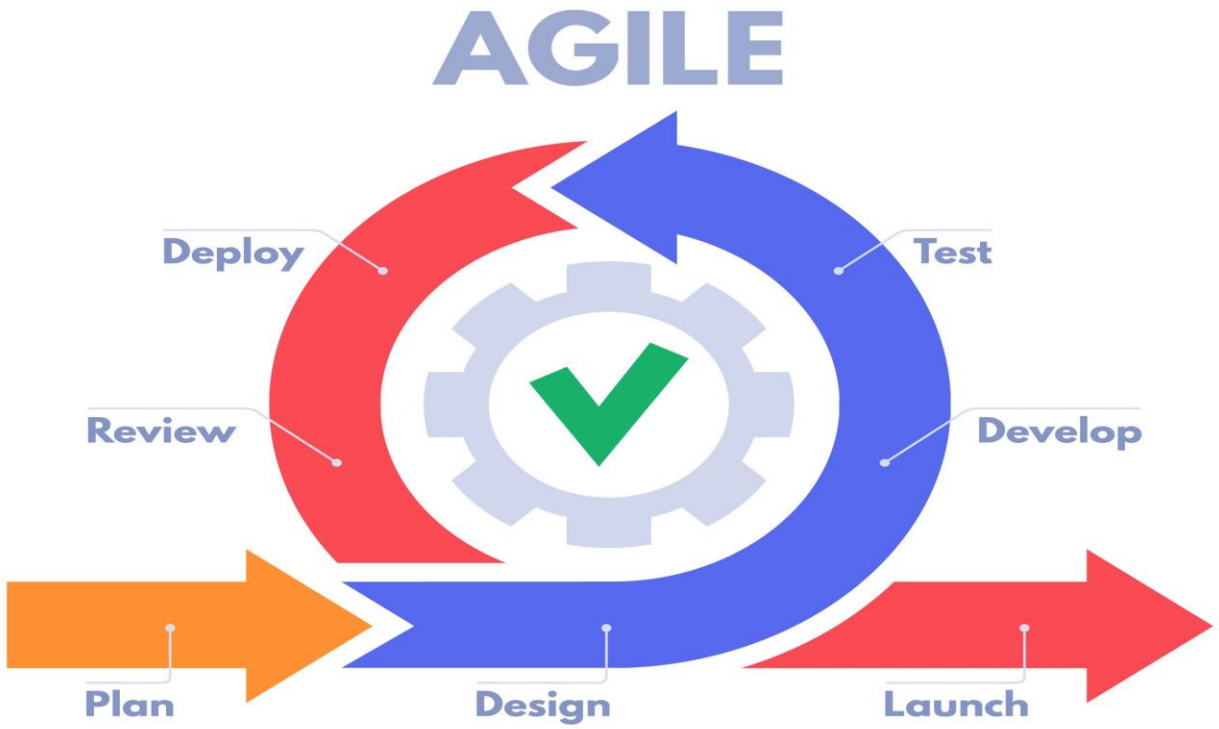
1. Demonstrate critical thinking while working in Agile environment,
2. Apply problem solving approach against a complex holistic system of Agile values, principles and practices, and challenges of scaling to the enterprise,
3. Describe how an Agile framework is executed from beginning to end,
4. Define & prioritize the system requirements in the form of User stories,
5. Implement a live project that adopts Agile execution techniques, etc.

History of Agile

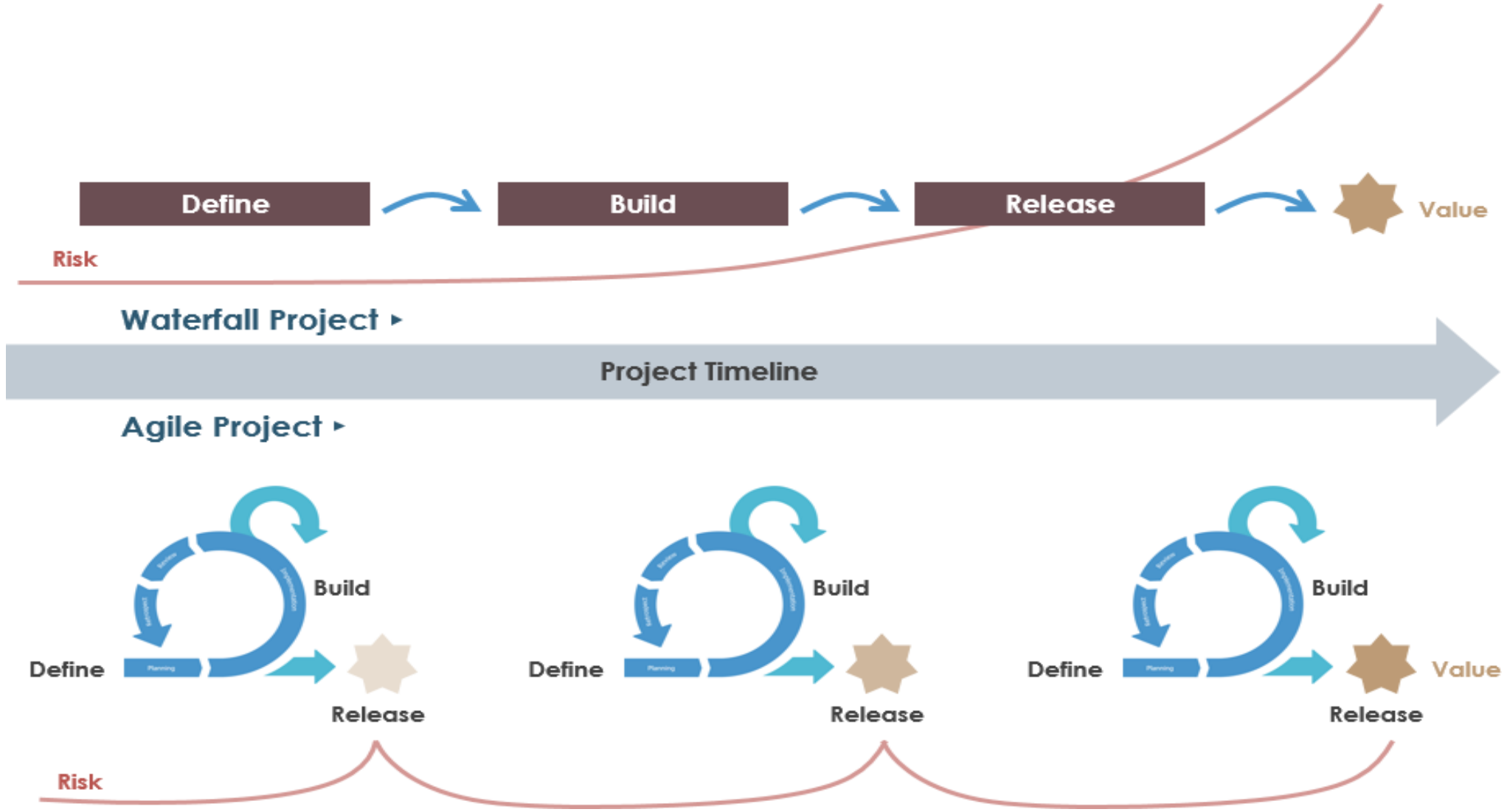


What is Agile?

Agile is a group of methodologies that demonstrate a commitment to tight feedback cycles and continuous improvement.



What is Agile?

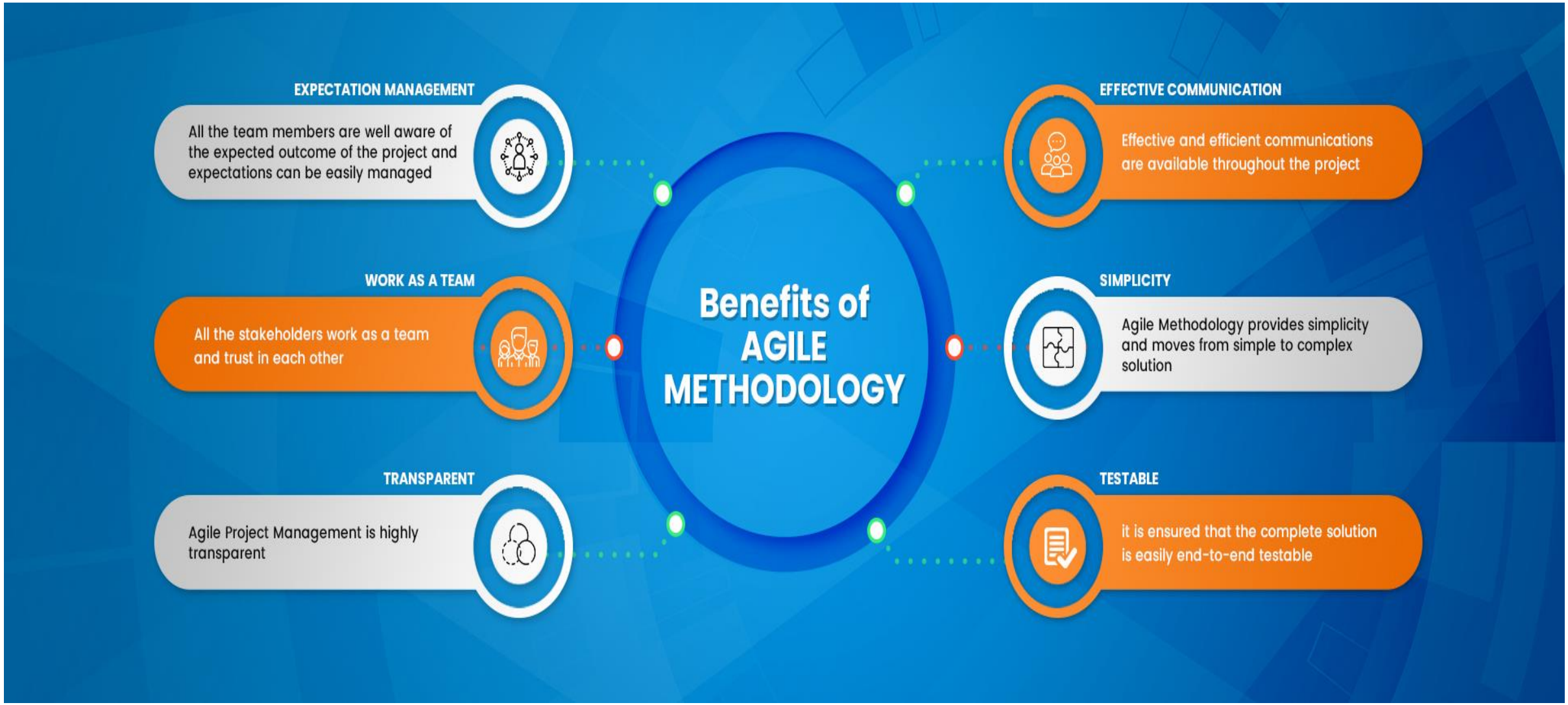


Why Choose Agile?

Why Study Agile?

- Fun & activity based learning,
- High demand of Agile professionals in IT sector,
- Flexibility to break complex projects into manageable pieces,
- Latest & trending SDLC model, etc.

Benefits of Agile Methodology



Career options after learning Agile Methodologies

1. Product Owner,
2. Scrum Master,
3. Scrum Developer,
4. Quality Engineer,
5. Business Analyst,
6. Software Tester,
7. Agile Coach,
8. Enterprise Coach, etc.

Text & Reference Books

- Ken Schawber & Mike Beedle, Agile Software Development with Scrum, Pearson, 2008.

- Robert C. Martin, Agile Software Development, Principles, Patterns and Practices, Prentice Hall, 2002.

- Lisa Crispin & Janet Gregory, Agile Testing: A Practical Guide for Testers and Agile Teams, Addison Wesley, 2008.

- Alistair Cockburn, Agile Software Development: The Cooperative Game, Addison Wesley, 2006.

Trending Agile Certifications

1. Six Sigma White Belt Training & Certification ***[Free of Cost]***
https://www.sixsigmaonline.org/six-sigma-white-belt-certification/

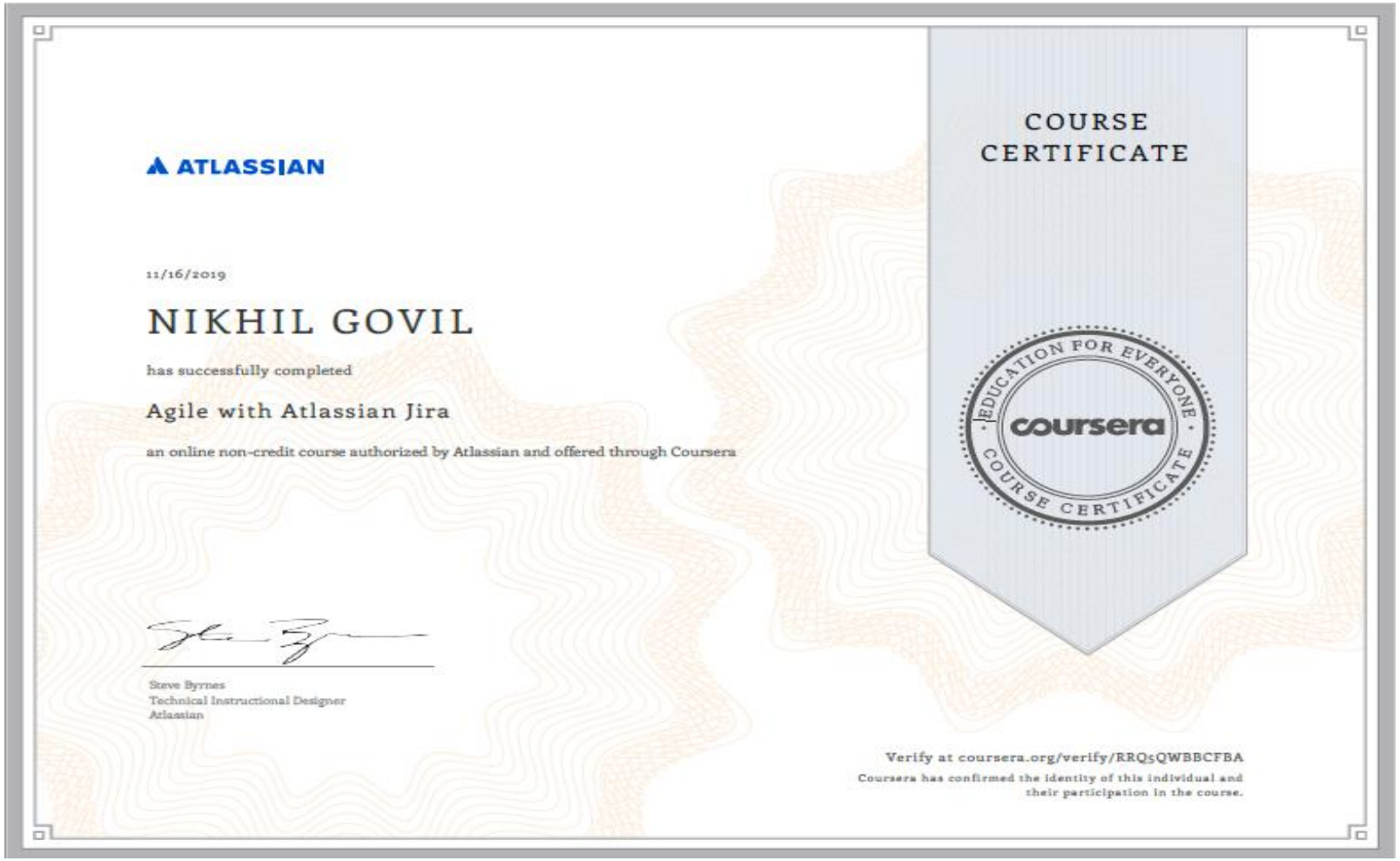
2. Agile Scrum Training ***[Free of Cost]***
https://masterofproject.com/p/agile-scrum-overview-agile-scrum-certification-info

3. Agile with Atlassian Jira (from Cousera) ***[Paid]***
https://www.coursera.org/learn/agile-atlassian-jira

4. Certified ScrumMaster (from ScrumAlliance) ***[Paid]***
https://www.scrumalliance.org/get-certified/scrum-master-track/certified-scrummaster

Suggested Online Course

- Agile with Atlassian Jira through Coursera.



ATLASSIAN

11/16/2019

NIKHIL GOVIL

has successfully completed

Agile with Atlassian Jira

an online non-credit course authorized by Atlassian and offered through Coursera

Steve Byrnes
Technical Instructional Designer
Atlassian

COURSE CERTIFICATE

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Be Agile, not just Do Agile

Thank you!


Thank
you