

Lab Manual

Title

Planning a Project Using Waterfall vs. Agile Using Taiga

Lab Duration

2 Hours

Tool Used

Taiga (Open-source Agile Project Management Tool)

Lab Type

Hands-on, Tool-based, Comparative Planning Exercise

Learning Objectives

After completing this lab, students will be able to:

- Plan the same software project using both Waterfall and Agile methodologies
 - Use Taiga Kanban for Waterfall-style planning
 - Use Taiga Scrum for Agile project planning
 - Create and manage tasks, user stories, milestones, and sprints
 - Analyze and compare change management, planning effort, and flexibility
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Project Scenario (Common for Both Models)

Project Title: Online Course Registration System (OCRS)

High-Level Features:

- Student registration and login
 - Course catalog viewing
 - Course enrollment
 - Admin course management
 - Fee payment (conceptual only)
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Lab Structure and Time Allocation

- Phase 1: Waterfall Planning using Taiga – 50 Minutes
 - Phase 2: Agile (Scrum) Planning using Taiga – 50 Minutes
 - Phase 3: Comparison and Reflection – 20 Minutes
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Phase 1: Waterfall Project Planning Using Taiga (50 Minutes)

Step 1: Create a Waterfall Project (10 Minutes)

1. Log in to Taiga
2. Create a new project
3. Project Name: OCRS-Waterfall
4. Project Type: Kanban
5. Configure workflow stages as:
 - o New
 - o In Progress
 - o Completed

Note: This Kanban board will simulate the Waterfall model by enforcing sequential execution.

Step 2: Define Waterfall Phases as Tasks (15 Minutes)

Create the following tasks (representing fixed phases):

- Requirement Analysis
- System Design
- Module Development
- Integration
- Testing

- Deployment

Instruction:

- Treat all requirements as frozen
 - Do not allow overlap between phases
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Step 3: Break Phases into Sub-Tasks (15 Minutes)

Create detailed sub-tasks under each phase.

Example – System Design:

- UI Design
- Database Design
- Architecture Design

Example – Module Development:

- Login Module
- Course Enrollment Module
- Admin Module

Instruction:

- Tasks must be completed strictly in order
 - A phase can start only after the previous phase is completed
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Step 4: Assign Roles and Observe Constraints (10 Minutes)

Assign tasks to team roles:

- Business Analyst
- Developer
- Tester
- Project Manager

Observation:

- Introducing a new requirement at this stage would require revisiting completed phases
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Phase 2: Agile (Scrum) Project Planning Using Taiga (50 Minutes)

Step 1: Create an Agile Project (10 Minutes)

1. Create a new project in Taiga
 2. Project Name: OCRS-Agile
 3. Project Type: Scrum
 4. Enable Backlog, User Stories, and Sprints (Milestones)
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Step 2: Create the Product Backlog (15 Minutes)

Create the following user stories:

- As a student, I want to register so that I can enroll in courses
- As a student, I want to view available courses
- As an admin, I want to add and update courses
- As a student, I want to enroll in a course

For each user story:

- Assign priority
 - Assign story points
 - Add acceptance criteria
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Step 3: Sprint (Milestone) Planning (15 Minutes)

1. Create Sprint 1 (simulated duration: 2 weeks)
2. Move high-priority user stories to Sprint 1
3. Break each user story into tasks:
 - o UI Development
 - o Backend Logic
 - o Testing

Note: Tasks can move independently across workflow stages.

Step 4: Requirement Change Simulation (10 Minutes)

Introduce a new requirement:

"Students should be able to drop an enrolled course."

Actions to perform:

- Create a new user story for the requirement
- Re-prioritize the product backlog
- Assign the story to Sprint 2

Observation:

- Existing sprint work is not disrupted
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Phase 3: Comparison and Reflection (20 Minutes)

Activity: Comparative Analysis

Create a comparison table in the Taiga Wiki or as a comment:

Aspect	Waterfall (Kanban)	Agile (Scrum)
Requirement Flexibility		
Planning Style		
Change Handling		
Feedback Cycle		
Delivery Model		

Reflection Questions

Answer briefly:

1. Which model handled requirement changes more effectively?
 2. Which approach required more upfront planning?
 3. How did Taiga features differ for Kanban and Scrum projects?
 4. Which model is more suitable for real-world software projects and why?
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Deliverables

Students must submit:

- Screenshot of OCRS-Waterfall Kanban board

- Screenshot of OCRS-Agile backlog and sprint board
 - Completed comparison table
 - Reflection write-up (150–200 words)
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Evaluation Rubric

- Waterfall planning accuracy: 25%
 - Agile backlog and sprint setup: 30%
 - Requirement change handling: 25%
 - Reflection quality: 20%
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Conclusion

This lab provides hands-on experience in planning the same project using two contrasting methodologies. By using Taiga for both Kanban and Scrum, students gain a clear, practical understanding of how planning, execution, and change management differ between Waterfall and Agile approaches.