Birla Institute of Technology & Science, Pilani
Work Integrated Learning Programmes Division
First Semester 2024-2025
Assignment
Weightage 15%

Course: SE ZG544 Agile Software Processes
Assignment Date: 1-11-24 to 10-11-24

Task Overview:
This assignment will evaluate your understanding and application of Agile methodologies, Scrum processes, and metrics in real-world software development scenarios. You will simulate a project lifecycle, from planning to execution, using Agile practices.

This is a group assignment. Students are grouped arbitrarily. Each group submits one submission. One student from each group must take responsibility for submitting the assignment for the group. Students must write the group name and the list of members belonging to the group on the first page of the assignment. Students must submit a Microsoft Word or PDF file.

Part 1: Agile Project Planning (5%)

You are part of a Scrum team tasked with developing a mobile e-commerce application. Complete the following:

1. **Product Vision and Roadmap**
   a. Create a clear **product vision** statement for the mobile e-commerce application.
   b. Develop a **high-level product roadmap** for three major releases over the next six months. Prioritize key features.
2. **User Stories and Backlog**
   a. Write **five detailed user stories** following the INVEST criteria (Independent, Negotiable, Valuable, Estimable, Small, Testable).
   b. Create an **initial product backlog** with priority levels and estimated story points (use T-shirt sizing or Fibonacci sequence for estimates).
3. **Sprint Planning**
   Plan a two-week sprint: a. Select a **sprint goal** aligned with the product vision.
   b. Define **tasks** for each user story and estimate the time required to complete them.
   c. Justify your selection of stories for the sprint based on priority and available team capacity (velocity).

Part 2: Sprint Execution and Review (5%)

During sprint execution, assume the following conditions:

- **Team Velocity**: 30 story points per sprint

- **Team Composition**: Four developers, one tester, one ScrumMaster

1. **Daily Scrum Simulation (10 Marks)**
   Conduct a **daily Scrum simulation**. For each of the three days, document what each team member did, will do, and any blockers encountered. Provide a log of the simulated daily meetings.
2. **Burndown Chart and Task Board (10 Marks)**
   Create a **sprint burndown chart** and **task board** reflecting the team's progress over a simulated two-week sprint. Include tasks that get delayed due to dependencies.
3. **Sprint Review (10 Marks)**
   Conduct a **sprint review**.
   a. Highlight which stories were completed and which were not.
   b. Write a brief **stakeholder feedback summary** and propose any scope adjustments for the next sprint.
4. **Sprint Retrospective (10 Marks)**
   Perform a **sprint retrospective**. Identify at least three things the team should start, stop, and continue doing. Discuss how these actions will improve the next sprint.

Part 3: Metrics, Flow, and Communication (5%)

1. **Agile Metrics Analysis (15 Marks)**
   a. Analyze the team's **velocity trend** over three sprints (including the simulated sprint). Identify any inconsistencies and propose solutions for more accurate estimation and task breakdown.
   b. Evaluate the **defect rate** and **lead time** to assess product quality and team performance. Suggest two ways to improve product quality in future sprints.
2. **Task Flow Management (10 Marks)**
   Simulate a scenario where tasks are getting stuck in "In Progress" due to unresolved dependencies. Propose a **flow management strategy** that includes swarming, limiting WIP, and effective communication to resolve the issue.
3. **Information Radiator & Communication (5 Marks)**
   Design an **information radiator** (e.g., task board, burndown chart) that will help the team and stakeholders track sprint progress in real-time. Explain how it improves team communication and transparency.

Submission Instructions:

- Submit the assignment as a **single PDF or MS Word document**.
- Include screenshots of task boards, burndown charts, and information radiators as appendices.
- Clearly label each section and include your Group **name** and **student IDs** on the cover page.

Grading Criteria:

- **Completeness**: Does the assignment cover all required parts?
- **Analysis and Insight**: Are solutions and strategies well-justified and based on Agile principles?
- **Practicality**: Are the proposed actions realistic and applicable in a real-world context?
- **Presentation and Clarity**: Is the work well-organized, clearly written, and visually coherent?