

# SYSTEM ANALYSIS AND DESIGN

## SE103.3

### **1. What is a software development methodology and why is it important in the software development process?**

- A software development methodology is a systematic approach or framework that guides the process of developing software applications.
- Software development methodologies define the processes, practices, and techniques to be followed during the different phases of software development, from requirements gathering to deployment and maintenance. They offer a set of guidelines and best practices to manage resources, tasks, timelines, and communication within the development team and with stakeholders.

### **2. What are the main differences between traditional (waterfall) and iterative (agile) Methodologies?**

- In the waterfall methodology, the development process is linear and sequential, with defined phases that are executed in a strict order. Agile is iterative and incremental, with work divided into shorter iterations or sprints, where each iteration results in a potentially shippable product increment.
- Waterfall methodology typically relies on a comprehensive upfront analysis and documentation of requirements. Changes to requirements are often difficult and costly to accommodate once the development process has progressed. Agile, welcomes changing requirements and promotes continuous collaboration with stakeholders and customers, allowing for frequent feedback and adaptability.

- Waterfall methodology is less flexible, as the entire project is planned and executed as a whole. Changes or adjustments to requirements, scope, or design are typically challenging to accommodate. Agile methodology, with its emphasis on adaptability, allows for flexibility and encourages incremental development and frequent iterations, enabling changes to be incorporated easily.
- Waterfall methodology emphasizes extensive documentation, with comprehensive requirements, design documents, and specifications created upfront. Agile methodology focuses on producing working software over comprehensive documentation. While Agile still encourages necessary documentation, it prioritizes lightweight and just-in-time documentation