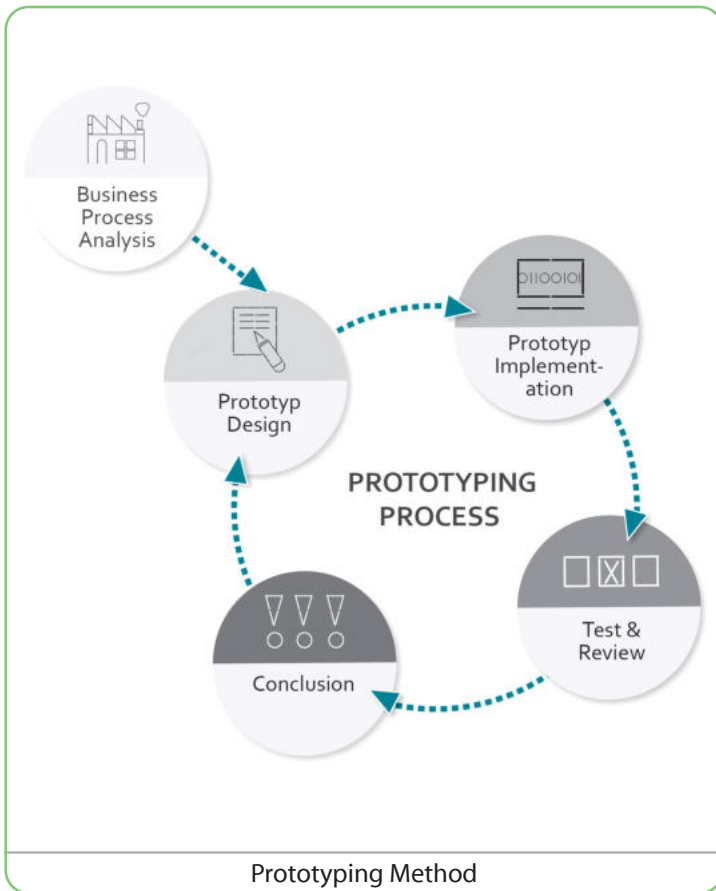
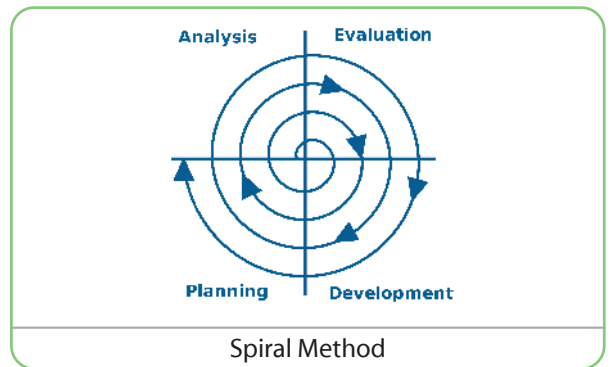


System development life cycle (Build B 1.2)

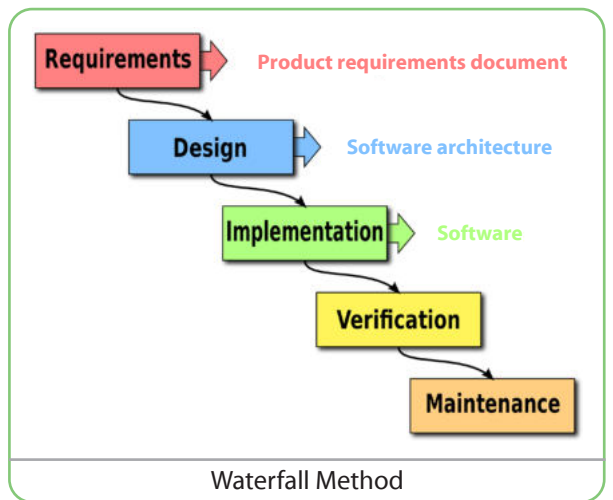
EUCIP CORE SYLLABUS 3.1



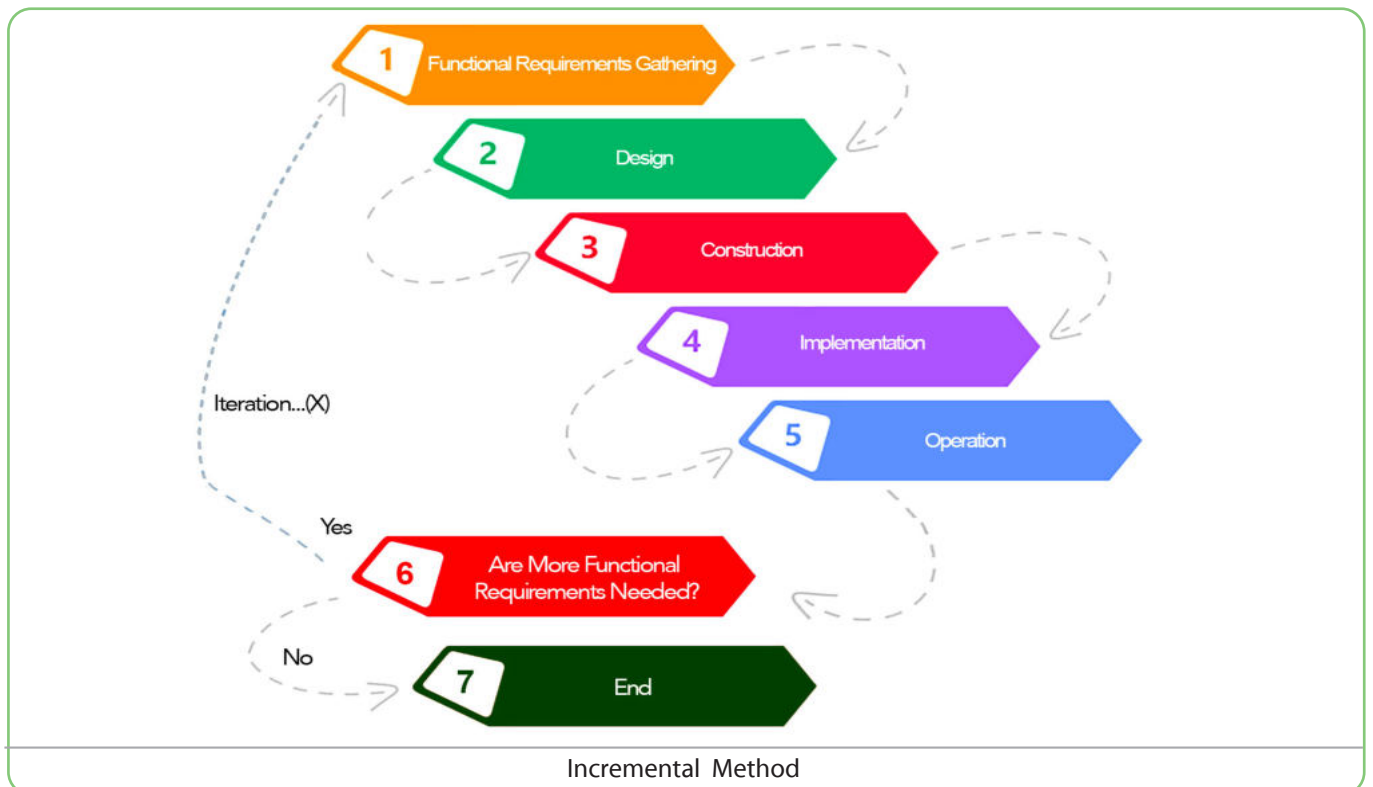
Prototyping Method



Spiral Method



Waterfall Method



Incremental Method

A **System Development Life Cycle** refers to the process of specifying, designing, programming, testing and delivering new software. Each phase in the life cycle can be checked for correctness before moving to the next phase.

Different systems can be used as one system is not necessarily suitable for all projects.

These are the main methods:

- **Waterfall Method** – a linear sequential method that can have some overlap and splash between phases. There is not a limited number of stages (there could be up to eight or nine) which can include: System Concept Design, Planning, Requirements Analysis, Design, Development, Integration and Test, Implementation and Maintenance. Tight control is maintained over the project through the use of extensive written documentation and formal reviews.
- **Spiral Method** – for large, expensive and complex projects. The focus of this combination of linear and iterative methodology is on risk assessment and on minimising the risks to the project by breaking it into smaller segments thus making it easier to make changes during the development process. With this method, it is easier to evaluate the risks of each segment. The steps are: the requirements (objectives, alternatives and constraints) defined in as much detail as possible, a preliminary design, a scale down prototype and a second prototype.
- **Prototyping Model** – instead of freezing the requirements before a design or coding can

proceed, a throwaway prototype is built to understand the requirements. This prototype is developed based on the currently known requirements. By using this prototype, the client can get an “actual feel” of the system, since the interaction with the prototype can enable the client to better understand the requirements of the desired system. The prototypes are usually not complete systems and many of the details are not built. The goal is to provide a system with overall functionality.

- **Incremental Model** – a combination of linear and iterative methodology. The segments are designed, created and tested individually and the system is built piece by piece. A small series of mini Waterfalls is performed on one segment before proceeding to the next increment.

Regardless of the framework used to develop the program, the four main stages of a System Development Life Cycle are:

- **Analysis** – the user’s needs and wants are recorded by the Systems Analyst in a formal manner that can be used by the designer
- **Design** – when the analysis is complete, the software developer designs a program using one of the methodologies previously described
- **Programming** – the programmers write the code for the design
- **Testing** – the program is tested to see if it works and if it contains all the requirements specified in the analysis stage.

1 After studying the previous page, cover it and try this test. You have to choose the right answer for each question.

1. A System Development Life Cycle includes the following stages...
 - a. Design, specification, programming, testing and delivering.
 - b. Specification, design, programming, testing and delivering.
 - c. Design, programming, testing, specification and delivering.
 - d. Specification, design, programming, delivering and testing.
2. This method can have some overlap between the different stages.
 - a. The Spiral Method
 - b. The Incremental Method
 - c. The Waterfall Method
 - d. The Prototyping Method
3. This method is used for complex and expensive projects.
 - a. The Spiral Method
 - b. The Incremental Method
 - c. The Waterfall Method
 - d. The Prototyping Method
4. In these methods, the project is broken down into segments.
 - a. The Waterfall Method and the Spiral Method
 - b. The Spiral Method and Prototyping Method
 - c. The Prototyping Method and the Waterfall Method
 - d. The Incremental Method and the Spiral Method
5. This method uses two different types of prototypes.
 - a. The Spiral Method
 - b. The Incremental Method
 - c. The Waterfall Method
 - d. The Prototyping Method
6. This method is a combination of another two methods.
 - a. The Waterfall Method
 - b. The Prototyping Method
 - c. The Spiral Method
 - d. The Incremental Method
7. Any System Development Life Cycle involves the following people in this order.
 - a. System Analysts, Software Designers, Programmers, Testers and Document Writers.
 - b. Software Designers, Programmers, System Analysts, Testers and Document Writers.
 - c. Software Designers, System Analysts, Programmers, Testers and Document Writers.
 - d. Software Designers, Programmers, Testers, Analysts and Document Writers.
8. This method starts from a prototype which is shown to the client.
 - a. The Waterfall Method
 - b. The Prototyping Method
 - c. The Spiral Method
 - d. The Incremental Method

