COURSE NAME

SOFTWARE ENGINEERING

CSC 3114

(UNDERGRADUATE)

CHAPTER 2

SOFTWARE DEVELOPMENT PROCESS MODEL

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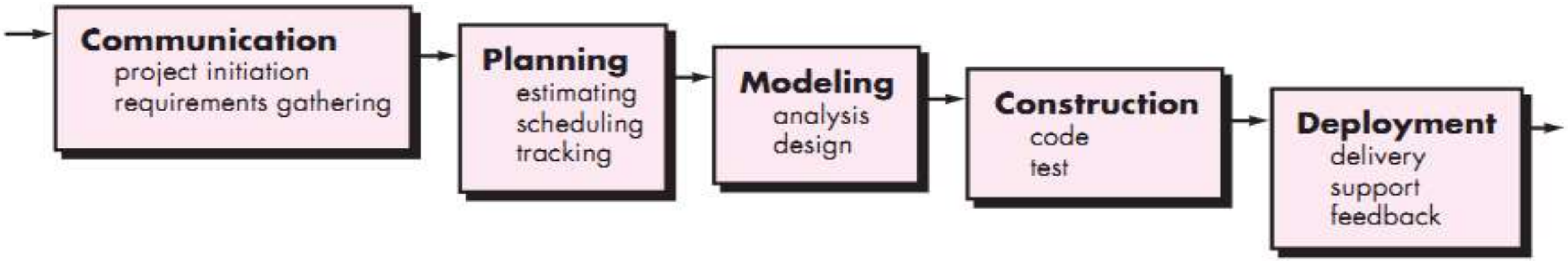
SOFTWARE PROCESS

- A structured set of activities required to develop a software system
- A software process model is an abstract representation of a process.
- It presents a description of a process from some particular perspective

WATERFALL MODEL



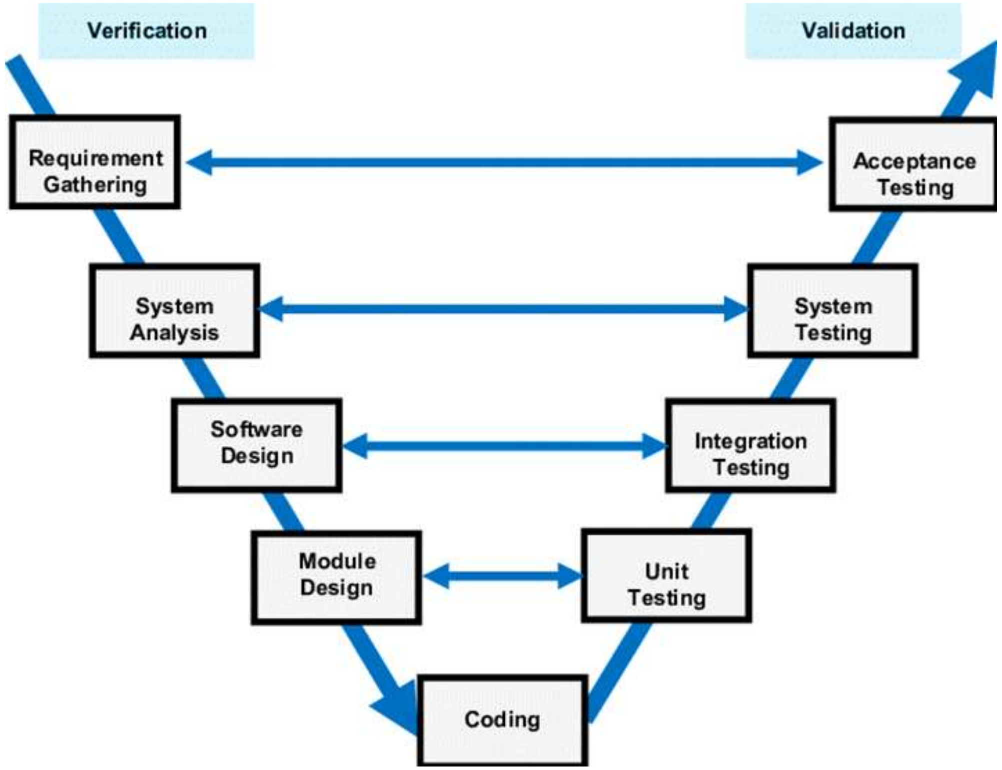
- **The waterfall or linear sequential model**

Problems of the Waterfall Model

- Inflexible partitioning of the project into distinct stages. The next phase starts only after the completion of the previous phase
- This makes it difficult to respond to changing customer requirements (no backtracking)
- Therefore, this model is only appropriate when the requirements are well-understood

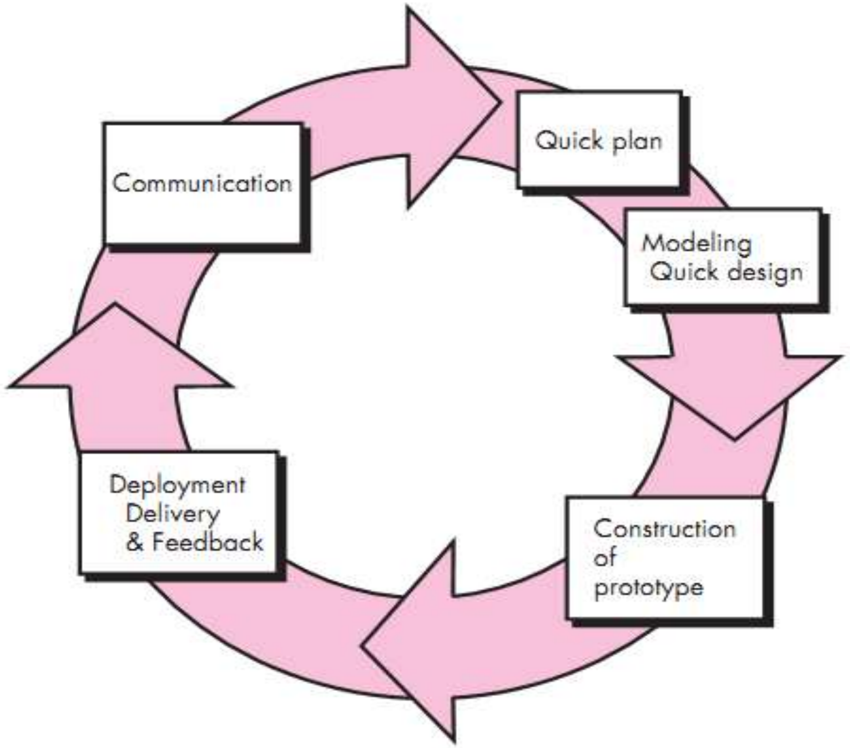
V - MODEL

- The V-model is an SDLC model in which process execution happens sequentially in a V-shape. It is also known as a Verification and Validation model.
- V-Model is an extension of the waterfall model and is based on an association of a testing phase for each corresponding development stage. This means that every single phase in the development cycle has a directly associated testing phase.
- This is a highly disciplined model, and the next phase starts only after the completion of the previous phase.



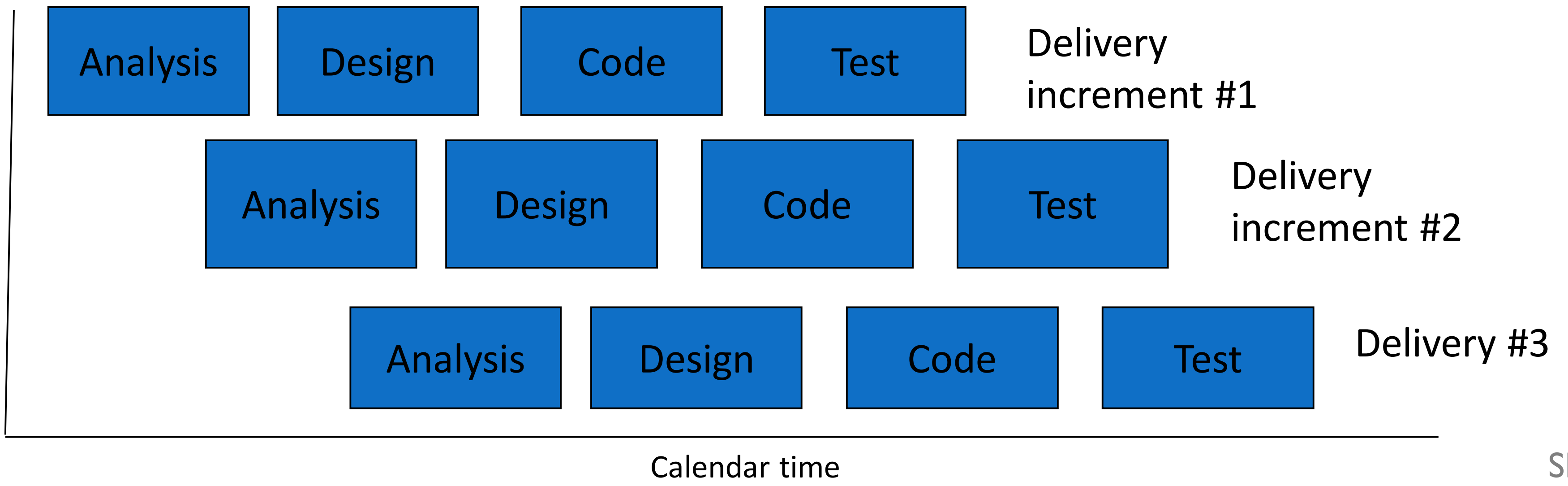
PROTOTYPING MODEL

- Requirements are not precise, and the prototype serves as a mechanism for identifying software requirements
- Iteration occurs as the prototype is tuned to satisfy the needs of the customer
- System requirements ALWAYS evolve during a project, so process iteration is proper where earlier stages are reworked and is always part of the process for large systems



INCREMENTAL DEVELOPMENT

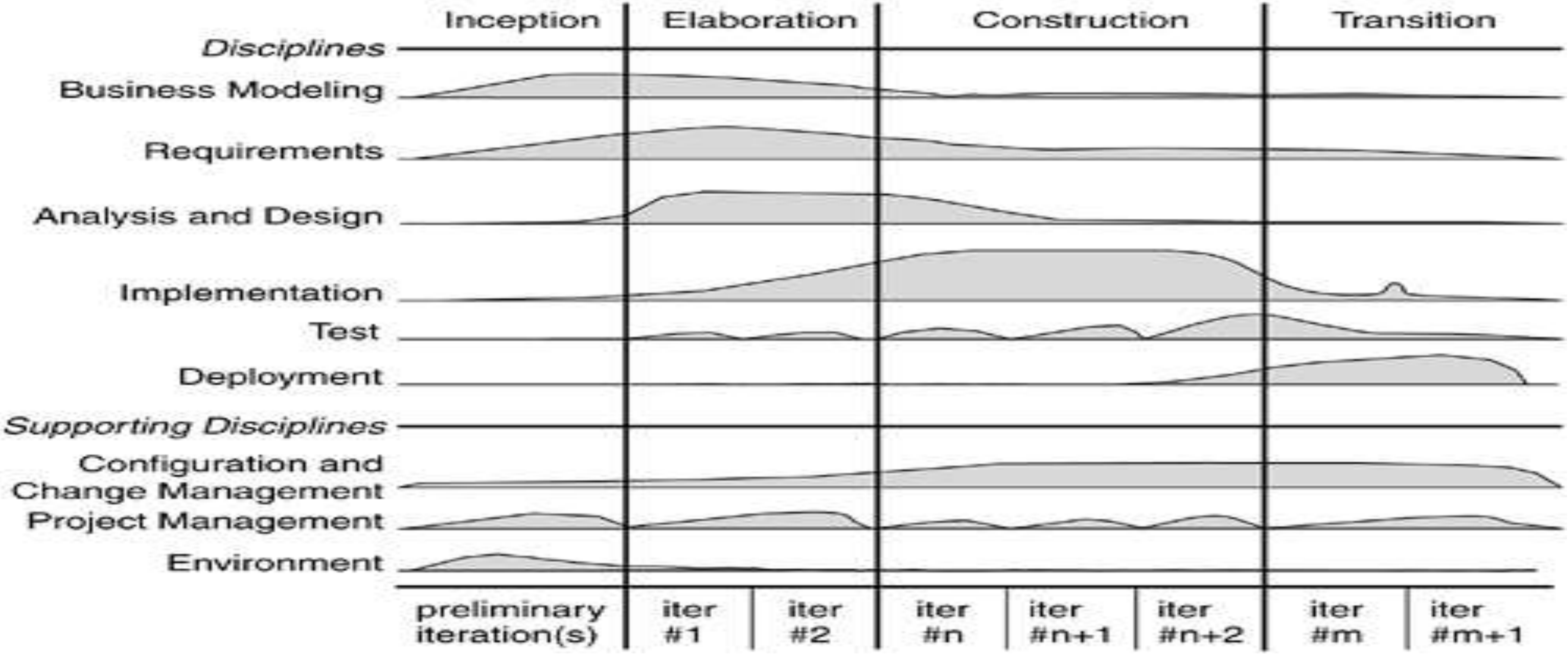
- Rather than delivering the system as a single delivery, development and delivery are broken down into increments, with each increment delivering part of the required functionality (SPIRAL).
- The requirements are relatively certain but there are many complexities that leads to frequent changes.
- User requirements are prioritized, and the highest priority requirements are included in early increments
- Once the development of an increment is started, the requirements are frozen though requirements for later increments can continue to evolve



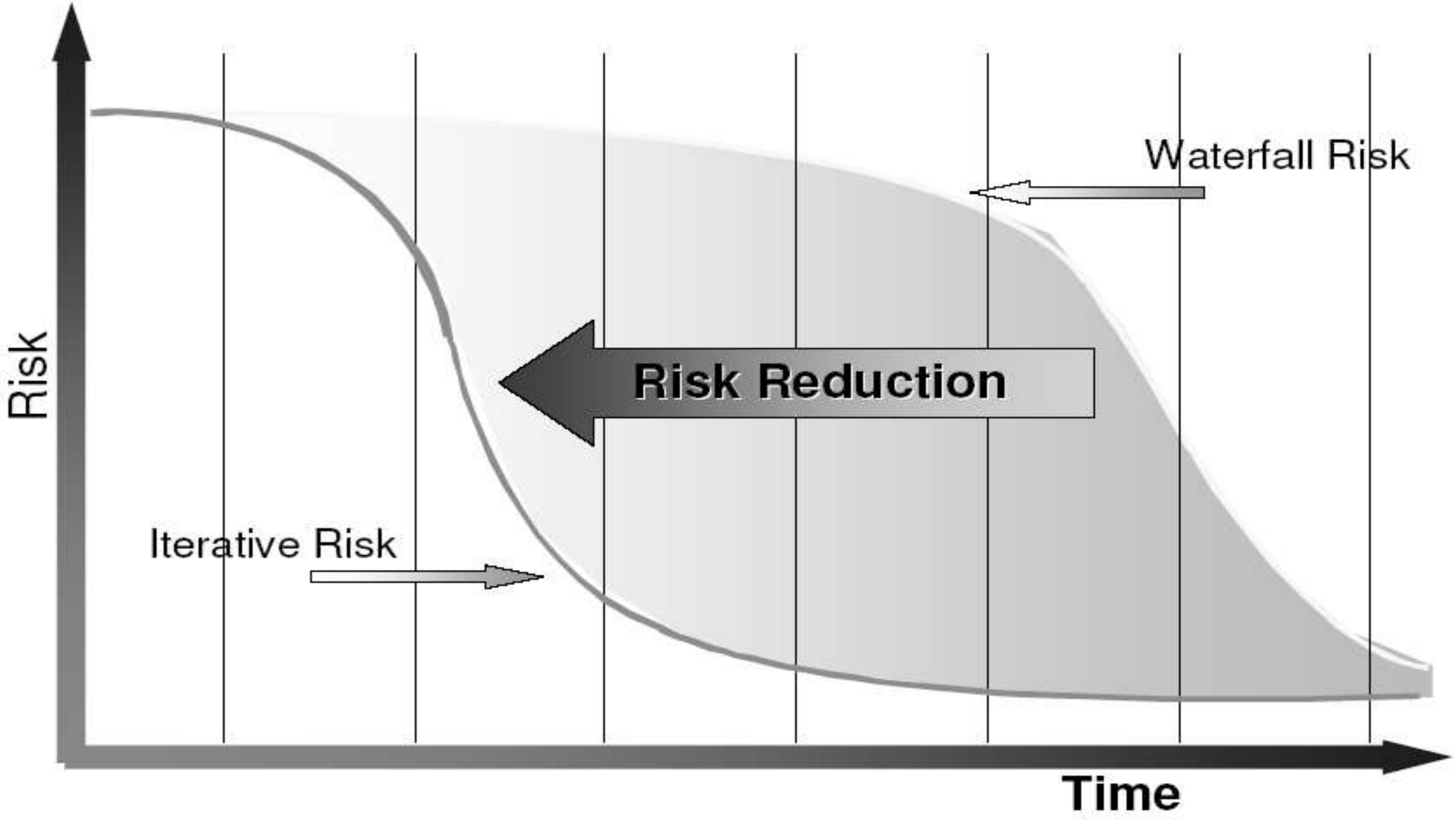
RAPID APPLICATION DEVELOPMENT (RAD)

- It is a type of incremental model. The developments are time-boxed, delivered, and then assembled into a working prototype
- In the RAD model, the components or functions are developed in parallel as if they were mini projects (frozen requirements in each increment)
- This can quickly give the customer something to see and use and to provide feedback
- Delivers a fully functional system in 90 days, give or take 30 days
- Phases of RAD are:
  - Requirements Planning
  - User Design (user interacts with the system analysts)
  - Construction (program and application development)
  - Cutover (testing, changeover to new system, user training)

RATIONAL UNIFIED PROCESS (RUP)



RISK PROFILE



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