

3. PRESCRIPTIVE PROCESS MODELS

- ✓ Prescriptive process models were originally proposed to bring order to the software development.
- ✓ Prescriptive process models define a prescribed set of process elements and a predictable process workflow.
 - Prescriptive Process Models
 - The Waterfall Model
 - Incremental Process
 - Models Evolutionary Process Modes

1.1 The Waterfall Model

The waterfall model, sometimes called the classic lifecycle, suggests a systematic, sequential approach to software development that begins with customer specification of requirements and progresses through planning, modelling, construction, and deployment, culminating in ongoing support of the completed software.

- A variation in the representation of the water fall model is called the **V-model**.
- Represented in Figure 1.5, the V-model [Buc99] depicts the relationship of quality assurance actions to the actions associated with communication, modeling, and early construction activities.

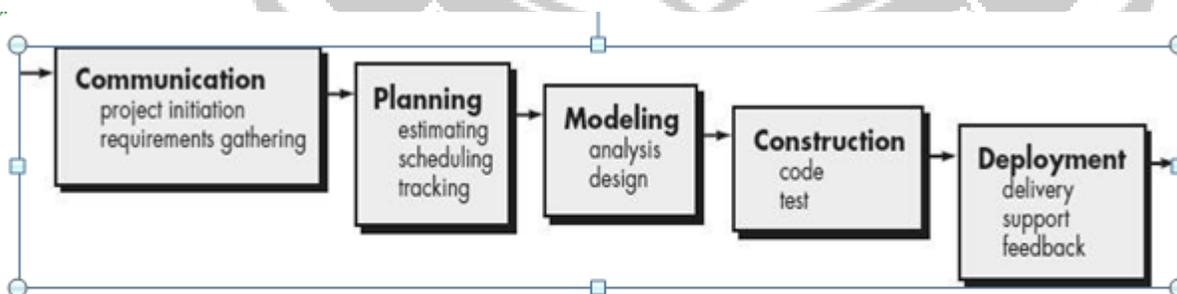


FIGURE 1.5 The waterfall model

1.2. Incremental Process Models:

The incremental model delivers a series of releases, called increments that provide

progressively more functionality for the customer as each increment is delivered.

The incremental model applies linear sequences in as staggered fashion as calendar time progresses.

Each line are sequence produces deliverable“increments”of the software [McD93]in a manner that is similar to the increments produced by an evolutionary process flow.

The first increment is called core product. In this release the basic requirements are implemented and then in subsequent increments new requirements are added.

The core product is used by the customer (or under goes detailed evaluation).

As a result to fuse and/or evaluation, a plan is developed for then increment. The plan addresses the modification of the core product to better meet the needs of the customer and the delivery of additional features and functionality. This process is repeated following the delivery of each increment, until the complete product is produced.

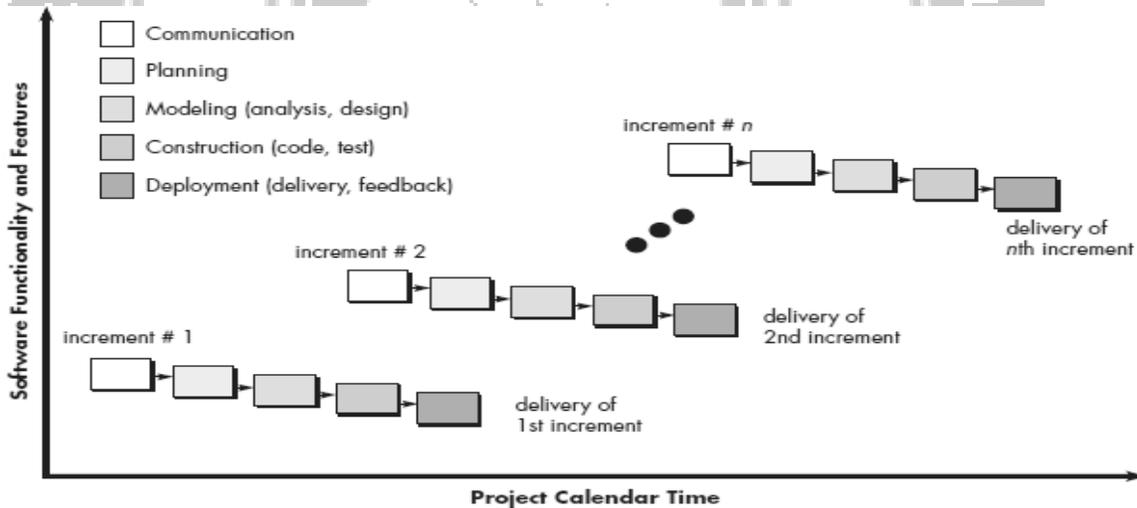
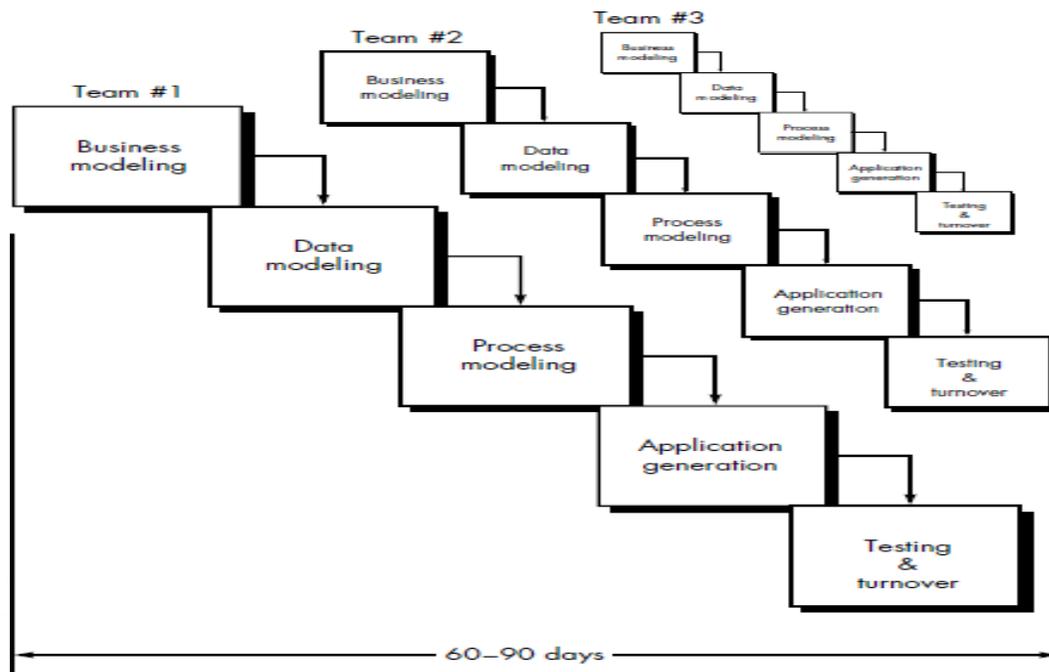


Figure1.7 IncrementalProcessModel

3.TheRAD Model

- Rapid Application Development is a line sequential software development process model that emphasizes an extremely short development cycle.
- Rapid application achieved by using a component based construction approach.
- If requirements are well understood and projects copies constrained the RAD process enables a development team to create a—fully functional system.

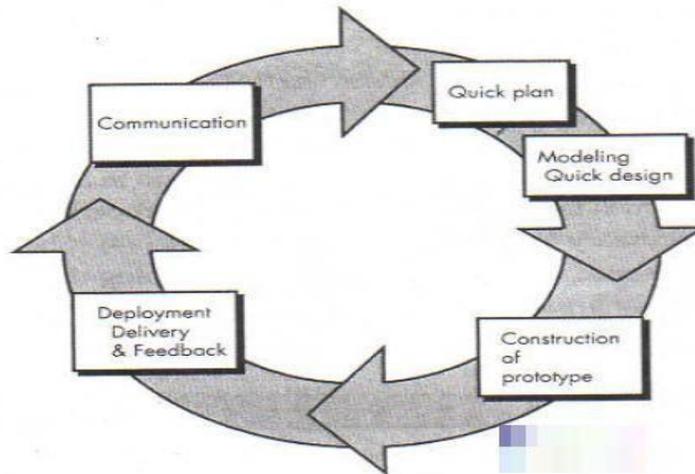


1.1.1.1 The Prototyping Model:

- The proto typing paradigm begins with communication. Developer and customer meet and define the overall objectives for the software, identify whatever requirements are known,



- A **quick design** focuses on a representation of those aspects of the software that will be visible to the customer/user (e.g. Input approaches and output formats). The quick design leads to the construction of a prototype.
- The prototype is evaluated by the customer/user and used to refine requirements for the software to be developed. Iteration occurs as the prototype is tuned to satisfy the needs of the customer, while at the same time enabling the developer to better understand what needs to be done.
- Ideally ,the proto type serves as a mechanism for identifying software requirements.
- If a working proto type is built, the developer attempts to use existing program fragments or applies tools (e.g., report generators, window managers) that enable working programs to be generated quickly.



4.SpiralModel:

- The spiral model is an evolutionary software process model that couples the iterative nature of prototyping with the controlled and systematic aspects of the linear sequential model.
- The spiral development model is a risk-driven process model generator that is used to guide multi-stake holder concurrent engineering of software intensive systems.
- That domain distinguishing features.
- One is a cyclic approach for incrementally growing a system's degree of definition

and implementation while decreasing its degree of risk.

- The other is a set of anchor point milestones for ensuring stakeholder commitment to feasible and mutually satisfactory system solutions.
- Using the spiral model, software is developed in a series of incremental releases.
- A spiral model is divided into a number of framework activities, also called **task regions**
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