Software Process Modeling – IT1060

What is Software?

- **Software is associated documentation and configuration files, needed to make the programs operate correctly.**

Difference between Programs and Software

Program	Software
Small	Large
Single developer	Team of developers
Small in size	
Limited Functionality	
Single user	Multiple users
Simple user interface	Complex user interface
Sparse documentation	Detailed documentation
No user manual	User manual
Ad hoc development	Systematic development

Ad hoc Development

- **A developer can follow his own way to develop.**

Systematic Development

- **A developer should follow some proper way to develop.**

Software Products 2 Types

1. Generic (Open Market – Any Customer)
2. Customized (Develop for customer requirements)

Steps for Developing Software

- Feasibility Study
- Analysis
    - Requirements Gathering and Analysis
    - Requirements Specification
- Design
- Development
- Testing
- Maintenance

IEEE Definition for Software Engineering

- The Application of a systematic, disciplined, quantifiable approach to the development, operation, and maintenance of Software.

Key challenges in Developing Software

- Deliver quality software to the customer at the agreed time.
- The product is intangible. (Can't touch)
- Product specific
- Keep overall costs within budget.

Software Process Activities

- **Software Specification**
  - Documenting the Expectations on the System.
  - Written and Diagrammatic description of the services & User Requirements.
- **Software Development**
  - Designing and Implementing (Coding) the System according to specifications.
- **Software Validation**
  - Checking and Verifying whether System fulfills the requirements.
- **Software Evolution**
  - Maintenance – Software Upgraded with Time.

Software Engineering Ethics

- Accept that work involves wider responsibility than simply application of technical skills.
- Behave **Ethical & Morally Responsible** way.
- Shouldn't use skills & abilities to behave in dishonest way that will bring disrepute to the SE profession.
- Standards,
  - Confidentiality
  - Competence
  - Intellectual Property Rights
  - Computer misuse

What is SDLC (Software Development Life Cycle)

- **SDLC is Framework that defines activities performed throughout the software development process.**

General Software Process Models

- **Waterfall Model (Traditional Approach)**
    - ➤ **Classic**
    - ➤ **Iterative**
- **Prototyping Model (Traditional Approach)**
- **Evolutionary Model (Traditional Approach)**
    - ➤ **Incremental**
    - ➤ **Spiral**
- **Agile Model (Modern Approach)**

Waterfall Model (Classic)