Unit 1

Software = Developed Programs + Associated Documentation

(Generic Software+ Customized Software)

Software Engineering= An engineering discipline which is concerned with all aspect of software production

Computer Science= Concerned with theory and fundamentals

Computer Engineering=Concerned with practicalities of developing and delivering useful software

System Engineering= Concern with all aspect of computer based system

Software Process: A set of activities whose goal is development or evolution of software

Software Process Model: A simplified representation of software process, presented from a specific perspective

Software engineering methods: Structured approach to software development which include system models, notations, rules, design advice and process guidance.

Cost of Software Engineering: 60% development cost, 40% testing cost

for custom software,

Attributes of good software: Software should deliver the required functionality and performance to the user and should be *maintainable*(changing needs of customer), *dependable*(reliability, efficiency(responsiveness, processing time, memory utilisation etc), security and safety) and *usable*(without undue effort, by the type of user for whom it designed(appropriate user interface and adequate documentation)

Key Challenges of SE: Coping with increasing diversity, demands for reduced delivery times and developing trustworthy software.

- Project: A **project** is defined as a sequence of tasks that must be completed to attain a certain outcome with fixed budget in given timebound.
- Attributes of Project: scope, objective, resources, team, cost, timelines.

1. a project need a well-defined objective.
2. a project is carried out through a series of interdependent tasks.
3. Utilizes various resources
4. a project has specific time-frame
5. a project may be unique or one-time endeavour
6. a project has customer
7. project involves degree of uncertainty

- What Is Software Project Management ?
  Software project management is dedicated to the planning, scheduling, resource allocation, execution, tracking, and delivery of software and web projects.

The role and responsibility of a software project manager

- Planning: The project manager puts together the blueprint for the entire project. The project plan will define the scope, necessary resources, timeline, procedure for execution, communication strategy, and steps required for testing and maintenance.
- Leading: A software project manager assembles and leads the project team, which consists of developers, analysts, testers, graphic designers, and technical writers. Heading up a team requires excellent communication, people, and leadership skills.
- Execution: The project manager will supervise the successful execution of each stage of the project. This includes monitoring progress, conducting frequent team check-ins, and creating status reports.
- Time management: Staying on schedule is crucial to the successful completion of any project. This can be particularly challenging when managing software projects because changes to the original plan are almost guaranteed as the project evolves. Software project managers must be experts in risk management and contingency planning to ensure progress in the face of roadblocks or changes.
- Budget: Like traditional project managers, software project managers are tasked with creating a budget for a project and sticking to it as closely as possible, moderating spend and re-allocating funds when necessary.