SYSTEM ANALYSIS AND DESIGN

UNIT – 2

Introduction of Software Engineering and Software Development Models

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INTRODUCTION TO SOFTWARE ENGINEERING

- The technology encompasses a process, a set of methods – frame work, and an array of tools that we call software engineering.

- Computer software is the product that software engineers design and build by applying a process (software engineering approach) that leads to a high – quality result that meets the needs of the people who will use the software.

- Software is both a product and a Tool for producing a product.

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Products (Software)

- It delivers the computing potential embodied by computer hardware or a network of computers that are accessible by local hardware. Whether it resides within a cellular phone or operates inside a mainframe computer, software is an information transformer – producing, managing, acquiring, modifying, displaying, or transmitting information that can be as simple as a single bit or as complex as a multimedia presentation.

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Tool for delivering a Product

- We develop our product (Software) using another software which includes operating system, languages, packages, database, computer aided software development tools. We also use network and network software to accomplish developing task of new software.

- To develop software Project Management required. Which includes **planning, monitoring and controlling** of the **people, process, and events** in the software industry as software evolves from a preliminary concept to an operational implementation.

- Everyone "manages" to some extent but the scope of management activities varies with the person doing it.

- **Person   ---   Manages**

- Software Engineer   ---   day to day activities

- Project Manager   ---   work of team of software engineers

- Senior manager   ---   Coordinates the interface between the business and the software professionals

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Software Engineering:- A layered Technology

Process

- The foundation for software engineering is the *process* layer. Software engineering process is the glue that holds the technology layers together and enables rational and timely development of computer software.

- The key process areas form the basis for management control of software projects and establish the context in which technical methods are applied, work products (models, documents, data, reports, forms, etc.) are produced, milestones are established, quality is ensured, and change is properly managed.

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Method

- Software engineering *methods* provide the technical how-to's for building software. Methods encompass a broad array of tasks that include requirements analysis, design, program construction, testing, and support. Software engineering methods rely on a set of basic principles that govern each area of the technology and include modeling activities and other descriptive techniques.

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Tools

- Software engineering *tools* provide automated or semi-automated support for the process and the methods. When tools are integrated so that information created by one tool can be used by another, a system for the support of software development, called *computer-aided software engineering,* is established. CASE combines software, hardware, and a software engineering database (a repository containing important information about analysis, design, program construction, and testing) to create a software engineering environment analogous to CAD/CAE (computer-aided design/engineering) for hardware.

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Quality

- Total quality management and similar philosophies foster a

  continuous process improvement culture, and this culture

  ultimately leads to the development of increasingly more mature

  approaches to software engineering. The bedrock that supports

  software engineering is a quality focus.

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