

# **BCA Optimized Notes by Yash**

## **Semester IV - Software Engineering**

# Table of Contents

<b>Unit 1 - Chapter 1</b>	<b>3</b>
Problems in Software Development	3
Software Engineering	3

# Unit 1 - Chapter 1

## Problems in Software Development

### Common Issues

- The final software does not fulfill the needs of the customer.
- Hard to extend and improve. If you want to add functionality later, it's mission impossible.
- Bad documentation.
- Bad quality; frequent errors and hard to use.
- More time spent and bigger cost than expected.

## Software Engineering

### Definitions

- The study and application of methodologies to develop quality software that fulfill user needs is known as software engineering.
- Software engineering is a systematic, disciplined and cost-effective technique for software developers.
- IEEE defines software engineering as "The application of a systematic, disciplined and quantifiable approach to the development, operation and maintenance of software."

### Why Is It Required?

- To manage large software.
- For more scalability.
- Cost management.
- To manage the dynamic nature of software.
- For better quality management.

### Objectives

- **On Time**
  - The software should be delivered at the exact date and time.
- **Reliable**
  - The software shouldn't crash.
- **Complete**
  - The software should have good documentation and fulfill customer needs.

## SDLC (Software Development Life Cycle)

### Requirement Analysis

The client requirements are analyzed first, to ensure proper product development.

### Define the Details of the Products

Defining exactly what the product needs to have and the expectations of the client is crucial for a complete product.

### Design (UI/UX)

The design of the program is done first, with the user experience being put at the foremost.

### Development (Front-End, Back-End, DBMS)

The actual development of the product starts in this stage.

### Testing (Check If The Requirements are Met)

The product is tested and prototyped to check if the requirements are met, and allow fixing for any bugs that appear.

### Deployment

The finished product is deployed to the client, assuring that the client's requirements are met.

### Maintenance

The product receives more updates throughout its life, adding on features and fixing any more errors.

### Reasons why Software Development can be discontinued/left incomplete