College Academic Notes

1. Computer Fundamentals

A computer is an electronic device that processes data and performs tasks according to instructions.

Components of Computer:

- Input Devices: Keyboard, Mouse, Scanner

- Output Devices: Monitor, Printer

- CPU: Central Processing Unit

- Memory: RAM, ROM

- Storage: Hard Disk, SSD

2. Operating Systems

An Operating System (OS) manages hardware and software resources of a computer.

Examples: Windows, Linux, macOS, Android

Functions of OS:

- Process Management

- Memory Management

- File Management

- Security

3. Computer Networks

A network is a group of interconnected computers that share resources.

Types of Networks:

- LAN (Local Area Network)

- MAN (Metropolitan Area Network)

- WAN (Wide Area Network)

4. Database Management System (DBMS)

A DBMS is software used to store, retrieve, and manage data.

Examples: MySQL, Oracle, MongoDB

Basic Concepts:

- Tables

- Records

- Fields

- SQL Queries

5. Software Engineering

Software Engineering is the process of designing, developing, testing, and maintaining software.

Software Development Life Cycle (SDLC):

- Requirement Analysis

- Design

- Implementation

- Testing

- Deployment

- Maintenance

6. Artificial Intelligence Basics

Artificial Intelligence is the simulation of human intelligence in machines.

Applications:

- Chatbots

- Recommendation Systems

- Image Recognition

7. Cyber Security

Cyber Security protects systems from digital attacks.

Examples:

- Malware

- Phishing

- Hacking

8. Project Management

Project Management involves planning, executing, and closing projects.

Tools:

- Gantt Chart

- Agile Methodology