



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

NATIONAL INSTITUTE OF TECHNOLOGY PATNA

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CS14106 *Information Technology Workshop*

L-T-P-Cr: 3-0-2-4

Pre-requisites: None

Course Objectives:

- To learn about the characteristics, components and working of computers
- To learn creating documents using different types of application software
- To familiarize with the fundamentals and practical aspects of computer networks
- To familiarize with the concepts of computer security

Course Outcomes:

At the end of the course, a student should have:

Sl. No	Outcome	Mapping to PO
1.	Understanding of the characteristics, components and working of computers	PO1
2.	Knowledge about the hardware and software components of computers	PO1
3.	Ability to work with different document processing software	PO5, PO12, PO10
4.	Knowledge about the networking aspects of computers	PO1, PO5
5.	Knowledge about the fundamentals of computer security	PO1, PO6

UNIT I: Introduction to Computers

Lectures: 4

Digital and Analog Computers, Characteristics of Computer, Generations of Computer, Classification of Computer, The Computer System, Applications of Computers, Open-Source Software, Types of Software: System Software - Operating System, Device Driver, System Utilities, Programming Languages, Translator Software, Linker, Loader, Application Software – Word Processing, Power Point, Excel, Latex,

UNIT II: The Computer System Hardware

Lectures: 4

Central Processing Unit, Memory Unit, Input Devices - Human Data Entry Devices, Source Data Entry Devices, Output Devices - Hard Copy Devices, Soft Copy Devices Interconnecting the Units of a Computer, concepts of Ports.

UNIT III: Computer Memory

Lectures: 4

Memory Representation, Memory Hierarchy, CPU Registers, Cache Memory, Primary Memory, Secondary Memory, Access Types of Storage Devices, Magnetic Tape, Magnetic Disk, Magneto-Optical Disk

UNIT IV Working with Documents

Lectures: 12

Word: Introduction, Creating Documents, Fonts, Inserting Table, Inserting Picture, Formatting, Spell Check, Reviewing Documents, Templates, Mail Merge

Excel: Introduction to Excel, Queries, Charts, Scientific Functions

PowerPoint: Introduction, Creation of Slides, Inserting Pictures, Preparing Slide Show with Animation

Latex: Introduction, Components of a Latex Document, Creating Latex Documents, Latex Commands

UNIT V: Data Communication and Computer Network

Lectures: 6

Importance of Networking, Data Transmission Media, Transmission Modes, Network Types, LAN Topologies, Network Devices, Wireless Networking, Working with Networks: Start Network Connections, Create a New Connection, Manage a Network Connection, Network Setup, Windows Firewall, Sharing of Files, Wireless Network Setup, Connect using Virtual Private Network (VPN), Set Up a Wired Network

UNIT VI: Computer Security

Lectures: 4

Security Threat and Security Attack, Malicious Software, Hacking, Security Services, Firewalls, Users Identification and Authentication, Other Security Measures, Security Awareness, Security Policy

Text/ Reference Book:

1. Anita Goel, Computer Fundamentals, Pearson Education India, 2010.
2. V. Rajaraman, Neeharika Adabala, Fundamentals of Computers, PHI Learning Private Limited, 2014.
3. E. Balagurusamy, Fundamentals of Computers, McGraw-Hill Education, 2009.
4. Reema Thareja, Fundamentals of Computers, Oxford, 2014.
5. B. Ram, Computer Fundamentals: Architecture and Organization, New Age International Pvt Ltd., 2018.