

CCA-102: Data Communications

Course Objective

The objective of the course is to help the students to get conceptual knowledge of all the networking basics along with various techniques used for communication between networks.

Course Outcomes

At the end of this course, student should be able to:

1. Recognize and Describe about the working of Computer Networks.
2. Illustrate reference models with layers, protocols and interfaces.
3. Summarize functionalities of different Layers.
4. Combine and distinguish functionalities of different Layers.
5. Model the LAN and WAN configuration using different media.
6. Examine problems of a computer networks.
7. Use emails and their working and operational features

Course Outline

Unit I Introduction to data communication

- Introduction to Data Communications
- Data Communication System (DCS)
- Effectiveness of a data DCS
- Components of DCS
- Message Representation of Message in DCS

UNIT IINetwork Connecting Devices

- Network connecting devices
- Layer-wise connecting devices
- Hubs & Repeaters
- Bridge
- L2 & L3 Switches
- Router
- Gateways

CCA-102: Data Communications**UNIT III Basics of Computer Networks: Local Area Network (LAN), Wide Area Network (WAN)**

- Basics of Computer Networks
- Types of links
- Point-to-point Vs point-to-multi-point links
- Topologies
- LAN
- Ethernet
- Wireless Ethernet or Wi-Fi
- WAN

UNIT IV Concept of Internet

- Introduction to Intranet & extranet
- Introduction to Internet
- Client & Servers in the Internet
- Operations of client & server applications
- Hypertext documents
- HTTP

UNIT V Basics of Internet Architecture

- Introduction to Internet Architecture
- Evolution of Internet Architecture
- 3-Tier Internet Architecture
- TCP/IP Network Model VS OSI Network Model
- Addresses in TCP/IP
- MAC Address
- IP Address
- Port Address

UNIT VI Services on Internet

- Information Retrieval Services
- Communication Services
- World wide web
- Web Services

CCA-102: Data Communications**UNIT VII World Wide Web**

- Facts
- Operation
- Architecture
- Key Layers on internet
- Advantages
- Disadvantages
- Conclusion

UNIT VIII Communication on Internet

- Social Networking Apps
- Smart phone messaging apps
- Chat Room
- Instant Messaging Services
- VoIP
- Video Calls and Conferencing

UNIT IX Preparing Computer for Internet Access

- ISP
- Types of ISPs
- Connection Types
 - Dial-up Connection
 - Integrated Service Digital Network (ISDN)
 - Digital Subscriber Line (DSL)
 - Cable TV Internet Connection
 - Satellite Internet Connection
 - Wireless Internet Connection

UNIT X Basics of E-mail

- Use of Email
- What is an Electronic Mail
- Email Addressing
- Features
- Advantages
- How to create a new account
- Inbox, Compose, send, and Drafts Email
- Advance email features: Sending an attachment
- Email: Receive, Reply, Delete and Forward
- SPAM

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Essential Readings:

1. Behnouz A. Forouzan, "Data Communication and networking", Latest Ed. TataMcGraw Hills.

Suggested Readings:

1. James F. Kurose and Keith W. Ross, "Computer Networking: A Top down Approach" Latest Edition, Pearson Publications
2. Shirley Taylor, "Model Business Letters, Emails and Other Business Documents" 7th Edition, Kindle Edition, Pearson Publications