

**FACULTY OF COMPUTER APPLICATIONS**

- **Course** : BCA
- **Sem.** : 5
- **Subject Code** : 05BC0502
- **Subject** : ***Fundamentals of Networking***
- **Objective** :
  1. To introduce the basics of Computer Networks
  2. To understand the functionality of each layer of OSI and TCP/IP models and interactions between them
  3. To Understand deeply the work of each layer of TCP/IP model.
  4. To gain basic insight of programming for network solutions.
- **Prerequisites** : C Programming, Basic knowledge of Linux OS

Unit No	Topics Covered	No of lectures required
<b>1</b>	<b>Unit 1: Introduction to Computer Networks</b> <ul style="list-style-type: none"> <li>○ Need to share resources, concepts of layering, Prerequisites, definition, categories and components of network, Data communication fundamentals: Introduction, Bandwidth and data rate, analog &amp; digital signaling and transmission, Modulation, Multiplexing and De-Multiplexing, FDM, TDM, switching and routing, Transmission Errors</li> </ul>	<b>10</b>
<b>2</b>	<b>Unit 2 : The Physical Layer&amp; Data Link Layer</b> <ul style="list-style-type: none"> <li>○ Introduction, Duties of physical layer,Wired and wireless physical layer,The duties of data link layer,The Error, The Protocols</li> </ul>	<b>13</b>
<b>3</b>	<b>Unit 3 : The Medium Access Sub Layer&amp;The Network Layer</b> <ul style="list-style-type: none"> <li>○ Introduction,Wired MAC Layer (Ethernet), Introduction, Duties of Network Layer</li> </ul>	<b>10</b>
<b>4</b>	<b>Unit 4: The Transport Layer&amp;The Application Layer</b> <ul style="list-style-type: none"> <li>○ Introduction, Duties of Transport layer, Introduction, DNS, Registration Process, The Name servers, resource records, Email Service, http, dhcp, ftp</li> </ul>	<b>10</b>
<b>5</b>	<b>Unit 5: Network Utilities</b> <ul style="list-style-type: none"> <li>○ Commands related to networking</li> <li>○ Email Clients (ThunderBird) , ftp client (FileZilla)</li> </ul>	<b>05</b>

## **FACULTY OF COMPUTER APPLICATIONS**

- **Course Outcomes**

1. Explain basics of Computer Networks and functionality of each layer of OSI and TCP/IP models.
2. Compare difference between OSI and TCP/IP model.
3. Apply error-detection and error-correction techniques to provide better security
4. Apply insight of programming for network solutions.
5. Compare different protocols for data transmission.

- **Main Reference:**

1. Andrew S. Tanenbaum, "Computer Networks", Prentice Hall, Fourth Edition

- **Other References:**

1. Behrouz A. Forouzan, "Data Communications and Networking", Tata McGraw-Hill, Fourth Edition
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