**19EC3203 – COMPUTER NETWORKS**

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| **Course category:** | | Program core | | **Credits:** | 3 |
| **Course Type:** | | Theory | | **Lecture - Tutorial - Practical:** | 3 - 0- 0 |
| **Prerequisite:** | | Data types, Communication theory, basics of computer networks | | **Sessional Evaluation :**  **External Evaluation:**  **Total Marks:** | 40  60  100 |
| **Course**  **Objectives** | Students undergoing this course are expected to: | | | | |
| 1.Become familiar with the fundamentals of parallel and serial data transmission  2. Acquire the Knowledge about various Local Area Networks & Routing algorithms  3. Acquire knowledge about principles and techniques of different network layer  design issues  4. Understand the Data compression techniques & Cryptography  5. Understand the presentation layer.  6. Become familiar with the World wide web, web browsers & web servers | | | | |
| **Course Outcomes** | Upon successful completion of the course , the students will be able to: | | | | |
| CO1 | | Understand the basics of communication, and different models of data transmission | | |
| CO2 | | Studies different types of networks, and various protocols for data transmission | | |
| CO3 | | Understand the Local Area Networks. | | |
| CO4 | | Studies design issues of Link layers. | | |
| CO5 | | Understand the error detection and correction schemes | | |
| CO6 | | Create tables using external media and tries to Design webpage | | |
| **Course**  **Content** | **UNIT-I**  **INTRODUCTION :** Theoretical basis for communication, Maximum data rate of channel, communications media, Networks goals, Application of networks, protocol hierarchies, OSI reference model, Design issues for the layers in the model, Modulation and keying alternatives, multiplexing, modems, parallel and serial data transmission, handshake procedures. Rs 232C, V.14/V.28, Rs449 interfaces, X.21, IEEE protocols, Link switching techniques.  **UNIT-II**  **LOCAL AREA NETWORKS:**Local communication alternatives, static and dynamic channel allocation in LANs, the ALOHA protocols, LAN protocols, IEEE logical link control, Ethernet, Token bus and Token ring protocols.  **UNIT-III**  **DATA LINK LAYER:** Design issues Error detection and correction, sliding window protocols. Wide area network standards, SDLC, HDLC, X 25 protocols.  **UNIT-IV**  **NETWORK LAYER :** Design issues, Routing algorithms, congestion control algorithms, Internetworking, Transport layer design issues, connection management, Transport protocol X 25, session layer design issues, Remote procedure cell.  **UNIT-V**  **PRESENTATION LAYER :** Abstract syntax notation, Data compression techniques, Cryptography Application such as file transfer, Electronic mail and virtual terminals, X 400 protocol for electrical messaging overview of ARPANET, MAP, TOP, Novell Netware, PC/NOS, Unix support for networking.  **UNIT-VI**  **APPLICATION LAYER :** World wide web, web browsers, web servers, uniform resource locator, Home pages, Basics of HTML, creating links, Anatomy of URL and kinds of URLs, HTML assignments, Editors and converters, New features of HTML, creating tables, Using images, Using external media, writing and designing web pages, Introduction to CGI scripts. | | | | |
| **Text Books**  **and**  **Reference Books** | **TEXT BOOKS:**  1. Computer Networks – Andrew S Tanenbaum, 4th edition. Pearson Education/PHI  2. Data Communications and Networking – BehrouzA.Forouzan, Third edition, TMH.  **REFERENCES:**   1. An Engineering Approach to Computer Networks – S.Keshav,2nd edition, Pearson Education 2. Understanding communications and Networks,3rdedition,W.A.Shay,Thomson | | | | |
| **E-Resources** | https://nptel.ac.in/courses/106105082 | | | | |

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| **Contribution of Course Outcomes towards achievement of Program Outcomes** | | | | | | | | | | | | | | |
|  | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 |
| CO1 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | 2 | 3 | 3 |
| CO2 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | 2 | 3 | 2 |
| CO3 | 3 | 3 | 3 | 1 | 1 | - | - | - | - | - | - | 2 | 2 | 3 |
| CO4 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | 2 | 2 | 3 |
| CO5 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | 2 | 3 | 2 |
| CO6 | 3 | 3 | 2 | 2 | 1 | - | - | - | - | - | - | 2 | 3 | 2 |