

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Name of the programme and specialization	M.Tech. CSE		
Course Title	Advanced Network Principles and Protocols		
Course Code	CS 610	No. of Credits	3
Course Code of Pre-requisite subject(s)	NIL		
Session	July 2020	Section (if, applicable)	
Name of Faculty	Dr. S. Mary Saira Bhanu	Department	CSE
Email	msb@nitt.edu	Telephone No.	9442970006
Name of Course Coordinator(s) (if, applicable)	NA		
E-mail		Telephone No.	
Course Type	Program Elective course		
Syllabus (approved in BoS)			
<p>UNIT-1 Introduction Introduction to Networks - Application of Networks - Architecture Topology Switching - SLIP, PPP -ALOHA protocols, CSMA/CD, IEEE 802.3, 802.4, 802.5</p> <p>UNIT-2 Network Layer Network Layer Issues- Routing, Congestion control- Internetworking - Issues, Address Learning Bridges, Spanning tree, Source routing, Bridges, Routers, Gateway.</p> <p>UNIT-3 Network Protocol Network Protocol- IP datagram - hop by hop routing, ARP, RARP, DHCP -Sub net Addressing, Address Masking, ICMP, RIP, RIPV2, OSPF, DNS, LAN and WAN Multicast.</p> <p>UNIT-4 Transport Layer Transport Layer- Design issues, Connection Management, Transmission Control Protocol (TCP) User Datagram Protocol (UDP).</p> <p>UNIT-5 Application Layer Application Layer Protocol- Telnet - TFTP - FTP - SMTP - Ping Finger, Bootstrap Network Time Protocol- SNMP.</p>			

Text Books

1. Andrew S. Tanenbaum and David J. Wetherall, "Computer Networks", 5th Edition, Pearson, 2011
2. William Stallings, "Data and Computer Communications", 9th Edition, Pearson, 2011

Reference Books

1. W Richard Stevens and G. Gabrani, "TCP/IP Illustrated - Volume I, The protocols", Pearson Education, 2009
2. Eiji Oki, Roberto Rojas-Cessa, Christian Vogt, Advanced Internet Protocols, Services and Applications, John Wiley and Sons Ltd, 2012

COURSE OBJECTIVES

1. To understand the architecture of the Internet protocols as a layered model
2. To understand the fundamentals of data transmission, encoding and multiplexing
3. To understand how the various components of wide area networks and local area networks work together
4. To understand the concept of application layer

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)
<ul style="list-style-type: none"> • Familiarize the different layers of TCP/IP protocol stack 	PO1-PO7, PO9, PO11
<ul style="list-style-type: none"> • Understand the working principle of different protocols at different layers 	PO1-PO7, PO9, PO11
<ul style="list-style-type: none"> • Apply networking concepts to real life problems 	PO1-PO7, PO9 – PO11

COURSE PLAN – PART II**COURSE OVERVIEW**

This course enables the students to know about the principles of Networking. This course deals with the design principles of IEEE 802 standard protocols, Network layer protocols - IPv4, IPv6, Transport layer protocols – TCP and UDP, and Application layer protocols – FTP, Telnet, SMTP, SNMP

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	1	Overview of Networks- reference Models –OSI,TCP/IP , Topology and Switching	ONLINE- PPT
2	2	Data link layer Protocols, Slip-PPP, HDLC, MAC protocols	ONLINE- PPT

3	3	IEEE 802 series – CSMA/CD, Token ring and bus	ONLINE- PPT
4	4	Network Layer- design issues, routing algorithms	ONLINE- PPT
5	5	Congestion control algorithms, Interworking – connecting devices	ONLINE- PPT
6	6	Internetworking routing, fragmentation, path discovery, BGP	ONLINE- PPT
7	7	Internet protocol (IP) – datagram, addressing, ARP & RARP	ONLINE- PPT
8	8	DHCP, NAT, DNS, ICMP	ONLINE- PPT
9	9	IP routing and forwarding, IP multicast, IGMP	ONLINE- PPT
10	10	IPv4 vs IPv6, Transport layer- Elements of transport layer, Flow control, Error control	ONLINE- PPT
11	11	TCP – Connection Management, Window management, congestion control - UDP	ONLINE- PPT
12	12	Application Layer Protocols – FTP- NTP, Telnet	ONLINE- PPT
13	13	SNMP, Sntp, Ping, Finger- Bootstrap protocol	ONLINE- PPT

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Assessment 1 (Written Test)	October IV Week	1 hour	20 %
2	Assessment 2 (surprise test)	Once in two weeks	20 minutes	15%
3	Assessment 3 (Written Assignment)	November II week		15 %

4	Assessment 4 (Programming Assignment	November IV week		
CPA	Compensation Assessment*	December II week	1 hour	20%
6	Final Assessment *	December III Week	2 hours	30 %

***mandatory; refer to guidelines on page 4**

COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

Feedback to be collected at the end of semester through MIS

COURSE POLICY (preferred mode of correspondence with students, compensation assessment policy to be specified)

MODE OF CORRESPONDENCE (email/ phone etc)

Through email

COMPENSATION ASSESSMENT POLICY

Students should not absent for the Assessment 1. If the reason for absence is genuine, the student can appear for compensation assessment. The medical certificate/on duty certificate should be submitted within one week after rejoining. The portions for the compensation assessment will be Assessment 1 portions. Students who were absent for Assessment 2 cannot appear for compensation assessment.

ATTENDANCE POLICY (A uniform attendance policy as specified below shall be followed)

- **At least 75% attendance in each course is mandatory.**
- **A maximum of 10% shall be allowed under On Duty (OD) category.**
- Students with **less than 65% of attendance** shall be prevented from writing the final assessment and **shall be awarded 'V' grade.**

ACADEMIC DISHONESTY & PLAGIARISM

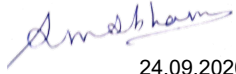
- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the

Academic office.

The above policy against academic dishonesty shall be applicable for all the programmes.

ADDITIONAL INFORMATION

FOR APPROVAL



24.09.2020

Course Faculty _____

CC-Chairperson _____



R. LEELA VELUSAMY

HOD _____

