

	DPG Institute of Technology and Management Sector 34, Gurugram HR 122004		
	Lesson Plan		
	Course Name: DATA COMMUNICATION NETWORKING & SECURITY		
	Faculty Name: Ms. ARCHANA		

No. of Lecture Hours/Week	3	Exam Hours	3
Total No. of Lecture Hours	33	Exam Marks	75
Course Code:	PCC-ECE-411G		

Course Objectives:

1. Understand the working principles of Data Communication.
2. Understand the Data link layer.
3. To understand the concept of Network layer and transport layer
4. Understand the security algorithm and applications layers concept

Lecture No.	Topics to be covered	Teaching Methodology	Activity	REMARKS
SECTION A (UNIT-1) (CO 405.1)				
1.	Overview of Data Communication and Networking: Data communications	Chalk &Talk	Revised previous concepts	
2.	Uses of computer Networks	PPT	Practical applications	
3.	The Internet, Protocols and standards, Layered tasks TCP/IP model	PPT	Group Discussion	
4.	TCP/IP model	https://youtu.be/zXs0EnCin0?si=0LiURJymT6h63dIU	Drew Block Diagram	
5.	Data and Signals, Analog and Digital, Periodic Analog Signals	Chalk &Talk	Quiz/MCQ	

6.	Digital Signals, Transmission impairment	Chalk &Talk	-	
7.	Data Rate Limits, Performance, Digital Transmission	Chalk &Talk	-	
8.	Digital-to-Digital conversion, Analog-to-Digital Conversion,	Chalk &Talk	Practical example	
9.	Digital-to-analog conversion Analog-to analog Conversion	PPT	Group Discussion	
SECTION B (UNIT-2) (CO 405.2)				
10.	Network Layer: Internetworks, Addressing: IP Address Classes	NPTEL https://youtu.be/OrkQNKqls?si=9eZ1tIq7qs0UNM7W	Solved Assignment	
11.	Subnet, CIDR, Routing, ARP, IP, ICMP, IPV6	Chalk &Talk	-	
12.	Unicast routing, Unicast routing protocol, Multicast routing, Multicast routing protocols.	Chalk &Talk	GD	
13.	Transport layer Process to process delivery, Elements of transport protocols, User datagram protocol (UDP)	PPT	Draw Block Diagram	
14.	Transmission control protocol (TCP), Data traffic, Congestion	Smart Board	Quiz	

15.	Congestion control, Quality of service	Smart Board		
16.	Techniques to improve QOS, Integrated services,	Chalk &Talk		
17.	Differentiated services, QOS in switched networks.	Chalk &Talk		
SECTION C (UNIT-3) (CO 405.3)				
18.	Physical layer: Bandwidth utilization: Multiplexing	PPT	-	
19.	FDM, WDM, TDM	PPT	Debate	
20.	Transmission Media, Guided Media, Unguided Media	Chalk &Talk	-	
21.	Wireless, Switching, Circuit-Switched Networks	PPT	Discussion	
22.	Data Link Layer: Data link layer design issues	NPTEL https://youtu.be/JRgmPco0KWI?si=Ya2JHUG2-luFx9Jo	Watched Video	
23.	Error Detection and Correction, Data Link Control and Protocols,	PPT	Test	
24.	Types of errors, Detection	Laboratory	Watched on training kits	
25.	Error correction, Flow and error control.	PPT	Students Presentation	
SECTION D (UNIT-4) (CO 405.4)				

26.	Application layer: DNS-Domain Name System	Chalk &Talk	Draw diagram	
27.	Electronic mail, File transfer	PPT	MCQ	
28.	HTTP, Worldwide web (WWW)	Chalk &Talk	Quiz	
29.	Digitizing audio and video	NPTEL https://youtu.be/0zHeO8tC2Z4?si=yBYfg1yQk2s9pF1r	Watched video	
30.	Cryptogrphy	Chalk &Talk	Group Discussion	
31.	Firewall	PPT	MCQ	
32.	Public Key	Chalk &Talk	Group Discussion	
33.	Digital Signature	Chalk &Talk	MCQ	

Textbook:

1. Data Communication and Networking by Behrouz A. Forouzan (Fourth Edition), TataMcGraw Hill
2. Computer Networks by Andrew S. Tanenbaum (Fifth Edition), Pearson Education

Suggested reference books:

1. Stallings William, Data and Computer Communication, Pearson Education (2000) 7th ed.
2. Introduction to Data communications and Networking ,W.Tomasi, Pearson education.

Course Outcome:

At the end of the course, the student will be able to:

CO 405.1.1 Describe the technical aspects of data communications on the Internet
CO 405.1.2. Analyse error detection/correction and flow control of data in the data network
CO 405.1.3 Configure the network component and assign IP address.
CO 405.1.4 To understand the network component .

CO-PO/PSO Mapping :

[illegible]