

GATEWAY INSTITUTE OF ENGINEERING AND TECHNOLOGY,SONIPAT
LESSON PLAN

Name of Faculty: Dr.Sunil Nijhawan

Discipline:- ECE

Semester: 8th

Subjects:ECE404B DATA COMMUNICATION AND NETWORK

Lesson Plan Duration: 15 Weeks (from January,2018 to April,2018)

Workload(Lecture/Practical) per week (in hours) :Lectures – 03, Tutorial – 01, Practical- 02,

Week	Theory		Practical	
	Lecture Day	Topic (including assignment/test)	Practical Day	Topic
1st	1.	Components, Data Representation, Data Flow, Guided and Unguided Media,	1st	To study different types of transmission media
	2.	Distributed Processing, Network Criteria		
	3.	Physical Structure, Network Models		
	4.	Category of Networks		
2nd	5.	Analog and Digital Data, Analog and Digital Signals	2nd	To study Quadrature Phase Shift Keying Modulation.
	6.	Periodic and Non Periodic Signals		
3rd	7.	Transmission Impairments-Attenuation, Distortion	3rd	File checking & viva
	8.	Noise, Performance bandwidth		
	9.	Throughput, Latency ,Bandwidth-Delay Product, Jitter		
4th	10.	Digital to digital Conversion-Line Coding	4th	To study Quadrature Amplitude Modulation.
	11.	TEST		
	12.	Line Coding Schemes, Block Coding,		
5th	13.	Scrambling, Transmission modes-Parallel Transmission and Serial Transmission	5th	To Study Serial Interface RS-232 and its applications.
	14.	Frequency Division Multiplexing		
	15.	Wavelength division Multiplexing		
6th	16.	Synchronous Time division multiplexing, Statistical Time Division	6th	To study the Parallel Interface Centronics and its applications.
	17.	Circuit Switched Networks-Three Phases		
	18.	Efficiency Delay		
7th	19.	Datagram Networks-Routing table	7th	To configure the modem of a computer.
	20.	Efficiency delay, Virtual Circuit Networks-Addressing		
	21.	TEST		
8th	22.	Three Phases, Efficiency, Delay in Virtual Circuit Networks	8th	To make inter-connections in cables for data communication in LAN.
	23.	Framing-Fixed Size Framing, Variable Sized framing		
	24.	Flow and Error Control-Flow Control		
9th	25.	Error control, Protocols; Noiseless Channels-Simplest protocol, stop and Wait Protocol	9th	To install LAN using Tree topology.
	26.	Noisy Channels-Stop and Wait Automatic Repeat Request		
	27.	Go Back n Automatic Repeat request		
10th	28.	Selective Repeat Automatic Repeat request, Piggy Backing	10th	To install LAN using STAR topology.
	29.	Layered Tasks-Sender		
	30.	TEST		
11th	31.	Layered Tasks -receiver and Carrier	11th	To install LAN using Bus topology.
	32.	The OSI Model-Layered Architecture		
	33.	Peer to peer processes		
12th	34.	Encapsulation,	12th	To install LAN using Token-Ring topology
	35.	Layers in the OSI Model-Physical Layer, data Link layer, Network layer,		
	36.	transport layer, Session layer		
13th	37.	Presentation layer, application layer, Summary of layers	13th	To install WIN NT
	38.	Introduction to TCP-IP and Internetworking		
	39.	IEEE Standards-Data Link Layer, Physical layer		
14th	40.	TEST	14th	To configure a HUB/Switch.
	41.	Standard Ethernet-Mac Sub-layer, Physical layer		
	42.	Changes in the standard bridged Ethernet		
15th	43.	Switched Ethernet, full duplex Ethernet	15th	File checking & viva
	44.	fast Ethernet-Mac sub-layer, Physical layer		
	45.	TEST		

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LESSON PLAN

Name of Faculty: Ms.Manisha Sharma

Discipline:- ECE

Semester: 8th

Subject: Wireless Communication

Lesson Plan Duration: 15 Weeks (from January,2018 to April,2018)

Workload(Lecture/Practical) per week (in hours) : Lecture-03

Week	Theory	
	Lecture Date	Topic (including assignment/test)
1st	1st	Introduction
	2nd	Evolution of Mobile Radio Communications Introduction, First Generation (1G), Second Generation (2G)
	3rd	Generation (2.5G) , Third Generation (3G), Evolution from 2G To 3G, Fourth Generation (4G)
2nd	4th	Examples of Wireless Communication Systems,Difference Between Fixed Telephone Network and Wireless Telephone Network, Wireless Local Loop WLL
	5th	Wireless Local Area Networks(WLAN),Personal Area Network (PAN),
	6th	Bluetooth. Basic cellular system
3rd	7th	Frequency Reuse
	8th	Channel Assignment Strategies
	9th	Hand-Off Strategies
4th	10th	Interference and System Capacity
	11th	Trunking and Grade of Service
	12th	Improving Coverage and Capacity in Cellular Systems
5th	13th	Test
	14th	Introduction to Radio Wave Propagation, Free Space Propagation Model, Practical Link Budget Design Using Path Loss Models
	15th	Design Using Path Loss Models
6th	16th	Outdoor Propagation Models
	17th	Indoor Propagation Models
	18th	Signal Penetration into Buildings
7th	19th	Small Scale Multipath Propagation
	20th	Impulse Response Model of a Multipath Channel
	21st	Small Scale Multipath Measurements, Parameters of Mobile Multipath Channels
8th	22nd	Types of Small Scale Fading
	23rd	Rayleigh and Ricean Distributions
	24th	Fundamentals of Equalization
9th	25th	Equalizer in a Communication Receiver, Linear Equalizer
	26th	Non Linear Equalization, Diversity Techniques
	27th	Rake Receiver, Interleaving
10th	28th	Test
	29th	Introduction to multiple access techniques
	30th	Frequency Division Multiple Access
11th	31st	Time Division Multiple Access
	32nd	Spread Spectrum Multiple Access, Space Division Multiple Access (SDMA),
	33rd	Capacity of Cellular System
12th	34th	Introduction to Wireless Networks, Development of Wireless Networks, Traffic Routing in Wireless Networks
	35th	Test
	36th	Wireless Data Services, Common Channel Signaling
13th	37th	Integrated Services Digital Network (ISDN)
	38th	Signalling SystemNo.7(SS7),Personal Communication services /Networks.(PCS/PCN)
	39th	Global System for Mobile (GSM)
14th	40th	Cdma Digital Cellular Standard(IS-95)
	41st	GPRS,EDGE,W-Cdma,Cdma2000
	42nd	Test
15th	43rd	Revision of syllabus
	44th	Revision of back year question papers
	45th	Revision of back year question papers

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LESSON PLAN

Name of Faculty: Mr. Ajay Kumar Sharma

Discipline:- B. Tech. (ECE)

Semester: 8th

Subjects: Optical communication (ECE412 B)

Lesson Plan Duration: 15 Weeks (from January, 2018 to April, 2018)

Workload (Lecture/Practical) per week (in hours) : Lecture-04

Week	Theory	
	Lecture Date	Topic (including assignment/test)
1st	1st	Introduction to Optical communication System
	2nd	Electromagnetic Spectrum used for optical communication
	3rd	Block Diagram of optical Communication System
2nd	4th	Basics of transmission of light rays
	5th	Advantages of optical fiber communication
	6th	Step Index Fibers
3rd	7th	Graded index Fibers
	8th	Single mode fibers (Cut off wavelength)
	9th	Mode field Diameter
4th	10th	Effective Refractive index)
	11th	Multimode fibers
	12th	Material losses in Silica Glass Fibers
5th	13th	Intrinsic and Extrinsic
	14th	Linear Scattering losses
	15th	Rayleigh Scattering, Mie scattering
6th	16th	Non Linear scattering losses
	17th	SBS, SRS
	18th	Fiber Bend loss
7th	19th	Chromatic Dispersion (Material Dispersion)
	20th	Waveguide Dispersion
	21st	Inter Modal Dispersion (Multimode Step index fiber)
8th	22nd	Multi Mode Graded Index fiber
	23rd	Dispersion Modified single mode fibers
	24th	Dispersion Shifted and Dispersion Flattened Fibers
9th	25th	Fiber alignment and joint loss
	26th	Multimode
	27th	Single mode
10th	28th	Fiber Splices (Fusion)
	29th	fiber Couplers (Three and Four port Couplers)
	30th	Introduction to absorption and Emission Of radiation
11th	31st	Characteristics of Optical sources
	32nd	LED power and Efficiency
	33rd	LED Structures (Surface and Edge Emitting)
12th	34th	LED Characteristics (Optical O/P power)
	35th	O/P Spectrum, Modulation Bandwidth
	36th	Einstein Relation
13th	37th	Population Inversion, Optical Feedback
	38th	Laser Oscillation
	39th	Threshold condition for laser oscillation
14th	40th	Comparison of LED and Laser as an Optical Source
	41st	Quantum Efficiency, Responsivity
	42nd	Long wavelength cut off
15th	43rd	P-I-N photodiode, Avalanche Photodiode
	44th	Benefits and drawbacks of Avalanche photodiodes
	45th	IGBT, Opto Coupler