Lesson Plan

Discipline: ETC	Semester-5th Winter-2023	Name of the Teachng Faculty: Smt.Priyanka Dhal(PTGF. ETC Engg)
Sl. No.	Subject-Th.4 (Wave propagation & Broadband communication engg.)	No. Of Days/Week class alloted:04	Semester From date: 01.08.2023 To date: 30.11.2023 No of weeks: 18
	Weeks/Months	Class Day	Topic
1	1st week 1 Aug. To 5 Aug	1st	1.1 Effects of environments such as reflection, refraction, interference, diffraction, absorption and attenuation (Definition only
		2nd	1.1 Effects of environments such as reflection, refraction, interference, diffraction, absorption and attenuation (Definition only
		3rd	1.2 Classification based on Modes of Propagation-Ground wave, Ionosphere ,Sky wave propagation, Space wave propagation
		4th	1.3 Definition – critical frequency, max. useable frequency, skip distance, fading, Duct propagation & Troposphere scatter propagation actual height and virtual height
2	2nd week 7 Aug. To 12 Aug	1st	1.3 Definition – critical frequency, max. useable frequency, skip distance, fading, Duct propagation & Troposphere scatter propagation actual height and virtual height
		2nd	1.4 Radiation mechanism of an antenna-Maxwell equation.
		3rd	1.5 Definition - Antenna gains, Directive gain, Directivity, effective aperture, polarization, input impedance, efficiency, Radiator
		4th	1.5 Radiator resistance, Bandwidth, Beam width, Radiation pattern
3	3rd week 14 Aug. To 19 Aug	1st	1.6 Antenna -types of antenna: Mono pole and dipole antenna and omni directional antenna
		2nd	1.7 Operation of following antenna with advantage & applications. a) Directional high frequency antenna : , Yagi & Rohmbus only
		3rd	1.8 Basic Concepts of Smart Antennas- Concept and benefits of smart antennas
		4th	Unit-2: TRANSMISSION LINES.
4	4th week 21 Aug To 26 Aug	1st	2.1 Fundamentals of transmission line.
		2nd	2.2 Equivalent circuit of transmission line & RF equivalent circuit
		3rd	2.3 Characteristics impedance, methods of calculations & simple numerical.
		4th	2.4 Losses in transmission line.
5	5th week 28 Aug. To 2 Sept	1st	2.5 Standing wave – SWR, VSWR, Reflection coefficient, simple numerical.
		2nd	2.6 Quarter wave & half wavelength line
		3rd	2.7 Impedance matching & Stubs – single & double
		4th	2.8 Primary & secondary constant of X-mission line.
6	1st week 4 Sept. To 9 Sept	1st	Unit-3: TELEVISION ENGINEERING.
		3rd	2.3 Understand need of freewheeling diode.
		3rd	2.4 Working of single phase fully controlled converter with resistive and R- L loads.
		4th	2.5 Working of three-phase half wave controlled converter with Resistive load
7	2nd week 11 Sept. To 16 Sept	1st	2.6 Working of three phase fully controlled converter with resistive load.
		2nd	2.7 Working of single phase AC regulator.
		3rd	2.8 Working principle of step up & step down chopper.
		4th	2.9 Control modes of chopper
8	3rd week 18 Sept. To 23 Sept	1st	2.10 Operation of chopper in all four quadrants.
		2nd	3. UNDERSTAND THE INVERTERS AND CYCLO-CONVERTERS 3.1 Classify inverters.
		3rd	3.1 Define-Aspect ratio, Rectangular Switching. Flicker,
		4th	3.1Horizontal Resolution, Video bandwidth, Interlaced scanning, Composite video signal, Synchronization pulseser
		1st	3.2 TV Transmitter – Block diagram & function of each block.

	4th week 25 Sept To 30 Sept	2nd	3.3 Monochrome TV Receiver -Block diagram & function of each block.
		3rd	3.5 Types of Televisions by Technology- cathode-ray tube TVs, Plasma Display Panels, Digital Light Processing (DLP),
		4th	3.5Liquid Crystal Display (LCD),Organic Light-Emitting Diode (OLED) Display, Quantum
10	1st week 02 Oct To 07 Oct	1st	3.5Light-Emitting Diode (QLED) – only Comparison based on application
		2nd	3.6 Discuss the principle of operation - LCD display, Large Screen Display..
		3rd	3.7 CATV systems & Types & networks
		4th	3.8 Digital TV Technology-Digital TV Signals, Transmission of digital TV signals & Digital TV receiver Video programme processor unit.
11	2nd week 9 Oct. To 14 Oct	1st	Unit-4: MICROWAVE ENGINEERING.
		2nd	4.1 Define Microwave Wave Guides.
		3rd	4.2 Operation of rectangular wave gives and its advantage.
		4th	4.3 Propagation of EM wave through wave guide with TE & TM modes.
12	3rd week 16 Oct. To 20 oct	1st	4.4 Circular wave guide.
		2nd	4.5 Operational Cavity resonator.
		3rd	4.6 Working of Directional coupler, Isolators & Circulator.
		4th	4.7 Microwave tubes-Principle of operational of two Cavity Klystron.
13	1st week 30 Oct. To 04 Nov	1st	4.8 Principle of Operations of Travelling Wave Tubes
		2nd	4.9 Principle of Operations of Cyclotron
		3rd	4.10 Principle of Operations of Tunnel Diode & Gunn diode
		4th	5.6 Description of contacts and coils in the following states i)Normally open ii) Normally closed iii) Energized output iv)latched Output v) branching
14	2nd week 06 Nov. To 11 Nov	1st	Unit-5: Broadband communication
		2nd	5.1 Broadband communication system-Fundamental of
		3rd	5.1 Components and Network architecture
		3rd	5.1 Components and Network architecture
		4th	5.2 Importance & future of broadband telecommunication internet based network.
15	3rd week 13 Nov. To 18 Nov	1st	5.2 Importance & future of broadband telecommunication internet based network.
		2nd	5.2 Importance & future of broadband
		3rd	5.3 SONET(Synchronous Optical Network)-Signal frame
		3rd	5.3 SONET(Synchronous Optical Network)-Signal frame components topologies advantages applications, and disadvantages
		4th	5.4 ISDN - ISDN Devices interfaces, services, Architecture, applications,
16	4th week 20 Nov. To 25 Nov	1st	5.4 ISDN - ISDN Devices interfaces, services, Architecture, applications,
		2nd	5.4 ISDN - ISDN Devices interfaces, services, Architecture, applications,
		3rd	5.5 BISDN -interfaces & Terminals, protocol architecture applications
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		4th	5.3 SONET(Synchronous Optical Network)-Signal frame
17	5th week 27 Nov. To 30 Nov	1st	5.4 ISDN - ISDN Devices interfaces, services, Architecture, applications,
		2nd	5.5 BISDN -interfaces & Terminals, protocol architecture applications
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Signature of the Teacher