



GIET(POLY), JAGATPUR, CUTTACK

LESSON PLAN

Discipline:ETC	Semester:5 th	Name of the teaching Faculty: Arniya Ranjan Das
Subject: W.P&B.C.E.(TH-4)	No.of days/ week class Allotted: 04	Semester From:14.07.2025 To:15.11.2025
		No.of weeks:15
Week	ClassDay	Theory/Topic
1 st week	1 st	UNIT-1:WAVE PROPAGATION AND ANTENNA 1.1:Effect of environments such as reflection,refraction , interference ,diffraction,absorption and attenuation (Definition only) . (contd.....)
	2 nd	1.1:Effect of environments such as reflection,refraction , interference ,diffraction,absorption and attenuation (Definition only).
	3 rd	1.2:Classification based on modes of propagation-Ground wave, Ionosphere,sky wave propagation,space wave propagation.
	4 th	1.3:Definition-Critical frequency,max-useable frequency,skip distance, fading,Duct propagation & Troposphere scatter propagation ,actual height and virtual height. (contd.....)
2 nd week	1 st	1.3:Definition-Critical frequency,max-useable frequency,skip distance, fading,Duct propagation & Troposphere scatter propagation ,actual height and virtual height.
	2 nd	1.4:Radiation mechanism of an antenna-Maxwell equation.
	3 rd	1.5:Definition-Antenna gains,Directive gain,Directivity, effective aperture polarization,input impedadance,efficiency, Radiator resistance, Bandwidth,Beam width,Radiation pattern. (contd.....)
	4 th	1.5:Definition-Antenna gains,Directive gain,Directivity, effective aperture polarization,input impedadance,efficiency, Radiator resistance, Bandwidth,Beam width,Radiation pattern.
3 rd week	1 st	1.6:Antenna-types of antenna:Mono pole & dipole antenna and Ornni directional antenna.
	2 nd	1.7:Operation of the following antenna with advantages&applications. a)Directional high frequency antenna:Yagi and Rombus only.
	3 rd	B)UHF & microwave antenna:Dish antenna (with parabolic reflector)&Horn antenna.
	4 th	1.8:Basic Concepts of Smart antennas-concept and benefits of smart antennas.
4 th week	1 st	UNIT-2:TRANSMISSION LINES 2.1:Fundamentals of transmission line.
	2 nd	2.2:Equivalent circuit of vtransmissionv&vRFvequivalentvcircuit.
	3 rd	2.3:Characteristicsvimpedance,methods ofcalculation,& simple numerical .(contd.....)
	4 th	2.3:Characteristics impedance,methodsofcalculation,& simple numerical.
5 th week	1 st	2.4:Losses in transmissionline.
	2 nd	2.5:Standing wave-SWR,VSWR Reflection coefficient,simple numerical (contd.....)
	3 rd	2.5:Standingwave-SWR,VSWR Reflection coefficient,simple numerical.
	4 th	2.6:Quarter wave & half wave length line.
6 th week	1 st	2.7:Impedance matching & stubs-single & double.
	2 nd	2.8:Primary&secondary constant of x-mission line.
	3 rd	UNIT-3:TELEVISION ENGINEERING 3.1:Define aspect ratio,Rectangular switching,flicker,horizontal resolution, video band width,interlaced scanning,composite video signal,synchronization pulses. (contd.....)
	4 th	3.1:Define aspect ratio,Rectangular switching,flicker,horizontal resolution, video band width,interlaced scanning,composite video signal,synchronization pulses.

7 th week	1 st	3.2.1.V Transmitter—block diagram and function of each block.
	2 nd	3.3. Monochrome T.V receiver block diagram and function of each block.
	3 rd	3.4: Color T.V signals (Luminance signal & chrominance signal (I&Q, U&V Signal)).
	4 th	3.5: Types of Televisions by technology: cathode-ray tube TVs, Plasma Display panels, Digital light processing (DLP), Liquid crystal display (LCD) Organic light-Emitting Diode (OLED) Display, Quantum Light-emitting diode (QLED). Only comparison based on application. (contd.....)
8 th week	1 st	3.5: Types of Televisions by technology: cathode-ray tube TVs, Plasma Display panels, Digital light processing (DLP), Liquid crystal display (LCD) Organic light-Emitting Diode (OLED) Display, Quantum Light-emitting diode (QLED). Only comparison based on application. (contd.....)
	2 nd	3.5: Types of Televisions by technology: cathode-ray tube TVs, Plasma Display panels, Digital light processing (DLP), Liquid crystal display (LCD) Organic light-Emitting Diode (OLED) Display, Quantum Light-emitting diode (QLED). Only comparison based on application. (contd.....)
	3 rd	3.5: Types of Televisions by technology: cathode-ray tube TVs, Plasma Display panels, Digital light processing (DLP), Liquid crystal display (LCD) Organic light-Emitting Diode (OLED) Display, Quantum Light-emitting diode (QLED). Only comparison based on application.
	4 th	3.6: Discuss the principle of operation LCD display, large screen display.
9 th week	1 st	3.7: CATV systems and types and networks.
	2 nd	3.8: Digital TV technology-Digital TV signals, Transmission of digital TV signal & Digital TV receiver, video programme processor unit. (contd.....)
	3 rd	3.8: Digital TV technology-Digital TV signals, Transmission of digital TV signal & Digital TV receiver, video programme processor unit.
10 th week	4 th	UNIT-4: MICRO WAVE ENGINEERING 4.1: Define micro wave wave guides.
	1 st	4.2: Operation of rectangular wave guides and its advantage.
	2 nd	4.3: Propagation of EM wave through wave guide with TE & TM modes. (contd.....)
	3 rd	4.3: Propagation of EM wave through wave guide with TE & TM modes.
11 th week	4 th	4.4: circular wave guide.
	1 st	4.5: Operation of Cavity resonator.
	2 nd	4.6: Working of Directional coupler, Isolator and circulator.
	3 rd	4.7: Microwave tubes—principle of operation of two cavity klystron. (contd.....)
12 th week	4 th	4.7: Microwave tubes—principle of operation of two cavity klystron.
	1 st	4.8: Principle of operation of Travelling wave Tubes. (contd.....)
	2 nd	4.8: Principle of operation of Travelling wave Tubes.
	3 rd	4.9: Principle of operation of cyclotron (contd.....)
13 th week	4 th	4.9: Principle of operation of cyclotron.
	1 st	4.10: Principle of operation of Tunnel Diode and Gunn diode. (contd.....)
	2 nd	4.10: Principle of operation of Tunnel Diode and Gunn diode.
	3 rd	UNIT-5: BROAD BAND COMMUNICATION 5.1: Broad band communication system-Fundamentals of components and network-architecture. (contd.....)
14 th week	4 th	5.1: Broad band communication system-Fundamentals of components and network-architecture.
	1 st	5.2: Cable broad band data network-architecture, importance & future of broad band Tele communication, internet based network. (contd.....)
	2 nd	5.2: Cable broad band data network-architecture, importance & future of broad band Tele communication, internet based network. (contd.....)
	3 rd	5.2: Cable broad band data network-architecture, importance & future of broad band Tele communication, internet based network.
	4 th	5.3: SONET (Synchronous Optical Network)-signal frame components topologies advantages, applications, and disadvantages. (contd.....)
	1 st	5.3: SONET (Synchronous Optical Network)-signal frame components topologies advantages, applications, and disadvantages. (contd.....)

15th week

2 nd	5.3:SONET(Synchronous Optical Net work)-signal frame components topologies advantages,applications,and disadvantages.
3 rd	5.4:ISDN-ISDN Devices interfaces,services,Architecture,applications.
4 th	5.5:BISDN-interfaces &Terminals,protocol architecture applications.

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10/7/25
Signature of faculty

H. S. Sah
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Signature of H. S. Sah (HOD)
Electrical & ETC Engg
G. E. T. (POLY), ...

H. P.
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Signature of principal