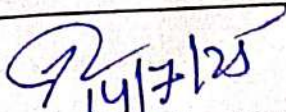


GOVT. POLYTECHNIC KENDRAPARA
LESSON PLAN
Session(2025-2026)

	Discipline: ETC	Semester-5th Winter-2025	Name of the Teaching Faculty: JOGESWAR NAIK(LECTURER STAGE-II)
Sl. No.	Subject-Th.5. (Wave propagation & Broadband communication engg.)	No. Of Days/Week class allotted:04	Start Date: 14/07/2025 End Date: 15/11/2025 No. of Weeks-15 WEEKS
	Weeks/Months	Class Day	Topic
1	1st week (14th July to 19th July 2025)	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, lonosphere ,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 (21th July to 25th July 2025)	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 (28th July to 02nd Aug 2025)	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 (04th Aug to 8th Aug 2025)	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 (11th Aug to 16th Aug 2025)	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	6th week (18th Aug to 26th Aug 2025)	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	7th week (29th Aug to 06th Sept 2025)	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.

8	8th week (08st Sept to 12th Sept 2025)	4th	2.9 Control modes of chopper
		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,
9	9th week (15th Sept to 20th Sept 2025)	4th	3.1Horizontal Resolution, Video bandwidth, Interlaced scanning, Composite video signal, Synchronization pulseser
		1st	3.2 TV Transmitter – Block diagram & function of each block.
		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),
10	10th week (22nd Sept to 26th Sept 2025)	4th	3.5Liquid Crystal Display (LCD),Organic Light-Emitting Diode (OLED) Display, Quantum
		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
11	11th week (3rd oct to 10th oct 2025)	4th	3.8 Digital TV Technology-Digital TV Signals, Transmission of digital TV signals & Digital TV receiver Video programme processor unit.
		1st	Unit-4: MICROWAVE ENGINEERING.
		2nd	4.1 Define Microwave Wave Guides.
		3rd	4.2 Operation of rectangular wave gives and its advantage.
12	12th week (13th oct to 18th oct 2025)	4th	4.3 Propagation of EM wave through wave guide with TE & TM modes.
		1st	4.4 Circular wave guide.
		2nd	4.5 Operational Cavity resonator.
		3rd	4.6 Working of Directional coupler, Isolators & Circulator.
13	13th week (20th oct to 31th oct 2025)	4th	4.7 Microwave tubes-Principle of operational of two Cavity Klystron.
		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
14	14th week (01st Nov to 07th Nov)	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
		1st	Unit-5: Broadband communication
		2nd	5.1 Broadband communication system-Fundamental of
		3rd	5.1 Components and Network architecture
15	15th week (10th Nov to 15th Nov)	3rd	5.1 Components and Network architecture
		4th	5.2 Importance & future of broadband telecommunication internet based network.
		1st	5.2 Importance & future of broadband telecommunication internet based network.
		2nd	5.2 Importance & future of broadband telecommunication internet based network.
		3rd	5.3 SONET(Synchronous Optical Network)-Signal frame components topologies advantages applications, and disadvantages
3rd	5.4 ISDN - ISDN Devices interfaces, services, Architecture, applications,		
4th	5.5 BISDN -interfaces & Terminals, protocol architecture applications		


 Signature of the Teacher