

KIIT POLYTECHNIC
Department of ETC Engineering

LESSON PLAN

Session :: Winter – 2022
Course Type :: Theory
Semester/Branch :: 5th Semester, ETC Engineering
Subject (with code) :: Wave Propagation & Broadband Communication (Th4)
Contact hours/week :: 4 hours
Name of Faculty :: Dr. Upali Aparajita Dash

SL · N O.	CLASS ID	COURSE CONTENT	MODE OF DELIVERY	EXHIBIT/ REFERENCE
1	1	Effects of environments such as reflection, refraction, interference, diffraction, absorption and attenuation (Definition only)	Lecture	Study Material
2	2	Classification based on Modes of Propagation-Ground wave, Ionosphere, Sky wave propagation, Space wave propagation.	Lecture	Study material
3	3	Definition – critical frequency, max. useable frequency, skip distance, fading, Duct propagation & Troposphere scatter propagation actual height and virtual height.	Group Discussion	Study material
4	4	Definition - Antenna gains, Directive gain, Directivity, effective aperture, polarization, input impedance, efficiency, Radiator resistance, Bandwidth, Beam width, Radiation pattern.	(Guest Lecture)	NPTEL link https://nptel.ac.in/courses/108105114
5	5	Antenna -types of antennas: Mono pole and dipole antenna and omni directional antenna.	Video Lecture	Power point Video
6	6	Operation of following antenna with advantage & applications. a) Directional high frequency antenna: Yagi & Rohmbus only	(Video Lecture)	Power point video recording
7	7	Discussion about Low profile antenna like microstrip patch	You tube video	Beyond Curriculum
8	8	b) UHF & Microwave antenna.: Dish antenna (with parabolic reflector) & Horn antenna.	(Video Lecture)	Power point video recording
9	9	Characteristics impedance, methods of calculations & simple numerical. Losses in transmission line.	Guest Lecture	https://www.youtube.com/watch?v=W6fLtTxgFkk

10	10	ASSIGNMENT CHECK	<i>Self- Evaluation from study material</i>	ASSIGNMENT CHECK
11	11	Class TEST	MCQ (Quiz)	TEST
12	12	Define-Aspect ratio, Rectangular Switching, Flicker, Horizontal Resolution, Video bandwidth, Interlaced scanning, Composite video signal, Synchronization pulses.		Lecture
13	13	Define-Aspect ratio, Rectangular Switching, Flicker, Horizontal Resolution, Video bandwidth, Interlaced scanning, Composite video signal, Synchronization pulses.		Lecture
14	14	TV Transmitter – Block diagram & function of each block. Monochrome TV Receiver -Block diagram & function of each block.	Guest Lecture	NPTEL link https://www.youtube.com/watch?v=X1zT161zwB0
15	15	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.	Lecture	Study Material
16	16 Beyond curriculum	Common fault discussion in each TV systems		You tube video
17	17	Discuss the principle of operation - LCD display, Large Screen Display. CATV systems & Types & networks.	Lecture	
18	18	Digital TV Technology-Digital TV Signals, Transmission of digital TV signals & Digital TV receiver Video program processor unit.	Lecture	Study material
19	19	Assignment check	Self Evaluation	Question bank
20	20	Digital TV Technology-Digital TV Signals, Transmission of digital TV signals & Digital TV receiver Video program processor unit.	Lecture	Study material
21	21	Define Microwave Wave Guides	Lecture	Study material
22	22	Operation of rectangular wave guides and its advantage.	<i>Lecture</i>	Study material
23	23	Propagation of EM wave through wave guide with TE & TM modes.	Lecture	Study material
24	24	Circular wave guide.	Lecture	Study material
25	25	Operational Cavity resonator.	Lecture	Study material
26	26	Beyond Curriculum	GUNN Diode Lecture	You tube video
27	27	Working of Directional coupler, Isolators & Circulator.	(Video Lecture)	NPTEL link https://www.youtube.com/watch?v=-9QIUu0s-U

28	28	Microwave tubes-Principle of operational of two Cavity Klystron.	Lecture	Study material
29	29	Principle of Operations of Travelling Wave Tubes.	Lecture	Study material
30	30	Principle of Operations of Cyclotron	Lecture	Study material
31	31	Revising the taught portions	Discussion	Question Bank
32	32	Microwave tubes-Principle of operational of two Cavity Klystron.	(Video Lecture)	NPTEL link https://www.youtube.com/watch?v=-9QIUu0s-U
33	33	Operational Cavity resonator	NPTEL link	http://www.digimat.in/nptel/courses/video/108101112/L39.html
34	34	Broadband communication system-Fundamental of Components and Network architecture.	Lecture	Study Material
35	35	Class Test	MCQ questions	Question Bank
36	36	Cable broadband data network-architecture, importance & future of broadband telecommunication internet-based network.	Student presentation	Power point made by students
37	37	SONET (Synchronous Optical Network)-Signal frame components topologies advantages applications, and disadvantages.	Video Lecture	https://www.youtube.com/watch?v=f6-G7gMwpuw&t=35s
38	38	Cable broadband data network-architecture, importance & future of broadband telecommunication internet-based network.	Lecture	Study Material
39	39	Broadband communication system-Fundamental of Components and Network architecture.	Lecture	Study material
40	40	Circular wave guide.	Lecture	Study material
41	41	Operational Cavity resonator.	Lecture	Study material
42	42	Assignment	Self-Evaluation	Question Bank
43	43	Working of Directional coupler, Isolators & Circulator.	Lecture	Study material
44	44	SONET (Synchronous Optical Network)-Signal frame components topologies advantages applications, and disadvantages.	Lecture	Study material
45	45	ISDN - ISDN Devices interfaces, services, Architecture, applications,	Student Presentation	Power point prepared by students
46	46	Revision	Discussion	Already taught portions
47	47	BISDN -interfaces & Terminals, protocol architecture applications	Lecture	Study Material
48	48	Exam question	Asking questions	Previous year question paper

Signature of Concern Teacher

