DEPARTMENT OF ELECTRONICS & TELECOMMUNICATION ENGINEERING

LESSION PLAN FOR ACADEMIC SESSION 2023-24	
JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA	
Name of the Faculty: RAJENDRA DORA	Academic Year:2023-24
Course No.: Th-4	Course Name: WAVE PROPAGATION & BROADBAND COMMUNICATION ENGINEERING
Program: Diploma	Branch: Electronics & Telecommunication Engg.
Year/Sem: 3rd /5th	Section: A
Total Period s : 60 P/ Sem	End Semester Exam : 80marks
Examination : 3 Hours	Internal Assessment :20 Marks
	TOTAL MARKS :100 Marks

Sl. No.	Period	Time (min)	Unit/ Chapter	Topic to be covered	Teaching method
1.	1.	55	1	Basic concept of Effects of environments such as reflection, refraction, interference, diffraction, absorption and attenuation (Definition only)	Black board
2.	2.	55	1	Classification based on Modes of Propagation- Ground wave, Ionosphere ,Sky wave propagation, Space wave propagation	Black board
3.	3.	55	1	Definition – critical frequency, max. useable frequency, skip distance, fading, Duct propagation	Black board
4.	4.	55	1	Troposphere scatter propagation actual height and virtual height	Audio visual smart class
5.	5.	55	1	Radiation mechanism of an antenna-Maxwell equation.	Black board
6.	6.	55	1	Definition - Antenna gains, Directive gain, Directivity, effective aperture, polarization	Black board
7.	7.	55	1	input impedance, efficiency, Radiator resistance, Bandwidth, Beam width, Radiation pattern	Black board
8.	8.	55	1	Antenna -types of antenna: Mono pole and dipole antenna and omni directional antenna	Audio visual smart class
9.	9.	55	1	Operation of following antenna with advantage & applications. a) Directional high frequency antenna : , Yagi & Rohmbus only	Black board
10.	10.	55	1	Operation of following antenna with advantage & applications .b)UHF &Microwave antenna.: Dish antenna (with parabolic reflector)	Black board
11.	11.	55	1	Operation of following antenna with advantage & applications of Horn antenna	Black board
12.	12.	55	1	Basic Concepts of Smart Antennas- Concept and benefits of smart antennas	Audio visual smart class
13.	13.	55	2	Fundamentals of transmission line.	Black board
14.	14.	55	2	Equivalent circuit of transmission line & RF	Black board

				equivalent circuit	
15.	15.	55	2	Characteristics impedance, methods of calculations .	Black board
16.	16.	55	2	simple numerical on characteristic impedance	Black board
17.	17.	55	2	Losses in transmission line.	Audio visual smart class
18.	18.	55	2	Standing wave – SWR, VSWR, Reflection coefficient	Black board
19.	19.	55	2	simple numerical on SWR, VSWR	Black board
20.	20.	55	2	Quarter wave & half wavelength line	Black board
21.	21.	55	2	Impedance matching & Stubs – single & double	Black board
22.	22.	55	2	Primary & secondary constant of X-mission line	Black board
23.	23.	55	3	Define-Aspect ratio, Rectangular Switching. Flicker, Horizontal Resolution, Video bandwidth	Black board
24.	24.	55	3	Interlaced scanning, Composite video signal, Synchronization pulses	Black board
25.	25.	55	3	TV Transmitter – Block diagram & function of each block	Black board
26.	26.	55	3	Monochrome TV Receiver -Block diagram & function of each block.	Black board
27.	27.	55	3	Colour TV signals (Luminance Signal & Chrominance Signal,(I & Q,U & V Signals).	Black board
28.	28.	55	3	Types of Televisions by Technology- cathode-ray tube TVs, Plasma Display Panels, Digital Light Processing (DLP),	Audio visual smart class
29.	29.	55	3	Liquid Crystal Display (LCD),Organic Light-Emitting Diode (OLED) Display,	Black board
30.	30.	55	3	Quantum Light-Emitting Diode (QLED)	Black board
31.	31.	55	3	Discuss the principle of operation - LCD display, Large Screen Display.	Black board
32.	32.	55	3	CATV systems & Types & networks	Audio visual smart class
33.	33.	55	3	Digital TV Technology-Digital TV Signals,	Black board
34.	34.	55	3	Transmission of digital TV signals	Black board
35.	35.	55	3	Digital TV receiver Video programme processor unit.	Black board
36.	36.	55	4	Basic of Microwave Wave Guides.	Black board
37.	37.	55	4	Operation of rectangular wave gives and its advantage.	Black board
38.	38.	55	4	Propagation of EM wave through wave guide with TE modes.	Black board
39.	39.	55	4	Propagation of EM wave through wave guide with TM modes.	Audio visual smart class
40.	40.	55	4	Circular wave guide.	Black board
41.	41.	55	4	Operational Cavity resonator	Black board
42.	42.	55	4	Working of Directional coupler	Black board
43.	43.	55	4	Working of Directional Isolators	Black board
44.	44.	55	4	Working of Directional Circulator	Black board
45.	45.	55	4	Microwave tubes-Principle of operational of two Cavity Klystron.	Black board
46.	46.	55	4	Principle of Operations of Travelling Wave Tubes	Audio visual smart class

47.	47.	55	4	Principle of Operations of Travelling Wave Tubes	Black board
48.	48.	55	4	Principle of Operations of Cyclotron	Black board
49.	49.	55	4	Principle of Operations of Tunnel Diode	Black board
50.	50.	55	4	Principle of Operations of Gunn diode	Black board
51.	51.	55	5	Broadband communication system-Fundamental of Components	Black board
52.	52.	55	5	Network architecture	Audio visual smart class
53.	53.	55	5	Cable broadband data network- architecture, importance	Black board
54.	54.	55	5	future of broadband telecommunication internet based network.	Black board
55.	55.	55	5	SONET(Synchronous Optical Network)-Signal frame components topologies	Black board
56.	56.	55	5	SONET -advantages applications, and disadvantages	Audio visual smart class
57.	57.	55	5	ISDN - ISDN Devices interfaces, services,	Black board
58.	58.	55	5	ISDN - Architecture, applications,	Audio visual smart class
59.	59.	55	5	BISDN -interfaces & Terminals	Black board
60.	60.	55	5	BISDN - protocol architecture applications	Audio visual smart class