LESSON PLAN (WINTER-2021)		
Discipline: ETC	**Semester: 5th**	**Name of the Teaching Faculty: SOMA DASH/RAJEEV R. SETH**
Subject: WAVE PROPAGATION & BROADBAND COMMUNICATION ENGINEERING	**No of Days /per week class allotted: 4**	**Semester From date: 01.10.2021 To date: 08.01.2022** **No of Weeks:15**
Date	**Class Day**	**Theory / Practical Topics**
1.10.21	1st	**Unit-1: WAVE PROPAGATION & ANTENNA(12)** 1.1 Effects of environments such as reflection, refraction, interference, diffraction, absorption and attenuation (Definition only)
4.10.21	2nd	1.2 Classification based on Modes of Propagation-Ground wave, Ionosphere , Sky wave propagation, Space wave propagation
7.10.21	3rd	1.3 Definition – critical frequency, max. useable frequency, skip distance, fading, Duct propagation & Troposphere scatter propagation actual height and virtual height
8.10.21	4th	Continue
	1st	**PUJA VACATION**
	2nd	
	3rd	
	4th	
11.10.21	1st	1.4 Radiation mechanism of an antenna-Maxwell equation.
11.10.21	2nd	1.5 Definition - Antenna gains, Directive gain, Directivity, effective aperture, polarization, input impedance, efficiency, Radiator resistance, Bandwidth, Beam width, Radiation pattern
18.10.21	3rd	Continue
21.10.21	4th	1.6 Antenna -types of antenna: Mono pole and dipole antenna and omni directional antenna
22.10.21	1st	Continue
25.10.21	2nd	1.7 Operation of following antenna with advantage & applications. a) Directional high frequency antenna : , Yagi & Rohmbus only
27.10.21	3rd	b) UHF &Microwave antenna.: Dish antenna (with parabolic reflector) & Horn antenna
28.10.21	4th	1.8 Basic Concepts of Smart Antennas- Concept and benefits of smart antennas
28.10.21	1st	**Unit-2: TRANSMISSION LINES(10)** 2.1 Fundamentals of transmission line.
29.10.21	2nd	2.2 Equivalent circuit of transmission line & RF equivalent circuit
1.11.21	3rd	2.3 Characteristics impedance, methods of calculations & simple numerical.
3.11.21	4th	Continue
5.11.21	1st	2.4 Losses in transmission line.
8.11.21	2nd	2.5 Standing wave – SWR, VSWR,
10.11.21	3rd	Reflection coefficient, simple numerical.
11.11.21	4th	2.6 Quarter wave & half wavelength line
12.11.21	1st	2.7 Impedance matching & Stubs – single & double
15.11.21	2nd	2.8 Primary & secondary constant of X-mission line.

17.11.21	3rd	**Unit-3: TELEVISION ENGINEERING(13)** 3.1 Define-Aspect ratio, Rectangular Switching. Flicker, Horizontal Resolution, Video bandwidth, Interlaced scanning, Composite video signal, Synchronization pulses
17.11.21	4th	Continue
18.11.21	1st	3.2 TV Transmitter – Block diagram & function of each block.
22.11.21	2nd	3.3 Monochrome TV Receiver -Block diagram & function of each block.
24.11.21	3rd	3.4 Colour TV signals (Luminance Signal & Chrominance Signal,(I & Q,U & V Signals).
25.11.21	4th	3.5 Types of Televisions by Technology- cathode-ray tube TVs, Plasma Display Panels,
26.11.21	1st	Digital Light Processing (DLP), Liquid Crystal Display (LCD)
29.11.21	2nd	Organic Light-Emitting Diode (OLED) Display, Quantum Light-Emitting Diode (QLED) – only Comparison based on application
1.12.21	3rd	3.6 Discuss the principle of operation - LCD display,
2.12.21	4th	Large Screen Display.
3.12.21	1st	3.7 CATV systems & Types & networks
5.12.21	2nd	3.8 Digital TV Technology-Digital TV Signals, Transmission of digital TV signals & Digital TV receiver Video programme processor unit.
5.12.21	3rd	Continue
8.12.21	4th	4.1 Define Microwave Wave Guides.
9.12.21	1st	4.2 Operation of rectangular wave gives and its advantage.
10.12.21	2nd	4.3 Propagation of EM wave through wave guide with TE & TM modes.
13.12.21	3rd	Continue
15.12.21	4th	4.4 Circular wave guide.
16.12.21	1st	4.5 Operational Cavity resonator.
17.12.21	2nd	4.6 Working of Directional coupler, Isolators & Circulator.
20.12.21	3rd	4.7 Microwave tubes-Principle of operational of two Cavity Klystron.
22.12.21	4th	Continue
22.12.21	1st	4.8 Principle of Operations of Travelling Wave Tubes
23.12.21	2nd	Continue
24.12.21	3rd	4.9 Principle of Operations of Cyclotron
27.12.21	4th	4.10 Principle of Operations of Tunnel Diode & Gunn diode
29.12.21	1st	**Unit-5: Broadband communication (10)** 5.1 Broadband communication system-Fundamental of Components and Network architecture
30.12.21	2nd	5.2 Cable broadband data network- architecture, importance & future of broadband telecommunication internet based network.
31.12.21	3rd	5.3 SONET(Synchronous Optical Network)-Signal frame components topologies advantages applications, and disadvantages
3.1.22	4th	Continue
3.1.22	1st	5.4 ISDN - ISDN Devices interfaces, services, Architecture, applications,
5.1.22	2nd	Continue
6.1.22	3rd	5.5 BISDN -interfaces & Terminals, protocol architecture applications
7.1.22	4th	Continue

Signature of the Faculty