

Discipline : ETC	Semester:- 5th	Name of the Teaching Faculty: SASMITA DAS
Subject:- Wave Propagation & Broadband communication engg.	No of Days/per Week Class Allotted :- 04	Semester From:- 15.09.2022 To: 22.12.2022
Week	Class Day	Theory
1 st	1 st	WAVE PROPAGATION & ANTENNA
	2 nd	Effects of environments such as reflection, refraction, interference
	3 rd	Effects of environments such as diffraction, absorption and attenuation (Definition only)
	4 th	Classification based on Modes of Propagation-Ground wave, Ionosphere
2 nd	1 st	Sky wave Propagation , Space wave Propagation
	2 nd	Definition – critical frequency, max. useable frequency, skip distance, fading
	3 rd	Duct propagation & Troposphere scatter propagation actual height and virtual height
	4 th	Radiation mechanism of an antenna-Maxwell equation.
3 rd	1 st	Definition - Antenna gains, Directive gain, Directivity, effective aperture, polarization, input impedance, efficiency, Radiator resistance, Bandwidth, Beam width, Radiation pattern
	2 nd	Antenna -types of antenna: Mono pole and dipole antenna and omni directional antenna
	3 rd	Operation of following antenna with advantage & applications. a) Directional high frequency antenna : , Yagi & Rohmbus only b) UHF & Microwave antenna.: Dish antenna (with parabolic reflector) & Horn antenna
	4 th	Basic Concepts of Smart Antennas- Concept and benefits of smart antennas
4 th	1 st	TRANSMISSION LINES.
	2 nd	Fundamentals of transmission line.
	3 rd	Equivalent circuit of transmission line & RF equivalent circuit
	4 th	Characteristics impedance, methods of calculations & simple numerical.

5 th	1 st	Losses in transmission line.
	2 nd	Standing wave – SWR, VSWR,.
	3 rd	Reflection coefficient, simple numerical
	4 th	Quarter wave & half wavelength line
6 th	1 st	Impedance matching & Stubs – single & double
	2 nd	Primary & secondary constant of X-mission line.
	3 rd	TELEVISION ENGINEERING.
	4 th	Define-Aspect ratio, Rectangular Switching. Flicker, Horizontal Resolution
7 th	1 st	Video bandwidth, Interlaced scanning, Composite video signal, Synchronization pulses
	2 nd	TV Transmitter – Block diagram & function of each block.
	3 rd	Monochrome TV Receiver -Block diagram & function of each block.
	4 th	Colour TV signals (Luminance Signal & Chrominance Signal,(I & Q,U & V Signals).
8 th 8 th	1 st	Types of Televisions by Technology- cathode-ray tube TVs, Plasma Display Panels
	2 nd	Digital Light Processing (DLP),Liquid Crystal Display (LCD),Organic Light-Emitting Diode (OLED) Display,
	3 rd	Quantum Light-Emitting Diode (QLED) – only Comparison based on application
	4 th	Discuss the principle of operation - LCD display, Large Screen Display
9 th	1 st	CATV systems & Types & networks
	2 nd	Digital TV Technology-Digital TV Signals, Transmission of digital TV signals
	3 rd	Digital TV receiver Video programme processor unit.
	4 th	MICROWAVE ENGINEERING.
10 th	1 st	Define Microwave Wave Guides.
	2 nd	Operation of rectangular wave guides and its advantage.
	3 rd	Propagation of EM wave through wave guide with TE & TM modes.
	4 th	
11 th	1 st	Circular wave guide
	2 nd	Operational Cavity resonator.
	3 rd	Working of Directional coupler, Isolators & Circulator.
	4 th	

12 th	1 st	Microwave tubes-Principle of operational of two Cavity Klystron.
	2 nd	Principle of Operations of Travelling Wave Tubes
	3 rd	Principle of Operations of Cyclotron
	4 th	Principle of Operations of Tunnel Diode
13 th	1 st	Principle of Operations of Gunn diode
	2 nd	
	3 rd	Broadband communication
	4 th	Broadband communication system-Fundamental of Components and Network architecture
14 th	1 st	
	2 nd	
	3 rd	
	4 th	
15 th	1 st	SONET(Synchronous Optical Network)-Signal frame components topologies advantages applications, and disadvantages
	2 nd	
	3 rd	BISDN -interfaces & Terminals, protocol architecture applications
	4 th	

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Teaching Faculty
19/09/2022


HOD, ETC


Principal

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