GANDHI SCHOOL OF ENGINEERING

BHABANDHA,BERHAMPUR

PROPOSED WORK

5th ETC SUBJECT- Th.4 WAVE PROPAGATION & BROADBAND COMMUNICATION ENGINEERING

Name of Faculty- SANTOSH KUMAR SAHU

SL NO. CHAPTER	TOPICS	NO OF PERIODS ASSIGNED BY SCTE&VT	PLANNING DATES	REMARKS
1	**WAVE PROPAGATION & ANTENNA** 1.1 Effects of environments such as reflection, refraction, interference, diffraction, absorption and attenuation (Definition only) 1.2 Classification based on Modes of Propagation-Ground wave, Ionosphere ,Sky wave propagation, Space wave propagation 1.3 Definition – critical frequency, max. useable frequency, skip distance, fading, Duct propagation & Troposphere scatter propagation actual height and virtual height 1.4 Radiation mechanism of an antenna-Maxwell equation. 1.5 Definition - Antenna gains, Directive gain, Directivity, effective aperture, polarization, input impedance, efficiency, Radiator resistance, Bandwidth, Beam width, Radiation pattern 1.6 Antenna -types of antenna: Mono pole and dipole antenna and omni directional antenna 1.7 Operation of following antenna with	**12**	**01 OCT 2021** **To** **01 NOV 2021**	

	advantage & applications. a) Directional high frequency antenna : , Yagi & Rohmbus only b) UHF &Microwave antenna.: Dish antenna (with parabolic reflector) & Horn antenna 1.8 Basic Concepts of Smart Antennas- Concept and benefits of smart antennas			
2	**TRANSMISSION LINES**. 2.1 Fundamentals of transmission line. 2.2 Equivalent circuit of transmission line & RF equivalent circuit 2.3 Characteristics impedance, methods of calculations & simple numerical. 2.4 Losses in transmission line. 2.5 Standing wave – SWR, VSWR, Reflection coefficient, simple numerical. 2.6 Quarter wave & half wavelength line 2.7 Impedance matching & Stubs – single & double 2.8 Primary & secondary constant of X-mission line.	**10**	**01 NOV 2021 To 22 NOV 2021**	
3	**TELEVISION ENGINEERING.** 3.1 Define-Aspect ratio, Rectangular Switching. Flicker, Horizontal Resolution, Video bandwidth, Interlaced scanning, Composite video signal, Synchronization pulses 3.2 TV Transmitter – Block diagram & function of each block. 3.3 Monochrome TV Receiver -Block diagram & function of each block. 3.4 Colour TV signals (Luminance Signal & Chrominance Signal,(I & Q,U & V Signals). 3.5 Types of Televisions by Technology- cathode-ray tube TVs, Plasma Display Panels, Digital Light Processing (DLP),Liquid Crystal Display	**13**	**22 NOV 2021 To 14 DEC 2021**	

	(LCD),Organic Light-Emitting Diode (OLED) Display, Quantum Light-Emitting Diode (QLED) – only Comparison based on application 3.6 Discuss the principle of operation - LCD display, Large Screen Display. 3.7 CATV systems & Types & networks 3.8 Digital TV Technology-Digital TV Signals, Transmission of digital TV signals & Digital TV receiver Video programme processor unit.			
4	**MICROWAVE ENGINEERING.** 4.1 Define Microwave Wave Guides. 4.2 Operation of rectangular wave gives and its advantage. 4.3 Propagation of EM wave through wave guide with TE & TM modes. 4.4 Circular wave guide. 4.5 Operational Cavity resonator. 4.6 Working of Directional coupler, Isolators & Circulator. 4.7 Microwave tubes-Principle of operational of two Cavity Klystron. 4.8 Principle of Operations of Travelling Wave Tubes 4.9 Principle of Operations of Cyclotron 4.10 Principle of Operations of Tunnel Diode & Gunn diode	**15**	**14 DEC 2021 To 30 DEC 2021**	
5	**Broadband communication** 5.1 Broadband communication system-Fundamental of Components and Network architecture 5.2 Cable broadband data network- architecture, importance & future of broadband telecommunication internet based network. 5.3 SONET(Synchronous Optical Network)-Signal	**10**	**30 DEC 2021 To 17 JAN 2022**	

	frame components topologies advantages applications, and disadvantages 5.4 ISDN - ISDN Devices interfaces, services, Architecture, applications, 5.5 BISDN -interfaces & Terminals, protocol architecture applications			

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