Discipline :- **ETC**	Semester:- **6th**	Name of the Teaching Faculty: - **Sasmita Das**
Subject:- **Advance Communication Engg. (Th. 1)**	No of Days/per Week Class Allotted :- **05**	Semester From:- **14.02.2023** To:- **23.05.2023**
Week	**Class Day**	**Theory**
1st	1st	RADAR & NAVIGATION AIDS. Introduction
	2nd	Basic Radar, advantages & applications
	3rd	Working principle of Simple Radar system , its types
	4th	Radar range equation &Performance factor of radar
	5th	Working principle of Pulsed Radar system
2nd	1st	Function of radar indication and Working principle of moving target indicator.
	2nd	Define Doppler effect & Working principle of C.W Radar.
	3rd	Radar aids to Navigation
	4th	Aircraft landing system-MTI Radar- working principle
	5th	Navigation Satellite System.(NAVSAT) & GPS System
3rd	1st	Basic Satellite Transponder & Kepler's Laws
	2nd	Satellite Orbital patterns and elevation(LEO,MEO & GEO) categories
	3rd	Concept of Geostationary Satellite, calculate its height, velocity & round trip time delay & their advantage & disadvantage
	4th	
	5th	Working of the Satellite sub system
4th	1st	Satellite frequency allocation and frequency bands.
	2nd	General structure of satellite Link system (Uplink, Down link, Transponder, Crosslink)
	3rd	Working principle of direct broadcast system (DBS)
	4th	Working principle of VSAT system.
	5th	Define multiple accessing & name various types
5th	1st	Time Division Multiple Accessing(TDMA) & Code Division Multiple Accessing (CDMA) – block diagram, its advantages & dis-advantages
	2nd	
	3rd	Satellite Application- Communication Satellite(MSAT), Digital Satellite Radio.
	4th	Working principle of GPS Receiver & Transmitter& applications.
	5th	Optical Satellite Link transmitter & Receiver
6th	1st	Basic principle of Optical communication
	2nd	Compare the advantage and disadvantage of optical fibres & metallic cables
	3rd	Electromagnetic Frequency and wave line spectrum
	4th	Types of optical fibres &principles of propogation in a fibre using Ray Theory
	5th	Optical fiber construction Define terms: Velocity of propagation, Critical angle, Acceptance angle numerical aperture
7th	1st	Optical fibre communication system- block diagram & working principle
	2nd	Modes of propagation and index profile of optical fiber
	3rd	Types optical fiber configuration: Single-mode step index, Multi-mode step index, Multi-mode Graded index
	4th	Attenuation in optical fibers – Absorption losses, scattering, losses, bending losses, core and cladding losses- Dispersion – material Dispersion, waveguide dispersion, Intermodal dispersion
	5th	Optical sources(Transmitter) & types – LED- semiconductor laser diodes
	1st	LASER -its working principles, block diagram using laser feedback

8th		control circuit
	2nd	Optical detectors – PIN and APD diodes &Block diagram using APD Connectors and splices –Optical cables - Couplers
	3rd	Optical repeater & Single Channel system
	4th	Applications of optical fibres – civil, Industry and Military application
	5th	Concept of Wave Length Division Multiplexing (WDM) principles
9th	1st	Working of Electronic Telephone System. (Telephone Set)
	2nd	Function of switching system.& Call procedures
	3rd	Space and time switching
	4th	Numbering plan of telephone networks (National Schemes & International Numbering)
	5th	
10th	1st	Working principle of a PBX & Digital EPABX.
	2nd	
	3rd	Units of Power Measurement
	4th	Working principle of Internet Protocol Telephone
	5th	Working principle of Internet Telephone
11th	1st	Basic concept of Data Communication
	2nd	Architecture, Protocols and Standards
	3rd	
	4th	Data Communication Circuits
	5th	Types of Transmission & Transmission Modes
12th	1st	
	2nd	Data Communication codes
	3rd	Basic idea of Error control & Error Detection
	4th	MODEM & its basic block diagram& common features Voice Band Modem
	5th	
13th	1st	Basic concept of Cell Phone,frequency reuse channel assignment strategic handoff co-channel Interference and system capacity of a Cellular Radio systems.
	2nd	
	3rd	Concept of improving coverage and capacity in cellular system (Cell Splitting, Sectoring)
	4th	Wireless Systems and its Standards
	5th	Discuss the GSM (Global System for Mobile) service and features.
14th	1st	Architecture of GSM system & GSM mobile station &channel types of GSM system.
	2nd	
	3rd	working of forward and reveres CDMA channel,the frequency and channel specifications
	4th	Architecture and features of GPRS
	5th	Discuss the mobile TCP, IP protocol.
15th	1st	Working of Wireless Application Protocol (WAP).
	2nd	
	3rd	Features of SMS, MMS, 1G,2G, 3G, 4G& 5G Wireless network
	4th	
	5th	Smart Phone and discuss its features indicate through Block diagram.

S.Das 13/02/23

Teaching Faculty

13/02/23

HOD, ETC