LESSON PLAN (SUMMER-2022)

Discipline: ETC	**Semester:6th**	**Name of the Teaching Faculty: Rajeev Ranjan Seth**	
Subject: Advance Communication Engineering	**No of Days /per week class allotted: 5**	**Semester From date: 10.03.2022 To date: 10.06.2022** **No of Weeks:15**	

Week	Class Day	Theory / Practical Topics	Date
1st	1st	**1. RADAR & NAVIGATION AIDS (10)** 1.1 Basic Radar, advantages & applications	10.03.2022
	2nd	1.2 Working principle of Simple Radar system , its types	11.03.2022
	3rd	1.3 Radar range equation &Performance factor of radar.	12.03.2022
	4th	1.4 Working principle of Pulsed Radar system.	14.03.2022
	5th	1.5 Function of radar indication and Working principle of moving target	15.03.2022
2nd	1st	1.6 Define Doppler effect&Working principle of C.W Radar.	17.03.2022
	2nd	1.7 Radar aids to Navigation	21.03.2022
	3rd	1.8 MTI Radar- working principle	22.03.2022
	4th	1.9 Aircraft landing system.	24.03.2022
	5th	1.10 Navigation Satellite System.(NAVSAT) & GPS System	25.03.2022
3rd	1st	**2. SATELLITE COMMUNICATION (15)** 2.1 Basic Satellite Transponder & Kepler's Laws	26.03.2022
	2nd	2.2 Satellite Orbital patterns and elevation(LEO,MEO & GEO) categories	28.03.2022
	3rd	2.3 Concept of Geostationary Satellite, calculate its height, velocity & round trip time delay & their advantage & disadvantage	29.03.2022
	4th	2.4 Working of the Satellite sub system	31.03.2022
	5th	2.5 Satellite frequency allocation and frequency bands.	02.04.2022
4th	1st	2.6 General structure of satellite Link system (Uplink, Down link, Transponder, Crosslink)	04.04.2022
	2nd	2.7 Working principle of direct broadcast system (DBS)	05.04.2022
	3rd	2.8 Working principle of VSAT system.	07.04.2022
	4th	2.9 Define multiple accessing & name various types.	08.04.2022
	5th	2.10 Time Division Multiple Accessing(TDMA) & – block diagram, its advantages & dis-advantages.	09.04.2022
5th	1st	Code Division Multiple Accessing (CDMA) – block diagram, its advantages & dis-advantages.	11.04.2022
	2nd	2.11 Satellite Application- Communication Satellite(MSAT),	12.04.2022
	3rd	Digital Satellite Radio.	16.04.2022
	4th	2.12 Working principle of GPS Receiver & Transmitter& applications.	18.04.2022
	5th	2.13 Optical Satellite Link transmitter & Receiver	19.04.2022
6th	1st	**3. OPTICAL FIBER COMMUNICATION (15)** 3.1 Basic principle of Optical communication. 3.2 Compare the advantage and disadvantage of optical fibres&metallic cables	21.04.2022
	2nd	3.3 Electromagnetic Frequency and wave line spectrum	22.04.2022
	3rd	3.4 Types of optical fibres&principles of propogation in a fibre using Ray	23.04.2022
	4th	3.5 Optical fiber construction	25.04.2022
	5th	3.6 Define terms: Velocity of propagation, Critical angle, Acceptance angle numerical aperture	26.04.2022
7th	1st	3.7 Optical fibre communication system- block diagram & working principle	28.04.2022
	2nd	3.8 Modes of propagation and index profile of optical fiber	29.04.2022
	3rd	3.9 Types optical fiber configuration: Single-mode step index, Multi-mode step index, Multi-mode Graded index	30.04.2022
	4th	3.10 Attenuation in optical fibers – Absorption losses, scattering, losses, bending losses, core and cladding losses- Dispersion – material Dispersion, waveguide dispersion, Intermodal dispersion	02.05.2022
	5th	3.11 Optical sources(Transmitter) & types – LED- semiconductor laser diodes	05.05.2022

8th	1st	3.12 LASER -its working principles, block diagram using laser feedback control circuit	06.05.2022
	2nd	3.13 Optical detectors – PIN and APD diodes &Block diagram using APDConnectors and splices –Optical cables - Couplers	07.05.2022
	3rd	3.14 Optical repeater & Single Channel system	09.05.2022
	4th	3.15 Applications of optical fibres – civil, Industry and Military application	10.05.2022
	5th	3.16 Concept of Wave Length Division Multiplexing (WDM) principles.	12.05.2022
9th	1st	**4. TELECOMMUNICATION SYSTEM (10)** 4.1 Working of Electronic Telephone System. (Telephone Set)	13.05.2022
	2nd	4.2 Function of switching system.	14.05.2022
	3rd	Call procedures	17.05.2022
	4th	4.3 Space and time switching.	19.05.2022
	5th	4.4 Numbering plan of telephone networks (National Schemes & International Numbering)	20.05.2022
10th	1st	4.5 Working principle of a PBX & Digital EPABX.	21.05.2022
	2nd	Working principle of Digital EPABX.	23.05.2022
	3rd	4.6 Units of Power Measurement.	24.05.2022
	4th	4.7 Working principle of Internet Protocol Telephone	26.05.2022
	5th	4.8 Working principle of Internet Telephone	27.05.2022
11th	1st	**5. DATA COMMUNICATION (10)** 5.1 Basic concept of Data Communication	28.05.2022
	2nd	5.2 Architecture, Protocols and Standards	31.05.2022
	3rd	5.3 Data Communication Circuits	02.06.2022
	4th	5.4 Types of Transmission	03.06.2022
	5th	Transmission Modes	04.06.2022
12th	1st	5.5 Data Communication codes	06.06.2022
	2nd	5.6 Basic idea of Error control	07.06.2022
	3rd	Error Detection	09.06.2022
	4th	5.7 MODEM & its basic block diagram	10.06.2022
	5th	common features Voice Band Modem	Extra Class
13th	1st	**6. WIRELESS COMMUNICATION (15)** 6.1 Basic concept of Cell Phone,frequency reuse channel assignment strategic	Extra Class
	2nd	handoff co-channel Interference and system capacity of a Cellular Radio systems.	Extra Class
	3rd	6.2 Concept of improving coverage and capacity in cellular system (Cell Splitting, Sectoring)	Extra Class
	4th	6.3 Wireless Systems and its Standards.	Extra Class
	5th	6.4 Discuss the GSM (Global System for Mobile) service and features.	Extra Class
14th	1st	6.5 Architecture of GSM system &	Extra Class
	2nd	GSM mobile station &channel types of GSM system.	Extra Class
	3rd	6.6 working of forward and reveres CDMA channel,	Extra Class
	4th	the frequency and channel specifications	Extra Class
	5th	6.7 Architecture and features of GPRS.	Extra Class
15th	1st	6.8 Discuss the mobile TCP, IP protocol.	Extra Class
	2nd	6.9 Working of Wireless Application Protocol (WAP).	Extra Class
	3rd	6.10 Features of SMS, MMS, 1G,2G,	Extra Class
	4th	3G, 4G& 5G Wireless network.	Extra Class
	5th	6.11 Smart Phone and discuss its features indicate through Block diagram.	Extra Class

Signature of the Faculty