ADVANCED COMMUNICATION ENGINEERING (TH1) - 6TH SEMESTER ETC		
Week	**No of Periods Alloted(60)**	**Syllabus To be Covered**
1ST	**1. RADAR & NAVIGATION AIDS - 10P**	
	1st	1.1 Basic Radar, advantages & applications
	2nd	1.2 Working principle of Simple Radar system , its types
	3rd	1.3 Radar range equation &Performance factor of radar.
	4th	1.4 Working principle of Pulsed Radar system
	5th	1.5 Function of radar indication and Working principle of moving target indicator.
2ND	**1st**	1.6 Define Doppler effect&Working principle of C.W Radar
	2nd	1.7 Radar aids to Navigation
	3rd	1.8 MTI Radar- working principle
	4th	1.9 Aircraft landing system
	5th	1.10 Navigation Satellite System.(NAVSAT) & GPS System
3RD	**2. SATELLITE COMMUNICATION**	
	1st	2.1 Basic Satellite Transponder & Kepler's Laws
	2nd	2.2 Satellite Orbital patterns and elevation(LEO,MEO & GEO) categories
	3rd	2.3 Concept of Geostationary Satellite, calculate its height, velocity & round trip time delay & their advantage & disadvantage
	4th	2.3 Concept of Geostationary Satellite, calculate its height, velocity & round trip time delay & their advantage & disadvantage
	5th	2.4 Working of the Satellite sub system
4TH	**1st**	2.5 Satellite frequency allocation and frequency bands
	2nd	2.6 General structure of satellite Link system (Uplink, Down link, Transponder, Crosslink)
	3rd	2.7 Working principle of direct broadcast system (DBS)
	4th	2.8 Working principle of VSAT system
	5th	2.9 Define multiple accessing & name various types.
5TH	**1st**	2.10 Time Division Multiple Accessing(TDMA) & Code Division Multiple Accessing (CDMA) – block diagram, its advantages & dis-advantages.
	2nd	2.10 Time Division Multiple Accessing(TDMA) & Code Division Multiple Accessing (CDMA) – block diagram, its advantages & dis-advantages.
	3rd	2.11 Satellite Application- Communication Satellite(MSAT), Digital Satellite Radio.
	4th	2.12 Working principle of GPS Receiver & Transmitter& applications
	5th	2.13 Optical Satellite Link transmitter & Receiver
6TH	**3. OPTICAL FIBER COMMUNICATION - 15P**	
	1st	3.1 Basic principle of Optical communication
	2nd	3.2 Compare the advantage and disadvantage of optical fibres&metallic cables
	3rd	3.3 Electromagnetic Frequency and wave line spectrum
	4th	3.4 Types of optical fibres&principles of propogation in a fibre using Ray Theory
	5th	3.5 Optical fiber construction 3.6 Define terms: Velocity of propagation, Critical angle, Acceptance angle numericalaperture
7TH	**1st**	3.7 Optical fibre communication system- block diagram & working principle
	2nd	3.8 Modes of propagation and index profile of optical fiber
	3rd	3.9 Types optical fiber configuration: Single-mode step index, Multi-mode step index, Multi-mode Graded index
	4th	3.10 Attenuation in optical fibers – Absorption losses, scattering, losses, bending losses, core and cladding losses- Dispersion – material Dispersion, waveguide dispersion, Intermodal dispersion
	5th	3.11 Optical sources(Transmitter) & types – LED- semiconductor laser diodes
8TH	**1st**	3.12 LASER -its working principles, block diagram using laser feedback control circuit
	2nd	3.13 Optical detectors – PIN and APD diodes &Block diagram using APDConnectors and splices –Optical cables - Couplers
	3rd	3.14 Optical repeater & Single Channel system
	4th	3.15 Applications of optical fibres – civil, Industry and Military application
	5th	3.16 Concept of Wave Length Division Multiplexing (WDM) principles.
	4.TELECOMMUNICATION SYSTEM -10P	
	1st	4.1 Working of Electronic Telephone System. (Telephone Set)

9TH	2nd	4.2 Function of switching system.& Call procedures
	3rd	4.2 Function of switching system.& Call procedures
	4th	4.3 Space and time switching.
	5th	4.4 Numbering plan of telephone networks (National Schemes & International Numbering)
10TH	1st	4.5 Working principle of a PBX & Digital EPABX
	2nd	4.5 Working principle of a PBX & Digital EPABX
	3rd	4.6 Units of Power Measurement.
	4th	4.7 Working principle of Internet Protocol Telephone
	5th	4.8 Working principle of Internet Telephone
11TH	**5.Data Communication - 10P**	
	1st	5.1 Basic concept of Data Communication
	2nd	5.2 Architecture, Protocols and Standards
	3rd	5.2 Architecture, Protocols and Standards
	4th	5.3 Data Communication Circuits
	5th	5.4 Types of Transmission & Transmission Modes
12TH	1st	5.5 Data Communication codes
	2nd	5.5 Data Communication codes
	3rd	5.6 Basic idea of Error control & Error Detection
	4th	5.6 Basic idea of Error control & Error Detection
	5th	5.7 MODEM & its basic block diagram& common features Voice Band Modem
13TH	**6.WIRELESS COMMUNICATION - 15P**	
	1st	6.1 Basic concept of Cell Phone,frequency reuse channel assignment strategic handoff co-channel Interference and system capacity of a Cellular Radio systems.
	2nd	6.1 Basic concept of Cell Phone,frequency reuse channel assignment strategic handoff co-channel Interference and system capacity of a Cellular Radio systems.
	3rd	6.2 Concept of improving coverage and capacity in cellular system (Cell Splitting, Sectoring)
	4th	6.3 Wireless Systems and its Standards.
	5th	6.4 Discuss the GSM (Global System for Mobile) service and features.
14TH	1st	6.5 Architecture of GSM system & GSM mobile station &channel types of GSM system.
	2nd	6.5 Architecture of GSM system & GSM mobile station &channel types of GSM system.
	3rd	6.6 working of forward and reveres CDMA channel,the frequency and channel specifications
	4th	6.7 Architecture and features of GPRS.
	5th	6.8 Discuss the mobile TCP, IP protocol.
15TH	1st	6.8 Discuss the mobile TCP, IP protocol.
	2nd	6.8 Discuss the mobile TCP, IP protocol.
	3rd	6.9 Working of Wireless Application Protocol (WAP).
	4th	6.10 Features of SMS, MMS, 1G,2G, 3G, 4G& 5G Wireless network.
	5th	6.11 Smart Phone and discuss its features indicate through Block diagram.