NILASAILA INSTITUTE OF SCIENCE & TECHNOLOGY SERGARH-756060, BALASORE (ODISHA)
(Approved by AICTE & affiliated to SCTE & VT, Odisha)

LESSON PLAN

SUBJECT:Th.1 (ADVANCE COMMUNICATION ENGINEERING)

Name of the Faculty- Er.Niranjan Sahu

Branch- Electrical & Electronics Engineering **Session-** 2024-25

Semester- 6th **Examination-** 2025(S)

CHAPTER WISE DISTRIBUTION OF PERIODS

Sl.No.	Name of the chapter as per the Syllabus	No. of Periods as per the Syllabus	No. of periods actually needed
1	RADAR & NAVIGATION AIDS	10	10
2	SATELLITE COMMUNICATION	15	15
3	OPTICAL FIBER COMMUNICATION	15	15
4	TELECOMMUNICATION SYSTEM	10	10
5	DATA COMMUNICATION	10	10
6	WIRELESS COMMUNICATION	15	14
	TOTAL	75	74

SIGN OF FACULTY

SIGN HOD

LESSON PLAN		
Discipline: ELECTRICAL AND ELECTRONICS ENGINEERING	**Semester:** 6th	**Name of the Teaching Faculty: Er.Niranjan sahu**
		SESSION : 2024-25 **EXAMINATION : 2025 (S)**
Week	**Class Day**	**Topics to be covered**
1st	1st	Radar and navigation aids.
	2nd	1.1 BasicRadar, advantages & applications
	3rd	1.2 Working principle of Simple Radar system , its types
	4th	1.3 Radar range equation & Performance factor of radar.
	5th	1.4 Working principle of Pulsed Radar system.
2nd	1st	1.5 Function of radar indication and Working principle of moving target indicator.
	2nd	1.6 Define Doppler effect & Working principle of C.W. Radar.
	3rd	1.7 Radar aids to Navigation
	4th	1.8 MTI Radar-working principle
	5th	1.8 Aircraft landing system.
3rd	1st	1.9 Navigation Satellite System.(NAVSAT) & GPS System
	2nd	SATELLITE COMMUNICATION
	3rd	2.1 Basic Satellite Transponder & Kepler'sLaws
	4th	2.2 Satellite Orbital patterns and elevation (LEO,MEO & GEO) categories
	5th	2.3 Concept of Geostationary Satellite, calculate its height, velocity & round trip time delay & their advantage & disadvantage

Week	Class Day	Topics to be covered
4th	1st	2.5 Satellite frequency allocation and frequency bands.
	2nd	2.5 Satellite frequency allocation and frequency bands.
	3rd	2.6 General structure of satellite Link system (Uplink, Down link, Transponder, Crosslink)
	4th	2.7 Working principle of direct broadcast system (DBS)
	5th	2.8 Working principle of VSAT system.
5th	1st	2.9 Define multiple accessing & name various types.
	2nd	2.10 Time Division Multiple Accessing (TDMA) & Code Division Multiple
	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	1st	OPTICAL FIBER COMMUNICATION.
	2nd	3.1 Basic principle of Optical communication.
	3rd	3.2 Compare the advantage and disadvantage of optical fibres & metallic cables
	4th	3.3 Electro magnetic Frequency and wave line spectrum
	5th	3.4 Types of optical fibres & principles of propogation in a fibre using Ray Theory

Week	Class Day	Topics to be covered
7th	1st	3.6 Define terms: Velocity of propagation, Critical angle, Acceptance angle numerical aperture
	2nd	3.6 Define terms: Velocity of propagation, Critical angle, Acceptance angle numerical aperture
	3rd	3.7 Optical fibre communication system-block diagram & working principle
	4th	3.8 Modes of propagation and index profile of optical fiber
	5th	3.9 Types optical fiber configuration: Single-mode step index, Multi-mode step index, Multi-mode Graded index
8th	1st	3.10 Attenuation in optical fibers – Absorption losses, scattering, losses, bending losses, core and cladding losses- Dispersion – material Dispersion, waveguide dispersion,
	2nd	3.11 Optical sources (Transmitter) & types – LED- semiconductor laser diodes
	3rd	3.12 LASER -its working principles, block diagram using laser feedback control circuit
	4th	3.13 Optical detectors–PIN and AP Ddiodes & Block diagram
	5th	3.14 Optical repeater & Single Channel system
9th	1st	3.15 Applications of optical fibres–civil, Industry and Military application
	2nd	3.16 Concept of Wave Length Division Multiplexing (WDM) principles.
	3rd	TELECOMMUNICATION SYSTEM
	4th	4.1 Working of Electronic Telephone System. (Telephone Set)
	5th	4.2 Function of switching system. & Call procedures

Week	Class Day	Topics to be covered
10th	1st	4.3 Space and time switching.
	2nd	4.4 Numbering plan of telephone networks (National Schemes & International Numbering)
	3rd	4.5 Working principle of a PBX & Digital EPABX.
	4th	4.6 Units of Power Measurement.
	5th	4.7 Working principle of Internet Protocol Telephone
11th	1st	4.8 Working principle of Internet Telephone
	2nd	Data Communication
	3rd	5.1 Basic concept of Data Communication
	4th	5.2 Architecture, Protocols and Standards
	5th	5.3 Data Communication Circuits
12th	1st	5.4 Types of Transmission & Transmission Modes
	2nd	5.5 Data Communication codes
	3rd	5.6 Basic idea of Error control & Error Detection
	4th	5.7 MODEM & its basic block diagram& common features Voice Band Modem
	5th	CLASS TEST

Week	Class Day	Topics to be covered
13th	1st	WIRELESS COMMUNICATION
	2nd	6.1 Basic concept of Cell Phone,frequency reuse channel assignment strategic handoff co-channel Interference and system capacity of a Cellular Radiosy stems.
	3rd	6.2 Concept of improving coverage and capacity in cellular system (Cell Splitting, Sectoring)
	4th	6.3 Wireless Systems and its Standards.
	5th	6.3 Wireless Systems and its Standards.
14th	1st	6.4 Discuss the GSM (Global System for Mobile) service and features.
	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	6.9 Working of Wireless Application Protocol (WAP).
	2nd	6.10 Features of SMS,MMS,1G,2G,3G,4G & 5G Wirelessnetwork.
	3rd	6.11 Smart Phone and discuss its features indicate through Block diagram
	4th	6.11 Smart Phone and discuss its features indicate through Block diagram

Sign.Of Faculty

Sign.Of HOD