GOVERNMENT POLYTECHNIC, DHENKANAL
DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGG.
LESSON PLAN- SUMMMER 2025 (6th Semester)
ACADEMIC YEAR 2024-25

Subject:- Advanced Communication Engineering (Th-1)	No of Days/per Week Class Allotted :-	Semester From:- :- 04.02.2025 To:- 17.05.2025
	5	Name of the Faculty: Biswa Ranjan Behera
Week	**Class Day**	**Theory**
1st	1st	Basic Radar, applications, Working principle of Simple Radar system, its types
	2nd	Radar range equation & Performance factor of radar
	3rd	Working principle of Pulsed Radar system
	4th	Working principle of moving target indicator, Define Doppler effect & Working principle of C.W Radar.
	5th	Radar aids to Navigation
2nd	1st	MTI Radar-working principle
	2nd	Navigation Satellite System (NAVSAT)&GPS System
	3rd	Aircraft landing system
	4th	Revision & QA
	5th	Basic Satellite Transponder & Kepler's Laws
3rd	1st	Satellite Orbital patterns and elevation (LEO,MEO&GEO) categories
	2nd	Concept of Geostationary Satellite, calculate its height & velocity
	3rd	Roundtrip time delay & their advantage & disadvantage
	4th	Working of the Satellite sub system
	5th	Satellite frequency allocation and frequency bands, General structure of satellite Link system
4th	1st	Working principle of direct broadcast system(DBS), Working principle of VSAT system
	2nd	Define multiple accessing & name various types, Time Division Multiple Accessing (TDMA), its advantages & dis-advantages.
	3rd	Code Division Multiple Accessing (CDMA), its advantages & dis- advantages
	4th	Communication Satellite (MSAT)
	5th	Satellite Application- Digital Satellite Radio
5th	1st	Working principle of GPS Receiver & Transmitter
	2nd	Application of GPS, OpticalSatelliteLinktransmitter&Receiver
	3rd	Basic principle of Optical communication,
	4th	Compare the advantage and disadvantage of optical fibers & metallic cables
	5th	Electromagnetic Frequency and wave line spectrum, Principles of propagation in a fiber using Ray Theory
6th	1st	Optical fiber construction, Define terms: Velocity of propagation, Critical angle, Acceptance angle, numerical aperture
	2nd	Revision & QA
	3rd	Class Test /SAT
	4th	Optical fiber communication system
	5th	Types of optical fiber configuration: Single-mode step index, Multi-mode step index, Multi-mode Graded index
7th	1st	Modes of propagation and index profile of optical fiber
	2nd	Attenuation in optical fibers – Absorption losses, scattering, losses, bending losses, core and cladding losses
	3rd	Dispersion
	4th	Optical sources (Transmitter) & types– working of LED

	5th	LASER-its working principles, block diagram using laser feedback control circuit
8th	1st	Optical detectors–PIN diode
	2nd	APD diodes
	3rd	Connectors and splices
	4th	Optical cables– Couplers
	5th	Optical repeater & Single Channel system
9th	1st	Applications of optical fibers, Concept of Wave Length Division Multiplexing (WDM) principles
	2nd	Working of Electronic Telephone System(Telephone Set)
	3rd	Function of switching system & Call procedures
	4th	Space and time switching
	5th	Numbering plan of telephone networks
10th	1st	Working principle of a PBX
	2nd	Digital EPABX, Units of Power Measurement
	3rd	Working principle of Internet Protocol Telephone
	4th	Working principle of Internet Telephone
	5th	Basic concept of Data Communication
11th	1st	Protocols, Standards
	2nd	Architecture
	3rd	Data Communication Circuits
	4th	Types of Transmission& Transmission Modes
	5th	Data Communication codes
12th	1st	Multilevel scheme, Block coding, scrambling
	2nd	Error control
	3rd	Error detection (Simple Parity, two dimensional parity and Checksum)
	4th	CRC method
	5th	MODEM & its basic block diagram & common features of Voice Band Modem
13th	1st	Basic concept of Cell Phone, frequency reuse channel assignment strategic
	2nd	Handoff
	3rd	Co-channel Interference and system capacity of a Cellular Radio systems
	4th	Concept of improving coverage and capacity in cellular system
	5th	Wireless Systems and its Standards, Discuss the GSM (Global System for Mobile) service and features
14th	1st	Architecture of GSM system & GSM mobile station
	2nd	Channel types of GSM system.
	3rd	working of forward and reverse 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	Features of SMS, MMS
	3rd	1G, 2G, 3G, 4G & 5G Wireless network
	4th	Smart Phone and discuss its features indicate through Block diagram
	5th	Revision & QA

Signature of Faculty 31/01/14

Signature of HOD