

# Vedang Institute of Technology, 2nd Shift

Khurda

## Department of Electrical & Electronics Engineering

### Lesson Plan for Even Semester

Course: Diploma in Engineering

Teachers Name: A. Smruti Dash

Semester: 6<sup>th</sup>

Subject: ADVANCE COMMUNICATION ENGINEERING

Session Duration: 2020-21    Classes From: 19/04/2021 to 13/08/2021

Date	Module	Topics To Be Covered
1st	1st	State and explain the simple Radar system & its classification
	2nd	Derive Radar range equation, types of radar and their application.
	3rd	Explain the Performance factor of radar.
	4th	Describe the block diagram of pulsed radar system.
2nd	1st	State the function of radar indication and moving target indicator.
	2nd	Define Doppler effect & Describe the block diagram of C.W radar.
	3rd	Explain the radar aids to navigator
	4th	Explain aircraft landing system.
3rd	1st	Explain the concept of Navigation Satellite System.(NAVSAT) & GPS System
	2nd	Simple radar problems
	3rd	Define & Describe Satellite Orbital patterns and elevation(LEO, MEO & GEO) categories
	4th	Describe the Concept of Geostationary Satellite, calculate its height, velocity & round trip time delay & their advantage & disadvantage over other system
4th	1st	State Satellite frequency allocation and frequency bands.
	2nd	Describe General structure of satellite Link system (Uplink, Down link, Transponder, Crosslink)
	3rd	Explain the operation of direct broadcast system (DBS)
	4th	Explain the operation of VSAT system.
5th	1st	Define multiple accessing & name various types.
	2nd	Discuss the Time Division Multiple Accessing(TDMA) & Code Division Multiple Accessing (CDMA) & its advantages & dis-advantages
	3rd	Describe Satellite Application- Communication Satellite, Digital

		Satellite Radio.
5th	4th	Explain GPS Receiver & Transmitter
6th	1st	Define optical communication.
	2nd	Compare the advantage and disadvantage of optical fiber metallic cables
	3rd	Define Electromagnetic Frequency and wave line spectrum
	4th	Need and advantages of optical fibers & principles of light transmission in a fiber using Ray Theory
7th	1st	Describe the optical fiber construction
	2nd	Explain the following terms: Velocity of propagation, Critical angle, Acceptance angle & numerical aperture
	3rd	Discuss the block diagram of an optical fiber communication system
	4th	Define the modes of propagation and index profile of optical fiber
8th	1st	Describe the three types optical fiber configuration: Single-mode step index, Multi-mode step index, Multi-mode Graded index and cladding losses- Dispersion – material Dispersion, waveguide dispersion, Intermodal dispersion
	2nd	Optical sources – LED- semiconductor
	3rd	
	4th	
9th	1st	Explain Optical detectors – PIN diodes & Block diagram using APD Connectors and splices – Optical cables - Couplers
	2nd	Explain Optical detectors – APD diodes & Block diagram using APD Connectors and splices – Optical cables - Couplers
	3rd	Applications of optical fibers – civil, Industry and Military application
	4th	Explain concept of Wave Length Division Multiplexing (WLDW) principles.
10th	1st	Discuss the operation of Electronic Telephone System. (Telephone Set)
	2nd	Discuss the function of switching system. & Call procedures
	3rd	Discuss the principle of space and time switching.
	4th	Discuss the numbering plan of telephone networks (National Schemes & International Numbering)
11th	1st	Describe the operation of a PBX & Digital EPABX.
	2nd	Define units of Power Measurement.
	3rd	Describe the operation & principal of Internet Protocol Telephone.
	4th	Basic concept of Data Communication
12th	1st	Architecture, Protocols and Standards
	2nd	Types of Transmission & Transmission Modes
	3rd	Data Communication codes



	4th	Basic idea of Error control & Error Detection
13th	1st	MODEM & its basic block diagram & common features Voice Band Modem
	2nd	Basic concept of Cell Phone, frequency reuse channel assignment strategichandoff co-channel Interference and system capacity of a Cellular Radio systems.
	3rd	Concept of improving coverage and capacity in cellular system (Cell Splitting, Sectoring)
	4th	Wireless Systems and its Standards.
14th	1st	Discuss the GSM (Global System for Mobile) service and features.
	2nd	Architecture of GSM system & GSM mobile station & channel types of GSM system.
	3rd	Working of forward and reverse CDMA channel, the frequency and channel specifications
	4th	Architecture and features of GPRS.
15th	1st	Discuss the mobile TCP, IP protocol.
	2nd	Working of Wireless Application Protocol (WAP).
	3rd	Features of SMS, MMS, 1G, 2G, 3G, 4G & 5G Wireless network.
	4th	Smart Phone and discuss its features indicate through Block diagram.

A. Smruti Dash  
Faculty Signature

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HOD