BHUBANANANDA ORISSA SCHOOL OF ENGINEERING

LESSON PLAN

BY : PRADEEP KUMAR DHAL SAMANT (Lecturer)

JYOTI PRAKASH BEHURA (Guest Faculty)

SUBJECT: WAVE PROPAGATION & BROADBAND COMM. ENGG.

SEMESTER: 5TH

BRANCH: E&TC

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Discipline: E&TC	Semester:5th	Name of the Teaching Faculty : PRADEEP KUMAR DHAL SAMANT (Lect.) / JYOTI PRAKASH BEHURA (GF)
Subject: WP & BC (TH-4)	No of Days/per week class allotted:4(TUE, WED,THU,FRI)	Semester from 01.07.2024 to 08.11.2024 No of weeks:18
Week No.	Class Day	Theory Topics
1st	02-07-2024	**Unit-1: WAVE PROPAGATION & ANTENNA** 1.1 Effects of environments such as reflection, refraction, interference, diffraction, absorption and attenuation (Definition only)
	03-07-2024	1.2 Classification based on Modes of Propagation-Ground wave, Ionosphere ,Sky wave propagation, Space wave propagation
	04-07-2024	1.3 Definition – critical frequency, max. useable frequency, skip distance, fading, Duct propagation
	05-07-2024	Troposphere scatter propagation actual height and virtual height
2nd	09-07-2024	1.4 Radiation mechanism of an antenna-Maxwell equation
	10-07-2024	1.5 Definition - Antenna gains, Directive gain concept.Definition - Directivity, effective aperture, polarization concept.
	11-07-2024	Definition of input impedance, efficiency, Radiator resistance, Bandwidth, Beam width, Radiation pattern
	12-07-2024	1.6 Antenna -types of antenna Mono pole antenna
3rd	16-07-2024	Dipole antenna and omni directional antenna
	18-07-2024	1.7 Operation of following antenna with advantage & applications(a) Directional high frequency antenna : , Yagi-Uda Antenna
	19-07-2024	Directional high frequency antenna : , Rohmbus Antenna
4th	23-07-2024	(b) UHF &Microwave antenna.: Dish antenna (with parabolic reflector)
	24-07-2024	(b) UHF &Microwave antenna.: Horn antenna
	25-07-2024	1.8 Basic Concepts of Smart Antennas- Concept and benefits of smart antenna
	26-07-2024	**Unit-2: TRANSMISSION LINES.** 2.1 Fundamentals of transmission line Simple numerical.

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5th	30-07-2024	2.2 Equivalent circuit of transmission line & RF equivalent circuit
	31-07-2024	2.3 Characteristics impedance, methods of calculations
	01-08-2024	2.4 Losses in transmission line.
	02-08-2024	2.5 Standing wave – SWR, VSWR
6th	06-08-2024	Reflection coefficient, simple numerical.
	07-08-2024	2.6 Quarter wave & half wavelength line .
	08-08-2024	2.7 Impedance matching & Stubs – single & double .
	09-08-2024	2.8 Primary & secondary constant of X-mission line.
7th	13-08-2024	**CLASS TEST-I**
	14-08-2024	**Unit-3: TELEVISION ENGINEERING.** 3.1 Define-Aspect ratio, Rectangular Switching. Flicker, Horizontal Resolution, Video bandwidth.
	16-08-2024	Interlaced scanning, Composite video signal, Synchronization pulses.
8th	20-08-2024	3.2 TV Transmitter – Block diagram & function of each block
	21-08-2024	3.3 Monochrome TV Receiver -Block diagram & function of each block
	22-08-2024	3.4 Colour TV signals (Luminance Signal & Chrominance Signal,(I & Q,U & V Signals).
	23-08-2024	3.5 Types of Televisions by Technology- cathode-ray tube TVs, Plasma Display Panels Digital Light Processing (DLP) ,Liquid Crystal Display (LCD)
9th	27-08-2024	Organic Light-Emitting Diode (OLED) Display, Quantum Light-Emitting Diode (QLED) – **only Comparison based on application**
	28-08-2024	3.6 Discuss the principle of operation - LCD display, Large Screen Display.
	29-08-2024	3.7 CATV systems & Types & networks
	30-08-2024	3.8 Digital TV Technology-Digital TV Signals

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10th	03-09-2024	Transmission of digital TV signals Digital TV receiver Video programme processor unit.
	04-09-2024	**Unit-4: MICROWAVE ENGINEERING.** 4.1 Define Microwave Wave Guides..
	05-09-2024	4.2 Operation of rectangular wave gives and its advantage.
	06-09-2024	4.3 Propagation of EM wave through wave guide with TE & TM modes
11th	10-09-2024	4.4Circular waveguide
	11-09-2024	4.5 Operational Cavity resonator.
	12-09-2024	1st Internal Assessment
	13-09-2024	1st Internal Assessment
12th	17-09-2024	4.6 Working principle of Directional coupler
	18-09-2024	4.6Working principle of Isolators
	19-09-2024	4.6Working principle of Circulator
	20-09-2024	4.7 Microwave tubes-Principle of operational of two Cavity Klystron
13th	24-09-2024	4.8 Principle of Operations of Travelling Wave Tubes
	25-09-2024	4.9 Principle of Operations of Cyclotron
	26-09-2024	4.10 Principle of Operations of Tunnel Diode
	27-09-2024	4.10 Principle of Operations of Gunn diode
14th	01-10-2024	**Unit-5: Introduction to Broadband communication** INTRODUCTION
	03-10-2024	5.1 Broadband communication system
	04-10-2024	Fundamental of Components and Network architecture
15th	15-10-2024	5.2 Cable broadband data network- architecture, importance
	17-10-2024	Future of broadband telecommunication internet based network.
	18-10-2024	5.3 SONET(Synchronous Optical Network)

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16th	22-10-2024	Signal frame components topologies advantages applications and disadvantages
	23-10-2024	5.4 ISDN - ISDN Devices interfaces
	24-10-2024	5.4 ISDN- Services
	25-10-2024	5.4 ISDN -Architecture, applications
17th	29-10-2024	5.5 BISDN -interfaces & Terminals
	30-10-2024	BISDN- Protocol
	01-11-2024	BISDN- Architecture applications
18th	05-11-2024	**CLASS TEST-II**
	06-11-2024	**OVERALL REVISION**
	07-11-2024	**OVERALL REVISION**
	08-11-2024	**PREVIOUS YEAR QUESTION ANSWER DISCUSSION**

Jyoti Prakash Behera.
Signature of Faculty

HOD, E&TC

Principal