



DIRECTORATE OF TECHNICAL EDUCATION

DIPLOMA IN ELECTRONICS AND COMMUNICATION ENGINEERING

II YEAR

M SCHEME

IV SEMESTER

2015-2016 onwards

COMMUNICATION ENGINEERING

CURRICULAM DEVELOPMENT CENTRE

M-SCHEME

(Implemented from the Academic year 2015-2016 onwards)

Course Name : Electronics and Communication Engineering

Subject code : 34042

Semester : IV Semester

Subject title : COMMUNICATION ENGINEERING

TEACHING AND SCHEME OF EXAMINATION:

Number of Weeks/ Semester : 15 weeks

Subject	Instruction		Examination			
Communication Engineering	Hrs / week	Hrs/ semester	Marks			Duration
			INTERNAL ASSESMENT	BOARD EXAM	TOTAL	
	6	90	25	75	100	3Hrs

TOPICS AND ALLOCATION:

Unit	TOPIC	Hrs
I	Networks, Antenna and Propagation	16
II	Introduction to Modulation and Amplitude Modulation	16
III	Frequency and Pulse Modulation	16
IV	Audio Systems	15
V	Video systems	15
	Revision – Test	12
	TOTAL	90

RATIONALE:

Today communication engineering has developed to a great extent that there is always the need for study of various communication concepts. This subject fulfills the need for students to have a thorough knowledge of various types of networks, modulation, audio systems and video systems.

OBJECTIVES:

On completion of the following units of the syllabus contents, the students must be able to

- Understand the principles of working of antennas
- Understand the theory of Propagation
- Understand the concept of modulation
- Study Amplitude Modulation Process
- Learn about different types of AM Transmitter & receiver
- Study the Frequency Modulation Process
- Learn about different types of FM Transmitters & Receivers
- Understand the concept Phase Modulation
- Understand the concept Pulse Modulation
- Learn Different types of Microphones
- Learn Different types of Loudspeakers
- Understand the different methods of Audio Recording & Reproduction
- Understand the principles of Monochrome & colour TV Related Topics

34042 - COMMUNICATION ENGINEERING

DETAILED SYLLABUS

UNIT	NAME OF THE TOPIC	HOURS
1	<p><u>UNIT 1: Networks, Antenna and Propagation</u></p> <p>Networks: Symmetrical and asymmetrical networks, characteristic impedance and propagation constant. Equalizer: Definition, types and applications. Attenuator: Definition, types - symmetrical T and Pi attenuators- simple problems – applications. Filters: Definition, types – circuit elements and cutoff frequencies of LPF, HPF and BPF - simple problems-applications. Antennas: Definition-types of antenna: Mono pole and dipole antenna, directional and omni directional antenna ,Dipole arrays, Yagi antenna, parabolic antenna- Antenna parameters: directive gain, directivity, radiation pattern and polarization-applications. Propagation: Ground wave propagation, sky wave propagation and space wave propagation</p>	16
2	<p><u>UNIT 2: Introduction to Modulation and Amplitude Modulation</u></p> <p>Introduction to Modulation: Definition- Need for modulation- types of modulation - Frequency spectrum - relationship between wavelength and frequency. Amplitude modulation: Definition - Simple signal diagram for amplitude modulation, Expression for amplitude modulation, expression for modulation index – sidebands: DSB,SSB and VSB. AM Transmitter: Types of transmitters : high level AM transmitter, low level AM transmitter and SSB transmitter. AM Receiver: Types of receiver: TRF receiver, super heterodyne receiver and SSB receiver.- Selection of IF-AGC types: simple and delayed AGC.</p>	16
3	<p><u>UNIT 3 : Frequency and Pulse Modulation</u></p> <p>Frequency modulation: Definition-Simple signal diagram for frequency modulation, Expression for frequency modulation, expression for modulation index. FM Transmitter: Types of transmitters : Direct FM transmitter, Indirect FM transmitter and stereophonic FM transmitter.</p>	16

	FM Receiver: stereophonic FM receiver-AFC. Comparison of FM and AM. Pulse modulation: Definition- Types: Generation and detection of PAM, PWM, PPM, PCM & DPCM	
4	UNIT 4: Audio systems Microphones: Definition-Construction and performance of the following microphones: carbon, condenser, piezo-electric, moving coil and velocity ribbon. Loud speakers: Definition-Constructional details of dynamic cone type, Horn type and electro-static loud speakers, woofer, midrange and tweeter, cross-over network. Surround-sound systems. Audio recording and reproduction: Compact disc system- MP3 system - DVD system - stereophonic system - Hi-Fi system principles-DTS.	15
5	UNIT 5 : Video systems Monochrome Television: Scanning principles - synchronization - aspect ratio- composite video signal- TV broadcasting standards. TV transmitter- TV receiver. Color TV : Principles of color transmission and reception- color CCD camera, LCD, LED display unit – plasma display - Principles of Handy cam, CCTV and cable TV.	15
	Revision & Test	12

REFERENCE BOOKS

1. Networks lines and fields – John D.Ryder, PHI
2. Electronic communication Systems – Kennedy – TMH
3. Electronic Communication – Dennis Roddy and John colen – PHI
4. Fundamentals of Acoustics – Kingsler & frey – Wiley Eastern Ltd.
5. TV and Video engineering – Arvind M.Dhake – TMH.
6. Communication Electronics – Principles and application – Louis E Frenzel, Third Edition, Tata McGrawhill publication
7. Audio and Video system – Principles, maintenance and Troubleshooting by R.Gupta
Second Edition McGrawHill Education (P) Ltd.