

M. Sc. II Year		MPH-E304			Semester-III	
ELECTIVE PAPER- II		COMMUNICATION ELECTRONICS-I				
Total Lectures	Time Allotted for End Semester Examination	Marks Allotted for Continuous Assessment	Marks Allotted for End Semester Examination (ESE)	Maximum Marks (MM)	Total Credits	
60	3 Hrs	30	70	100	04	

NOTE: The question paper shall consist of two sections (Sec.-A and Sec.-B). Sec.-A shall contain 10 short answer type questions of six marks each and student shall be required to attempt any five questions. Sec.-B shall contain 8 descriptive type questions of ten marks each and student shall be required to attempt any four questions. Questions shall be uniformly distributed from the entire syllabus. The previous year paper/model paper can be used as a guideline and the following syllabus should be strictly followed while setting the question paper.

UNIT-I

AMPLITUDE MODULATION

Communication systems, Modulation, Bandwidth requirements, Noise: External noise, Internal noise, Noise calculation, Noise figure, Amplitude modulation: Theory, Generation of AM, Basic requirement, Modulated transistor amplifiers, Single side band (SSB) techniques: Evolution of SSB, Suppression of carrier and unwanted side band, Demodulation: Envelop detection, Product detector. **(12 Lectures)**

UNIT-II

ANGLE MODULATION

Theory of frequency and phase modulation- Mathematical representation of FM, Frequency spectrum of FM wave, Phase modulation, Intersystem comparisons, Noise and frequency modulation- Effects of noise on carrier, Pre-emphasis de-emphasis, Comparison of wide band and narrow band FM, Stereo Phonic FM multiplex system, Generation of FM- FM methods, Direct methods, AFC. **(12 Lectures)**

UNIT-III

TRANSMISSION LINES, RADIATION AND PROPAGATION

Fundamentals of transmission lines, Characteristics impedance, Losses, Standing waves, Reactance properties of transmission lines, The Smith chart and its applications, Ground (surface) waves, Sky wave propagation- The ionosphere, Space waves, Tropospheric scatter propagation, Extraterrestrial communications. **(12 Lectures)**

UNIT-IV

ANTENNAS

The elementary doublet, Wire radiator in space, Antenna gain and effective radiated power, Antenna resistance, Bandwidth, Beamwidth and polarisation, Ungrounded antennas, Grounded antennas, Grounding systems, Effects of antenna height, Antenna coupling at medium frequency, Directional antennas- dipole arrays, Folded dipole and applications, The Yagi antenna. **(12 Lectures)**

UNIT-V

RADIO RECEIVERS

Receiver types- TRF receiver, Superhetrodyne receiver, AM receiver- RF section and characteristic, Frequency changing and tracking, intermediate frequency and IF amplifiers, AGC, Extension of superhetrodyne principle, FM receivers- comparison with AM receiver, Amplitude limiting, Basic FM demodulators. **(12 Lectures)**

Text Books / Reference Books

1. Principles of communication systems - Taub and Schilling, TMH, 1994
2. Electronic Communication System - G. Keneddy
3. Communication systems, Third Edition -Simon Haykin, John Wiley & Sons ,Inc. 1994
4. Digital and Commuication system - Roden H.S., PHI
5. Analog and Digital Communication - Chakraborty, Dhanpat Rai
6. Advanced Electronics Communication Systems- Wayne Tomasi, PHI. Edn.