EC-404B	BASIC COMMUNICATION (OPEN ELECTIVE)	L T P C 4 - - 3

COURSE OBJECTIVES:

1. To understand an overview of communication systems.
2. To understand the modulation technique, need of modulation,Amplitude modulation.
3. To understand fundamentals of digital communications.
4. To understand broadband communication systems and Television fundamentals.

COURSE OUTCOMES:

After successful completion of the course, the students are able to

1. understand the basics of analog, digital communication system and the need for modulation.
2. describe the amplitude modulation and the process of conversion of analog to digital signal.
3. describe the frequency division multiplexing, time division multiplexing, short, medium anf long haul systems.
4. understand the fundamentals of monochrome and color television.
5. analyze transmission of light through fibers due to reflection, diffraction, absorption and scattering.

UNIT I *Text Book - 1* **(10)**

Communications : Communications systems, Information, Transmitter, Channel, noise, Receiver, Modulation, Description, Need for modulation, Bandwidth Requirements.

Amplitude Modulation : Amplitude Modulation Theory, Frequency spectrum of the AM wave, Representation of AM, Power relations in the AM wave, Generation of AM, Basic requirements, comparison of levels, Grid modulated class C amplifier, Plat modulated class C amplifier, Modulated transistor amplifiers.

UNIT II *Text Book - 2* **(12)**

Digital Communications : Digital Technology, Digital fundamentals, sampling theorem, aliasing effect, pulse amplitude modulation (PAM), synchronization in PAM systems, pulse time modulation, spectra of PDM and PPM systems, Elements of pulse code modulation (PCM), sampling and quantization, encoding, regeneration, decoding, DPCM, delta modulation.

UNIT III *Text Book - 1* **(10)**

Broadband Communications Systems : Multiplexing,Frequency division multiplex, Time â€“ division multiplex, **Short and Medium Haul Systems :** Co-axial Cables, Fiber optic links, Microwave links, **Long Haul Systems :** Satellite Communications, Elements of Long-Distance Telephony, Routing codes and signaling systems, Telephone exchanges (switches) and routing.

UNIT IV *Text Book - 3* **(10)**

Television Fundamentals : TV transmitter and receivers, synchronization, image continuity, interlaced scanning, flicker, picture resolution, horizontal and vertical sync details, number of scanning lines, scanning sequence details.

Essentials of colour television : colour perception, three colour theory, luminance, hue, saturation, colour difference signals.

UNIT V *Text Book - 1* **(10)**

OPTICAL COMMUNICATIONS History and development, nature of light:reflection, refraction, dispersion, diffraction, absorption, scattering, Optical fiber losses, fiber cables, types of fibers.

LEARNING RESOURCES:

TEXT BOOK(s):

1. George Kennedy-Electronic Communication Systems -Tata McGraw-Hill Publishing , 5th Edition,2011
2. Simon HykinS, Communication Systems, 2nd Edition-reprint 2010
3. R.R. Gulati - Modern Television Practice - Principles, Technology and Service- New Age International Publication, 2009.

REFERENCE BOOK(s):

1. Simon HykinS - Introduction to Analog and Digital Communication, 2007
2. John M Senior - Optical Fiber Communications - An imprint of Pearson Education, 3rd Edition, 2009

WEB RESOURCES:

1. http://nptel.iitm.ac.in/courses/
2. http://web.engr.oregonstate.edu/~magana/ECE461-561/index.htm
3. http://www.ensc.sfu.ca/~jiel/courses/327/index.html
4. http://www.ece.utah.edu/~npatwari/ece5520/lectureAll.pdf