**13EC41E3-TELEVISION ENGINEERING**

Credits: 4

Hours /week: 4 Hrs Sessional Marks: 40

Univ.Exam.Duration: 3Hrs Univ.Examination.Marks: 60

**UNIT-I**

**INTRODUCTION TO TV:** TV Transmitter and receivers, synchronization.

Television Pictures**:** Geometric form and aspect ratio, image continuity, interlaced scanning, picture resolution. TV cameras**:** Camera tube, Videocon, Silicon Diode Arry Vidicon, camera optics, monochrome TV camera, color cameras. Picture tube**:** Monochromatic picture tube, Electrostatic focusing, Beam deflection, Picture Tubes: Monochromatic picture tube, Electrostatic focusing Beam deflection, picture tube characteristics and specifications, color picture tubes.

**UNIT-II**

**COMPOSITE VIDEO SIGNAL:** Horizontal and vertical sync details, scanning sequence details, colour signal generation and Encoding: Perception of brightness and colours, additive colour mixing, video signals for colours, luminance signal, colour difference signals, encoding of colour difference signals, formation of chrominance signal, PAL encoder. TV signal transmission, VSB transmission, sound signal transmission, standard channel BW, TV transmitter TV signal propagation, interface, TV broadcast channels, TV transmitting Antennas.

**TV STANDARDS:** American 525 line B&W TV system, NTSC colour system, 625 – line monochrome system, PAL colour system, TV standards.

**UNIT-III**

**MONOCHROME TV RECEIVER:** RF tuner, IF subsystem, video amplifier, sound section, syncseparation and processing, deflection circuits, scanning circuits.

**PAL-D COLOUR RECEIVER:** Electron tuners IF subsystem, Chroma decoder, separation of U & V colour phasors, synchronous demodulators, subcarrier generation, raster circuits.

**TV RECEIVER TUNERS:** Tuner operation, VHF and UHF tuners, digital tuning techniques, remote control of receiver functions.

**UNIT-IV**

**IF SUBSYSTEM:** AGC, noise cancellation, video and intercarrier sound signal detection, vision IF subsystem of Black and White receivers, colour receiver, IF subsystem. Receiver sound system: FM detection, FM sound detectors, typical applications. Colour signal system: PAL-D decoder, Chroma signal amplifiers, separation of U and V signals, Color burst separation, Burst phase discriminator, ACC amplifier, Reference oscillator, color killer circuit, RO phase shift and 1800 PAL – SWITCH circuitry, U&V demodulators, colour signal mixing.

**UNIT-V**

**SYNC SEPARATION, AFC & DEFLECTION OSCILLATORS:** Synchronous separation, noise in syncpulses, separation of frame and line sync pulses, AFC, single ended AFC circuit.

Deflection Oscillators, deflection drive IC’s, Receiver Antennas.

**Digital TV:** Digital Satellite TV, Direct to Home Satellite TV, Digital TV Receiver, Digital Terrestrial TV.

**TEXT BOOKS:**

1. Modern Television practice – Principles, Technology and Servicing – by R.R.Gulati, New age International Publication – 2002.
2. Monochrome and Colour TV – by R.R.Gulati, New Age International Publication -2002.
3. Basic Telivision:Transmission& Reception &Colour Telivision Maini Anil.K

**REFERENCE BOOKS:**

1. TV engineering by A.M.Dhake, TMH
2. Monochrome & color TV by R.R.Gulati, New Age International