34081 – TELEVISION ENGINEERING

DETAILED SYLLABUS

UNIT- I TELEVISION FUNDAMENTALS

Monochrome TV: Basic block diagram of Monochrome TV transmitter and Receiver – Scanning process – horizontal, vertical and sequential scanning – flicker – interlaced scanning (qualitative treatment only) – need for synchronization – blanking pulses – Aspect ratio– Resolution – Types – vertical and horizontal resolution – video bandwidth – composite video signal (CVS)– CVS for one horizontal line – Definitions for Vertical sync pulse, Serrated vertical pulse, Equalizing pulse – Positive & Negative modulation - TV Standards – List of Types of TV standards.

Color T.V. Fundamentals: Additive mixing of colors –Types – color perception – Chromaticity diagram – Definition for Luminance, Hue Saturation and Chrominance Formation of chrominance signal in PAL system with weighting factors.

UNIT- II CAMERA AND PICTURE TUBES

CAMERA TUBE: Characteristics – Types of camera tube – working principle of Vidicon and Plumbicon camera tube, CCD camera – Video processing of camera pick up signal – Block diagram and Principle of working of color TV camera tube.

PICTURE TUBE: Construction and working of Monochrome picture tube – screen phosphor – screen burn – Screen Persistance - Aluminized screen – Types of color picture tubes - construction and working principle of Delta gun and Trinitron Color picture tubes – Automatic degaussing.

UNIT- III TELEVISION TRANSMITTER

Types –Comparison - Principle – Block diagram of Low level IF Modulated TV transmitter – Visual Exciter –Aural Exciter – principle of working of CIN Diplexer –Block diagram of color TV transmitter – color compatibility – PAL color coder –functional blocks and working of each block – Merits and demerits of PAL system.

UNIT- IV TELEVISION RECEIVER

Block diagram of Monochrome Receiver – functions of each block – Need for AGC – Advantages of AGC – Video amplifier requirements –High frequency & Low frequency compensation – Block diagram of PAL color Receiver – Need for sync separator – Basic sync

separator circuits– Vertical sync separation & Horizontal sync separation – AFC – Need for AFC – Horizontal AFC – Hunting in AFC – Anti Hunt network.

UNIT- V ADVANCED TELEVISION SYSTEMS

Block diagram of a digital color TV receiver – Remote control IR transmitter and receiver – Closed Circuit TV system–Applications of CCTV – scrambler – necessity - basic principle-types Descrambler block diagram - Telecine equipment – Digital CCD Telecine system - Introduction to High definition TV (HDTV) and 3DTV. Blue Ray Disc(BD)- The DVD player – Block diagram- Desirable Features & outputs of DVD players-DVD player Models - USB flash drive(pen drive).

TEXT BOOKS

1. Modern Television Practice – Transmission, Reception, Applications R.R.Gulati New age international 5th Edition 2015

2. TV and Video Engg. By A.M.Dhake – Second Edition TMH -2003

REFERENCE BOOKS

1. Monochrome & Color TV by R.R.Gulati - New Age publishers -2003.

2. Color TV, Theory and practice – by S.P.Bali-TMH – 1994.

3. Modern VCD-Video CD Player Introduction, servicing and troubleshooting By Manohar Lotia &Pradeep Nair BPB Publications 2002.