

TV AND RADAR ENGINEERING

MODULE – I (12 hours)

Basic Television System And Scanning Principles: Block diagram of TV transmitter & receiver, Sound and picture transmission, scanning process, transmission & reception of video signal, brightness perception & photometric quantities, aspect ratio & rectangular scanning, persistence of vision & flicker, Kell factor, vertical and horizontal resolution, interlaced scanning, Composite Video Signal, Horizontal and Vertical Synchronous and Blanking Standard Signal, TV pick up tubes, Vidicon, CCD.

Module – II (12 hours)

Color and Digital TV Technology: mixing of colors and colors perception, chromaticity diagram, color TV signals & transmission, NTSC & PAL system, color TV receiver & specification, Fully digital TV system, Digital TV signal & transmission, digitized video parameters, digital TV receiver, fundamentals of Flat panel displays, Plasma displays, Liquid crystal displays, and Large screen displays.

Module – III (14 hours)

Introduction to Radar: Basic radar, radar block diagram, radar frequencies & applications, Radar Indicators.

RADAR Equation: Detection of signal in noise, receiver noise and SNR, probability of detection and false alarm, integration of radar pulses, radar cross section of targets, PRF, system losses.

MTI, CW, FMCW RADAR: Introduction, delay line cancellers, Doppler filter banks, limitation of MTI, Staggered PRF, Pulse Doppler radar, Tacking by RADAR, mono pulse, sequential lobing, & conical scan of targets.

Text Books:

1. Television and video Engineering by A. M Dhake, 2nd edition, Tata McGraw Hill.
2. Introduction to RADAR systems by Merrill I. Skolnik, 3rd edition, Tata McGraw Hill.

Reference Books:

1. Modern Television Practice-Principles, Technology and Servicing, by R R Gulati.
2. Basic Television & Video systems, Bernard Grob, Charles E Hernfon, 6th edition, McGRAW HILL.
3. RADAR Principles, Technology, Application by Byron Edde, 1st edition, Pearson, 2004.
4. Understanding RADAR system by Simon Kingsley, Shaun Quegan, Standard publication.
5. Principles of RADAR by J. C. Toomay, PHI, 2nd edition, 2004.