PEI5J001 RADAR AND TV ENGINEERING

University level (80%)

MODULE I (14 hours)

Basic Television System: Frequency band for TV transmission and reception, basics of audio and video signals, persistence of vision and flicker, aspect ratio, progressive and interlaced scanning, Kell factor, horizontal and vertical resolution, bandwidth requirement of typical video signals, horizontal and vertical synchronizing and blanking signals, composite video signal, photometric quantities, TV pick up tubes, vidicon, CCD and CMOS cameras, transmission and reception of sound and video signals, block schematic of TV transmitter and receiver.

MODULE II (10 hours)

Mixing of colours and colour perception, bandwidth of typical colour signals, colour signal transmission, NTSC and PAL systems, colour TV transmitter and receiver block schematics,

MODULE III (14 hours)

RADAR SYSTEMS:Radar frequencies and application, basics of radar, the simple form of the radar equation, block schematic of radar transmitter and receiver
Radar equation: Radar cross section, PRF, Detection of signal in noise, receiver noise and SNR, probability of false alarm and miss detection, integration of radar pulses
MTI radars: Introduction, delay line cancellers
Tracking by radar, monopulse tracking, conical scan and sequential lobing

Text Books:

1. *A.M. Dhake, "Television and Video Engineering", 2nd Edn., TMH*
2. *Merril I. Skolnik, " Introduction to Radar Systems", 3rd Edn, TMH*

Reference Books:

1. *R.R. Gulati , "Modern Television Practice-Principles, Technology and Servicing", TMH*
2. *C. Toomay, "Principles of Radar", PHI, 2nd Edn, 2004*