

5135 - TELEVISION ENGINEERING										
Teaching Schedule Per Week			Progressive Assessment		Examination Schedule (Marks)					
Lectures	Practical	Credits			Theory		Practical Ex.		Total	
3	2	5	25	25	3 Hrs	100	50		200	
Pre-requisite		Source	1	Semester	Theory	Test	Total	TW	PR	Gr Total
4139		EXN			75	25	100	50	-	150

Rationale: The subject deals with the detail study of transmission and reception of TV signals and working of the TV receivers.

COURSE CONTENTS		Hrs	Mks
1. INTRODUCTION TO TV SYSTEM		8	12
Picture and Sound transmission and reception, receiver controls.			
Analysis and synthesis of TV pictures: Gross structure, Image continuity, number of scanning lines, flicker, fine structure and tonal gradation.			
Composite Video Signal (Monochrome): Signal dimensions, Horizontal and vertical sync and scanning sequence details.			

2. TV CAMERA AND PICTURE TUBES	8	18
Basic principle of TV camera: Image orthicon, videocon, plumbicon, solid state image scanner.		
Picture tube: Construction and operation.	4	5
3. SIGNAL TRANSMISSION		
AM & FM, AM & FM channel bandwidth. VSB transmission, reception of respective sideboard signal. TV standards.	3	5
4. TV ANTENNAS		
Yagi-uda array and parabolic reflector. Transmission lines: Flat twin lead, coaxial cable. Balun unit and Booster amplifier.	10	20
5. TELEVISION TRANSMITTER AND RECEIVER (MONOCHROME)		
Block diagram of TV transmitter, +ve & -ve modulation, sound signal transmission, merits of FM.	6	17
Block diagram of TV receiver, specific functions of TV receivers such as separation and reproduction of sound, Types of AGC (reverse & forward AGC), advantages of AGC, AFC, DC reinsertion.		
6. COLOUR TV		
Compatibility, Three colour theory, luminance, hue and saturation, principle of additive and subtractive, colour mixing, chromaticity diagram, generation of RGB signals, weighting factors.	5	15
Colour TV camera: Construction and operation of Delta gun, PIL, trinitron. Pin cushion adjustment, Automatic degaussing ekt and grey scale tracking.		
7. COLOUR SIGNAL TRANSMISSION AND RECEPTION		
Colour signal transmission, bandwidth, modulation, weighting factors and chrominance signal.	4	8
Transmitter and Receiver block diagram, study of the following colour system. NTSC, PAL, SECAM.		
8. TV SERVICING		
Trouble shooting procedure. Location of fault in different sections of TV depending on the symptoms. Safety precaution in TV servicing.	48	100
Total		

LIST OF LABORATORY EXPERIMENTS:

1. Study of pattern generator.
2. Study of various controls of TV receiver
3. Observation of a particular object on TV receiver.
4. Tracing of different sections of TV receivers.
5. Study of common faults.
6. Location of faults in the different sections of the TV receiver.

REFERENCE BOOKS :

1. Monochrome and Colour TV by R. R. Gulati.
2. Television Engineering by A. M. Dhake
3. Basic TV & Video System by Bernard Grob

