



Sardar Patel Institute of Technology

Bhavan's Campus, Munshi Nagar, Andheri (West), Mumbai-400058-India
(Autonomous Institute Affiliated to University of Mumbai)

Course Code	Course Name	Teaching Scheme (Hrs/week)			Credits Assigned			
		L	T	P	L	T	P	Total
ETC 604	Television Engineering	4	-	--	4	-	--	4
		Examination Scheme						
		ISE		MSE		ESE		
		10	30	100 (60% Weightage)				

Pre-requisite Course Codes	ETC 502 Analog Communication	
After successful completion of the course, student will be able to		
Course Outcomes	CO1	To understand the working principles of basic TV.
	CO2	To Describe and differentiate latest digital TV, HDTV, WDTV.
	CO3	To differentiate working principles of latest display like LCD, LED, Plasma.

Module No.	Unit No.	Topics	Ref.	Hrs.
1	Fundamentals of Analog T V system		1,2,3	10
	1.1	Transmitter and receiver- block diagram approach, interlaced scanning, composite video signal, VSB transmission and reception (CCIR-B standards)		
	1.2	Camera tubes: basic principle ,Vidicon and Image orthicon		
2	Color T V		1,2,3	10
	2.1	Compatibility considerations, Color theory, chromaticity diagram, generation of color TV signals, luminance signal, chrominance signal, frequency interleaving process,color subcarrier frequency.		
	2.2	NTSC system- transmitter and receiver, PAL system- transmitter and receiver		
3	Fundamental Concept of Digital Video		4	12
	3.1	Digitization, pixel array, scanning notation, viewing distance and angle, aspect ratio, 12 frame rate and refresh rate.		
	3.2	Raster scanning, scan line waveform, interlace, scanning standards.		
	3.3	Sync structure, data rate, linearity, bandwidth and data rate, resolution, luma, color difference coding, chroma sub sampling		
	3.4	Component digital video, composite video		
4	Advanced TV systems			06
	4.1	Digital video and audio signals		
	4.2	MAC signal, D2-MAC/packet signal, MAC decoding and interfacing, advantages of MAC signal		
	4.3	Direct-to-home TV(DTH)		
5	High definition televisions		5,6	08
	5.1	High definition TV systems, HDTV standards and compatibility, resolution and working.		



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	5.2	Wide dimensions high definition TV		
	5.3	Standards of wide dimensions HDTV		
	5.4	MUSE system		
6	Displays		5,6	06
	6.1	Principle, working, advantages and disadvantages of Plasma, LED,LCD		
			Total	52

References

1. Gulati R.R, “*Monochrome and Color Television*,” Wiley Eastern Limited publication.
2. R.G.Gupta , “*Television and Video Engineering*”, Tata Mc Graw Hill publication.
3. Dhake A.M, “*Television and Video Engineering*”, Tata McGraw Hill publication.
4. Keith Jack, “*Video Demystified*”, 4e, , Elsevier
5. Charles Poynton, “*San Francisco, Digital video and HDTV, Algorithms And Interfaces*,” Morgan Kaufmann publishers, 2003.
6. Stan Prentiss, “*High Definition TV*”, second edition, , Tata McGraw Hill publication