TV ENGINEERING

Course Code	20EC2601B	**Year**	III	**Semester**	II
Course Category	Open Elective-II	**Branch**	Common to All	**Course Type**	Theory
Credits	3	**L-T-P**	3-0-0	**Prerequisites**	
Continuous Internal Evaluation:	30	**Semester End Evaluation:**	70	**Total Marks:**	100

Course Outcomes	
Upon successful completion of the course, the student will be able to	
CO1	Compare Digital TV transmission standards and performance parameters (L2)
CO2	Analyse channel coding, errors, interferences and modulation techniques for Digital TV (L4)
CO3	Make use of RF amplifiers, modules and systems for Digital TV (L3)
CO4	Apply Transmission line principles for Digital TV (L3)
CO5	Test for a Digital TV Transmitter (L4)

Mapping of course outcomes with Program outcomes (CO/ PO/PSO Matrix)

Note: 1- Weak correlation 2-Medium correlation 3-Strong correlation

* - Average value indicates course correlation strength with mapped PO

COs	**PO 1**	**PO 2**	**PO 3**	**PO 4**	**PO 5**	**PO 6**	**PO 7**	**PO 8**	**PO 9**	**PO 10**	**PO 11**	**PO 12**	**PSO 1**	**PSO 2**
CO1	2				2	2	1			1			2	2
CO2		3			3	2	1			2			3	3
CO3	2				2	2	2	2		2			2	2
CO4		3			3	2	2	3		2			3	3
Average* (Rounded to nearest integer)	3	3			3	2	2	3		2			2	2

Syllabus		
Unit No.	**Contents**	**Mapped CO**
I	**Digital Television Transmission Standards** ATSC terrestrial transmission standard, vestigial sideband modulation, DVB-T transmission standard, ISDB-T transmission standard, channel allocations, antenna height and power, MPEG-2 Performance Objectives for Digital Television: System noise, external noise sources, transmission errors, error vector magnitude, eye pattern, interference, co-channel interference, adjacent channel interference, analog to digital TV, transmitter requirements	CO1, CO2

II	Channel Coding and Modulation for Digital Television: Data synchronization, randomization/scrambling, forward error correction, interleaving, inner code, frame sync insertion, quadrature modulation, 8 VSB, bandwidth, error rate, COFDM, flexibility, bandwidth	CO1, CO2
III	**Transmitters for Digital Television**: Precorrection and equalization, up conversion, precise frequency control, RF amplifiers, solid-state transmitters, RF amplifier modules, power supplies, cooling, automatic gain or level control, ac distribution, transmitter control, tube transmitters, performance quality.	CO1, CO3
IV	**Transmission Line for Digital Television:** Fundamental parameters, efficiency, effect of VSWR, system AERP, rigid coaxial transmission lines, dissipation, attenuation, and power handling, higher-order modes, peak power rating, frequency response, standard lengths, corrugated coaxial cables, wind load, waveguide, bandwidth, waveguide attenuation, power rating, frequency response, size trade-offs, waveguide or coax pressurization	CO1, CO4
V	**Test and Measurement for Digital Television:** Power measurements, average power measurement, calorimetry, power meters, peak power measurement, measurement uncertainty, testing digital television transmitters.	CO1, CO5

Learning Resources
Text Books
1. Gerald w. Collins, Fundamentals of Digital Television Transmission, John Wiley, 2001. 2. R. R. Gulati, Modern Television Practice, Principles, Technology and servicing, 2nd Ed., New Age International Publishers, 2001.
Reference Books
1. John Arnold, Michael Frater, Mark Pickering, Digital Television Technology and Standards, John Wiley, 2007.
e- Resources & other digital material
1.https://www.youtube.com/watch?v=_nGnRvyHMEI&list=RDCMUCdlnqMpRrMcClK2fT6z8EEw&index=2 2. https://www.rfwireless-world.com/Tutorials/digital-television-DTV-basics.html

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