HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

B.E. THIRD YEAR

ELECTRONICS & COMMUNICATION

(In Force June 2006)

SEMESTER – VI

EC 601: TELEVISION ENGINEERING

Teaching Scheme		Examination Scheme				
Theory Hrs.	Practical Hrs.	Theory Hrs.	Theory Marks	Pract./ Viva Marks	Term Work Marks	Total Marks
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SYLLABUS

1. **Introduction to Television:** Picture transmission, TV transmitter, TV receiver, Synchronization, Receiver controls.
2. **Television Pictures:** Geometric form and aspect ratio, Image continuity, No. of scanning lines, Interlaced scanning, Resolution, Brightness, Contrast.
3. **Composite Video Signal:** Video signal dimensions, Horizontal sync composition, Vertical sync details, Function of vertical pulse train, Scanning sequence details.
4. **Colour Signal – Generation and Encoding:** Perception of brightness and colour, Additive and subtractive colour mixing, Video signals for colour, Luminance signal (Y), Compatibility, Colour-difference signals, encoding of colour difference signals, Formation of chrominance, PAL encoder.
5. **Television Signal Transmission & Propagation:** Picture Signal transmission, Positive and negative modulation, Vestigial sideband transmission, Standard channel BW, Television transmitter, TV Signal propagation, Interference suffered by TV channels. TV broadcast channels.
6. **Television Systems and Standards:** NTSC Colour System, PAL Colour System, French Colour TV System.
7. **Monochrome TV Receiver:** RF Tuner, IF Subsystem, Video amplifier, Sound section, Sync separation and processing, Deflection circuits, Scanning Currents in the yoke, DC power supplies.
8. **PAL –D Color Receiver:** Electronic tuners, IF Subsystem, Y Signal channel, Chroma decoder, Separation of U and V colour phasors, Synchronous demodulators, Sub carrier generation and control, Matrixing for drive circuits.
9. **Servicing instruments:** Video pattern generator, Sweep & Marker generator, Colour TV Pattern Generator, Vectroscope.
10. **Advances in TV Technology:** Projection TV, 3-D TV, HDTV, Flat Panel LCD & Plasma Displays, Digitizing Video, Basics of Video Compression & MPEG, Digital VTR, Non-Linear Editing, 4:3 Vs 16:9 for Digital Video.

Practical/TW: Practical / Term Work [minimum 8-10 experiments based on above topics.

REFERENCE BOOKS:

1. Modern Television Practice, By R.R.Gulati.
2. Essential Guide to Digital Video by John Watkinson, Snell & Wilcox Inc Publication.
3. Guide To Compression By John Watkinson, Snell & Wilcox Inc Publication

Note: Book 2 and 3 are free downloadable from
http://www.snellwilcox.com/knowledgecenter/books/