EC-404A

APPLIED ELECTRONICS (OPEN ELECTIVE)

L T P C

COURSE OBJECTIVES:

- 1. To understand about various modern electronic systems.
- 2. To provide clear explanation of the operation of all the important electronic devices and systems available.
- 3. To know about modern audio and video systems.
- 4. To know about various Telecommunication Systems.

COURSE OUTCOMES:

After successful completion of the course, the students are able to

- 1. understand the working, types and applications of microphones and loudspeakers.
- 2. illustrate the features of commercial, theatre sound recording and color TV standards.
- 3. outline the fundamental concepts of audio and video systems based on modulation techniques.
- 4. understand the fundamentals of fiber optics, microprocessor and mobile radio systems.
- 5. use electronic ignition systems, washing machines and refrigeration systems.

UNIT I Text Book - 1 (12)

Microphones: Characteristics of microphones, Types: Carbon microphones, moving coil microphones, ribbon microphones, electret microphones and wireless microphones. **Headphones**: Headphones and Headsets, Types of headphones. **Loud Speakers**: Ideal loudspeaker, Types: Crystal loudspeaker, electrostatic loudspeaker, permanent magnet loudspeaker, **High frequency loudspeakers**: Horn type tweeters, Equalizers and Mixers.

UNIT II Text Book - 1,2 (10)

Commercial Sound: Recording, manual synthesizer, programmed synthesizer, public address systems, speaker matching systems, PA-system characteristics, Theatre Sound System. **Color TV standards and Systems**: Primary and secondary colors, Luminance signal, Chrominance signal, color TV camera tube, color TV picture tube, NTSC system PAL system SECAM system.

UNIT III Text Book - 1,2 (10)

Audio systems, Video Systems, Remote Controls, Modulation Techniques, Carrier Systems, Telecommunication Systems: telephone receivers and handsets, signaling-CCITT NO7, modes of operation, **Switching Systems**: principle,Read relay and cross bar switching, PBX switching, stored program control.

UNIT IV Text Book - 1,2 (10)

Fiber Optics, Data Services, digital clocks, microprocessor, microcontroller, Mobile radio systems: wireless local loop (WLL), role of WLL, radio paging service, digital cellular block diagram, establishing a call, Fascimile (FAX).

UNIT V Text Book - 2 (10)

IN-CAR Computers: Electronic ignition, electronic ignition lock system, ABS, Electronically controlled suspension (ECS), instrument pannel display, air-bag system. Washing machines: Electronic controller for washing machine, washing machine hardware, washing cycle, software and hardware development, refrigeration systems.

LEARNING RESOURCES:

TEXT BOOK(s):

S.P.Bali - Consumer Electronics-Pearson Education, ISBN: 9788131717592, first impression-2008.

REFERENCE BOOK(s):

- 1. Philip Herbert Hoff -Consumer Electronics for Engineers -Cambridge University Press, 1998, ISBN-10: 0521582075
- 2. Ronald K.Jurgen -Digital Consumer Electronics Handbook -(Editor) by McGraw Hill Professional Publishing, 1997. ISBN-10: 0070341435

WEB RESOURCES:

- 1. http://nptel.iitm.ac.in/courses/
- 2. http://www.newagepublishers.com/samplechapter/000969.pdf
- 3. http://www.bits-pilani.ac.in:12354/qp1-9-10/EEE_C414_851_C_2009_1.pdf