EC 606(A) : AUDIO & VIDEO SYSTEMS

Teaching Scheme			Examination Scheme							
			Theory				Practical			
Lect.	Pract	Total	Int. Assess.	Sem End Marks	Sem End Hrs	Total	Int. Assess.	Sem End	Total	Grand Total
3	2	5	30	70	3	100	25	25	50	150

AUDIO

1. Microphones & Loud speakers

Characteristic of microphone, Moving coil microphone, Condenser microphone, Carbon microphone, Characteristics of loud speaker, Electrodynamic loud speaker, Horn type loud speakers, Beffles and Enclousers, Multi way speaker system-Woofers and Tweeters, crossover network.

2. Magnetic recording and Reproduction.

Principle of Magnetic Recording and Reproduction, Parts of Tape recorder, Block diagram of Tape Recording and Reproduction system

3. Optical Recording

Types of optical recording of sound, Method of Optical Recording and reproduction of Sound on film, Compact disc, Optical recording on disc, Playback process.

4. Public Address system

Block diagram of PA system, Requirement of PA system

VIDEO

5. Introduction to television:

Picture transmission, Television Transmitter, Television Receiver, Synchronization, Receiver Controls.

6. Television Pictures:

Geometric form and Aspect Ratio, Image continuity, Number of scanning Lines, Interlaced Scanning, Picture Resolution, brightness Gradation and Color Characteristics.

7. Picture tube:

Monochrome picture tube. Electrostatic focusing. Beam reflection. Picture tube screen.
Raster centering adjustment. Picture tube troubles. Colour picture tubes. Common faults in colour picture tubes.

8. Composite Video Signal:

Video Signal Dimensions, Horizontal Sync Composition, Vertical Sync Details Functions of Vertical Pulse Train, Scanning Sequence Details.

9. Color Signal Generation and Encoding:

Perception of Brightness and Colors, Additive Color Mixing, Video Signals for Colors, Luminance Signals, Compatibility, Color Difference Signals, Encoding of Color Difference Signals, PAL-Encoder, Chrominance Signal for Color Bar Pattern.

10. Television Signal transmission and Propagation:
Picture signal Transmission, Positive and negative Modulation, Vestigial Side Band Transmission, Sound Signal Transmission, Standard Channel Bandwidth, Television Transmitter, TV Signal Propagation, Interference Suffered by TV Signals. Television Broadcast Channels.

11. Television Systems and Standards:
American 525 Line Black and White TV System, NTSC Color System, 625 Line Monochrome Systems, PAL Color System, French Black and White and Color TV Systems, Television Standards.

12. Monochrome TV Receiver:
Input from antenna. RF tuner. IF subsystem. Video amplifier. Sound section. Sync Separation & processing. Reflection circuits. Scanning current in yoke. DC power supplies. Summery of functions of receiver stage.

13. PAL-D Colour Receiver:
Electronics tuner. IF subsystem, Y-signal channel. Chroma decoder. Separation of U & V co lour phasor. Synchronous demodulator. Sub carrier generation & control. Matrixing for drive circuits. Raster circuits. Summary of receiver operations.

14. Advances in Television Technology:
Three dimensional (3-D) television pictures, Digital television, High definition television (HDTV).

(Note: weight age of audio 30% and video 70%)

Reference Books:
1. Modern Television Practice By R.R.Gulati (New Age International)
2. Fundamentals of Acoustics By Kinsler and Frey (John wiley)
3. Audio and Video Systems By R.G. Gupta (TMH)
4. Essentials of Electronics Communication By Sluzvberg

EC 606(B) : INDUSTRIAL INSTRUMENTATION

Teaching Scheme			Examination Scheme							
			Theory				Practical			
Lect.	Pract	Total	Int. Assess.	Sem End Marks	Sem End Hrs	Total	Int. Assess.	Sem End	Total	Grand Total
3	2	5	30	70	3	100	25	25	50	150

1. Programmable Logic Controllers (PLC) :
Principles, operation and Applications

2. PLC Hardware Concepts
I/O Modules and Specifications, CPU, Memory Design, and recording/Retrieving Data

3. Number Systems and Codes:
Review of Number Systems

4. Logic Fundamentals:
Comprehensive Review of Logic, Hard Wired versus Programmed Logic, Word-Level Logic Instructions

5. PLC Programming
Processor Memory Organization, Relay Instructions and Ladder Diagrams PLC Languages

6. PLC Wiring and Ladder Type Programs
Control Relays, Motor Starters, and Switches. Transducers and Sensors Connecting Relay Ladder Diagrams into PLC Ladder Programs

7. Programming Timers and Counters
Instructions and Incremental Encoder-Counter Applications, Timer Instructions, Counter Instructions, Combining Functions

8. Program Control Instructions and Data Manipulation
I/O Instructions, Addresses, Safety, and Fault Routines, Selectable Timed interrupts, transfer Compare and Set-Point Control, Data Compare and Data manipulation

9. Math, Sequence and Shift Register Instructions
Device Integration with Lab Applications, Industrial Processes and Data Acquisition systems, Computer Integrated Devices and Data communications

References Books:

1. Programmable Logic Controllers By Frank D. Petruzella Third Edition, (McGraw Hill Publishing Company)
2. Programmable Logic PLDs and FPGAs By R.C. Seals and G.F. Whapshott (McGraw Hill Publishing Company)
3. Introduction to Programmable Logic Controllers By Gary Dunning (Thomas learning Australia)
4. Programmable Logic Controllers By John W. Webb and Ronald A Reiss (PHI)
5. Programmable Logic Controllers By John R Hackworth & F D Hackworth (Pearson Education)

EC 606(C) : OBJECT ORIENTED PROGRAMMING

Teaching Scheme			Examination Scheme							
			Theory				Practical			
Lect.	Pract	Total	Int. Assess.	Sem End Marks	Sem End Hrs	Total	Int. Assess.	Sem End	Total	Grand Total
3	2	5	30	70	3	100	25	25	50	150

1. Object Oriented Concepts:
Object Oriented Development, the Object Modeling Technique, Objects and Classes, Generalization and Inheritance, Aggregation

2. Object Oriented Programming styles and languages:
Object-Oriented Style, Reusability, Extensibility, Class Definitions, Creating Objects, Calling Operations, Using Inheritance, Implementing Association, Object-Oriented Language Features.

3. Object oriented languages-An Example:
Basic Programming, Output Using Cout, Preprocessor Directives, Variables, Input and output, Manipulators, Type Conversion, Operators, Library Functions

4. Loops and Decisions:
Structures, Enumerated Data Types, Simple Functions, Passing Arguments, Overloaded Functions, Inline Functions, Default Arguments, A Simple Class, Objects As Physical Objects & As Data Types, Constructors, Objects As Physical Objects & As Data Types, Constructors Objects As Function Arrays Of Objects, Strings. Function Overloading & Operator Overloading Overloading Unary Operators, Overloading Binary Operators, Data Conversion

5. Inheritance:
Class Hierarchies, Public And Private Inheritance, Levels Of inheritance, Multiple Inheritance, Containership, Classes Within Classes, Pointers, Memory Management, New And Delete, Pointers To Objects, Pointers To Pointers, Debugging Pointers Virtual Function, Friend Functions, Static Functions, Assignment And Copy Initialization, The This Pointer Streams, String I/O, Character I/O, Object I/O, I/O With Multiple Objects, File Pointers, Disk I/O With Member Functions, Error Handling, Redirection, Command Line Arguments, Printer Output, Overloading The Extraction And Insertion Operations, Multi-File-Programs, Using the Project Feature

6. Introduction to Operating System

Reference Books:

1. Object Oriented Programming In Turbo C++ By Robert Lafore 1994 (Galogotia)
2. Programming With C++ By Balagurusamy (PHI)
3. Operating System Principles by Abraham Silberschatz, Peter Baer Galvin & Greg Gagne, 7th Edition, (John Wiley & Sons)