

Audio and Video Technician

Skill Based Elective – I

(Semester – III)

Basic Electronics

Unit - I

Introduction to electricity- Electrical symbols - Electron Theory – Types of Electricity – Various effects of Electricity – Electrical circuits – Ohm’s law – Kirchof’s law –Batteries and Cells - Introduction to electronics- safety Guidelines

Unit - II

Components, Resistors - Resistance Colourcoding, Capacitors, Inductors. Diodas, Transistors, Transformers and Switches. (Types, specifications, advantages and Applications) , ICs

Unit - III

Importance of measurements – Various measuring instruments – Analog multimeter - Digital multimeter – – Watt meter – Megger – Circuit Breakers – Voltage Stabilisers - Power calculation.

Unit - IV

Rectifier, Filter, Regulator – Transistor Amplifiers, Oscillators - various circuits. -assembling half wave & Full Wave rectifier-Assembling and installation of Minor Projects

Unit - V

Layout drawing conditions theory – PCB - Making method theory-components arrangements details-components testing.

References

- Kothari, D. P., Nagarath I. J- Basic Electrical Engineering, TATA MCGRAW-HILL, New Delhi, 2006
Sedha R. S. - A Text Book of Applied Electronics, S. Chand & Company Ltd. New Delhi, 2006
Kennedy G, ‘Electronic Communication Systems’, McGraw-Hill, 4th Edition, 1987.
Taub and Schilling Principles of Communication Systems, Second Edition, McGraw-Hill, 1987.
Simon Haykins, ‘Communication Systems’, 3rd Edition, John Wiley, Inc., 1995.
Bruce Carlson. A Communication Systems, 3rd Edition, Tata McGraw-Hill, 1986.
Roody and Coolen, ‘Electronic Communication’, 4th Edition Prentice Hall of & India, 1999.

Skill Based Elective - II

(Semester - IV)

Electronics Circuits and Measuring Lab –Practical – I

1. Rectifiers – HWR and FWR (with & without capacitor filter)
2. Frequency Response of CE amplifier.
3. Frequency Response of CC amplifier
4. Frequency response of CS Amplifiers
5. Class A and Class B power amplifiers.
6. Wheatstone Bridge and Kelvin's Bridge for Measurement of Resistance.
7. Schering Bridge for Capacitance Measurement and Anderson Bridge for Inductance Measurement.
8. Determination of Critical Damping Resistance of a D'Arsonval Galvanometer.
9. Calibration of Ammeter and Voltmeter using Shunt and type Potentiometer.
10. Design, Construction and Calibration of series and shunt type Ohmmeters.

References

Kothari, D. P., Nagarath I. J, (2006) - Basic Electrical Engineering, TATA MCGRAW-HILL, New Delhi.
Sedha R. S., (2006) - A Text Book of Applied Electronics, S. Chand & Company Ltd. New Delhi.

Skill Based Elective - III

(Semester – V)

Radio and Sound systems

Unit - I

Power supply-Radio transmitter,-A.M, F.M radio Receiver A.M and F.M, Trouble shooting-Transmitting Principles, Voltage and ampere measurement in multimeter

Unit - II

Radio signals-Receiving and tuning circuits - Difference between the A.M, F.M,S.W transmission Transistor types, Configuration and Application-Trouble shooting methods for radio repairing

Unit - III

Tape Recorder-Power supply-Block Diagram, circuit function-Pre amplifier B/T amplifier, Equalizer amplifier, Recording amplifier and audio Power amplifier. Trouble shooting voltage and ampere measurement-Audio devises-Mick, speaker and its types

Unit - IV

Power supply& regulated power supply-block diagram, Disc Digital recording-ADC and DAC function .motherboard, Display Board, CD/DVD Drive Functions-Motors-spindle, sliding and open / close Voltage measurement and trouble shooting DVD 5.1 amplifier system.

Unit - V

Equipment sensor and functions-transmitter sensor(Infra red LED) Receiver IR,PIN details, Function Multimeter Testing-Circuit function-Receiver and Transmitter

References

Rama Reddy I S., (2006) - Solid-state Circuits –SCITECH Publishers, Chennai.
B.L. Theraja, Electrical Technology Vol I & II, S. Chand & Co., 2005.
Edward Hughes, Electrical and Electronics Technology, Pearson Education Limited, Ninth edition, London 2005.

Skill Based Elective – IV

(Semester – V)

Sound System Mechanism Lab –Practical - II

1. Identify of Conductors and Insulators
2. Making Electromagnet and Learn Soldering techniques
3. Practice in using Multimeter RF signal generator
4. Testing of Micro phone, Ear phone and Loud Speaker, Reconditioning practice of Loud Speaker
5. Identification & Testing of Semi Conductor Diode
6. Identification & testing of different types of transistors
7. Construction of Half Wave rectifier, Full Wave rectifier, Bridge type, Shunt regulator, Series regulator
8. Identifying the AM/FM signals using CRO
9. Testing of speakers, Fault finding of radio circuits
10. Assembling of Stereo system and fault finding

References

Rama Reddy I S., (2006) - Solid-state Circuits –SCITECH Publishers, Chennai.
B.L. Theraja, Electrical Technology Vol I & II, S. Chand & Co., 2005.
Edward Hughes, Electrical and Electronics Technology, Pearson Education Limited,
Ninth edition, London 2005.

Skill Based Elective –V

(Semester - VI)

T.V Mechanism

Unit - I

Main Power Supply types-transformer, SCR, SMPS, STR, Transformer transistor current controlled regulated power supply, shunt power supply-A.C filters, rectifiers, floating ground, oscillators, switching, Error amplifier, opto-cupler, SMT- output A.C convert D,C Fuse

Unit - II

T.V Principles, Television Transmission signals .CCVS functionsinterlaced scanning and functions. Tuner types- functions, Voltage measurement method-Antenna, Balun Transformer, SAW-filter. TUNNER-AGCSAFC

Unit - III

Monochrome and Chroma picture tube pin details and functions, Picture biasing circuit and Function, chromo Video amplifier ,Functions Picture biasing circuit and Functions ,Chroma video amplifier, functions, video control,contrasat,brightness line methods.

Unit - IV

VIF section, Detector video signals, sound signals, synchronizing signals-vertical and horizontal types of AGC, SIF Amplifier ,Chroma Amplifier (AGC-simple,Keyed,Forward,Reverse Functions)

Unit - V

HUE, saturation, Luminance, compatibility, color difference signal, color sub carrier, color mixing, color burst signal ,PAL DECODER .functions Bloc Diagram,Yoke coil functions Control Types –AGC, V.HOLD Volume control-A.C and D.C remote control Receiver and transmitter functions ,OSD, Blue back system ,Timer,Memory,ASM-Auto search Memory. Trouble shooting method. Introduction–ROM and RAM.

References

Asokh Singh, Principles of Communication Engineering, S. Chand & Co, Bombay, 1994.

K.A. Muraleedharan, R. Muthusubramanian and S. Salivahanan, Basic Electrical and Electronics and Computer Engineering, Tata McGraw Hill, New Delhi1997.

Robert L. Boylestad & Louis Nashelsky Electronics devices and Circuit Theory, Pearson Education, 8th Edition, London 2002.

Skill Based Elective - VI

(Semester - VI)

TV & Audio-Video Equipments Lab –Practical - III

1. Identify of Power Supply and SMPS
2. Input / Output Pulse Checking by CRO
3. Video Amplifier Circuit Tracing
4. Demo and working picture tube
5. Identification and Rectifying Sound System
6. Detection and Rectification of Faults in SYNC Circuit
7. Detection and Rectification of Faults due to Picture Tube
8. Detection and Rectification of Faults due to Transmission
9. Tracing of PCB Board
10. Trouble Shooting of Dead TV Set

References

Asokh Singh, Principles of Communication Engineering, S. Chand & Co, Bombay, 1994.

K.A. Muraleedharan, R. Muthusubramanian and S. Salivahanan, Basic Electrical and Electronics and Computer Engineering, Tata McGraw Hill, New Delhi 1997.

Robert L. Boylestad & Louis Nashelsky Electronics devices and Circuit Theory, Pearson Education, 8th Edition, London 2002.