

Electronic Servicing & Maintenance

Skill Based Elective – I

(Semester – III)

Basic Electronics

Unit-I

Introduction to electronics- safety Guidelines-applied electronics-Industrial electronics

Unit-II

Components, Resistors-Resistance colour coding, Capacitors, Inductors. Diodes, Transistors, transformers and Switches. (Types, specifications, advantages and Applications) ,ICs

Unit-III

Measurements

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

Unit - IV

Circuits

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

Unit - V

PCB Making

Layout drawing conditions theory-PCB_Making method theory-components arrangements details-components testing.

References

K.A. Muraleedharan, R. Muthusubramanian and S. Salivahanan, Basic Electrical and Electronics and Computer Engineering, Tata McGraw Hill, 1997.
Robert L. Boylestad & Louis Nashelsky Electronics devices and Circuit Theory, Pearson Education, 8th Edition, 2002.

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., Nagrath 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)

Television - Theory

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-coupler, 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- IV

(Semester - V)

Television Lab –Practical - II

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.

Skill Based Elective – V

(Semester – VI)

Consumer Electronics Theory

Unit – I

Digital Electronics

Introduction to Digital Electronics – Applications – Micro Processor – Micro Controller

Unit – II

Washing Machine

Working Principle-Types-Maintenance-Repairing-Microwave Oven- Working Principle-Types-Maintenance-Repairing

Unit – III

Radio & Tape Recorder

Working Principle-Types-Maintenance-Servicing-AM/FM Radio receiver and ACD/VCD/DVD Player-Troubleshooting.

Unit – IV

Communication System

Working Principle-Types-Maintenance-Servicing of EPBT,EPABX and Cell Phone

Unit – V

Digital Camera

Working Principle-Types-Maintenance-Servicing of Digital Camera, Video Camera, CCTV, Monitoring System, PCs Application

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.

Consumer Electronics Lab – Practical

1. Working Demo of Fully and Semi Automatic Washing Machine
2. Working Demo of AM/FM Radio Receivers
3. Identification and Testing of Semi Conductor Diode
4. Rectifying the Reading Problem in DVD Player
5. Identify the Components of Cellphone and Practice the Mantling and Dismantling
6. Practice to SMT & Remove and Fix of SMD
7. Rectifying the Technical Problems through Softwares (lock, Unlock, Write, Reset, Number Change)
8. Identify the parts of Digital Video Camera and know the various Recoding Modes
9. Working Demo of Digital SLR Camera
10. Working Demo of Micro Wave Oven

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.