

SEMESTER I
SKILL ENHANCEMENT COURSE
CEL122S: CONSUMER ELECTRONICS (HOME APPLIANCES)

CREDITS: THEORY – 02, PRACTICAL - 02

Course Objectives:

To train and develop professional skills for interaction, installation, problem diagnosis and rectification of minor and major malfunctioning of the air conditioner, refrigerator, washing machine and water purifier at customer's site or at factory/workshop.

Learning Outcomes:

- ✓ 1. Develop the interactive and professional skills.
- ✓ 2. Identification of proper location for the appliances.
- ✓ 3. Installation and checking of accessories.
- ✓ 4. Checking appliance functioning.
- ✓ 5. Understand the symptoms and faults.
- ✓ 6. Repair and replacement of dysfunctional parts and check functionality.

UNIT I

REFRIGERATOR

Refrigeration cycle, types of compressors, functioning of various electromechanical parts of the refrigerator, Air Conditioner: types, features and functions of various electromechanical parts, frequently occurring faults, Induction cook top: Working principle of Induction cook top.

UNIT II

WASHING MACHINES

Working principle of washing machines, Microwave oven: Functioning and Block diagram of microwave oven, Vacuum cleaner: Block diagram and working principle, parts of Vacuum cleaner.

UNIT III

LABORATORY COMPONENT

Studying the parts, control circuits and sensors of refrigerators, Troubleshoot and rectifying the faults; studying various controls used in Air-conditioning system, fault Identification and rectification, studying various parts, wiring, and electronic circuits in induction cook top, fault Identification and rectification.

UNIT IV

LABORATORY COMPONENT

Studying the parts, control circuits and sensors of washing machines, Troubleshoot and rectifying the faults, Studying various parts, wiring and control mechanism of Microwaves, fault Identification and rectification, Identification of various parts, wiring, and electronic circuits in Vacuum cleaner, fault Identification and rectification.

BOOKS RECOMMENDED:

1. Bali S.P. Consumer Electronics, Pearson Education India, 2010, latest edition.
2. R.S. Khandpur, Troubleshooting Electronic Equipment: Includes Repair and Maintenance, Second Edition, McGraw Hill Education (India) Private Limited.
3. Lal A. K, Trouble Shooting and Maintenance of Electronics Equipments, McGraw Hill Education.
4. Eric Kleinert, Troubleshooting and Repairing Major Appliances, McGraw Hill

SEMESTER 2nd
SKILL ENHANCEMENT COURSE
CEL222S: CONSUMER ELECTRONICS (OFFICE APPLIANCE)

CREDITS: THEORY – 02, PRACTICAL - 02

Course Objectives:

To train and develop professional skills for interaction, installation, problem diagnosis and rectification of minor and major malfunctioning of the printer, photocopier, SMPS & UPS at customer's site or at factory/workshop.

Learning Outcomes:

After studying this course, the students shall be able to:

- ✓ 1. Develop the interactive and professional skills.
- ✓ 2. Identification of proper location for the appliances.
- ✓ 3. Installation and checking of accessories.
- ✓ 4. Checking appliance functioning.
- ✓ 5. Understand the symptoms and faults.
- ✓ 6. Repair and replacement of dysfunctional parts and check functionality.

UNIT I

THEORY COMPONENT – I

Printers: types, working Principle and operation- Thermal, Inkjet Printer and Laser Printers, Different Parts: Printer Cartridges, toner, drum, their use and replacement, Principle of Operation of Photocopier, Paper feed mechanism and the sensors used for paper movement, Thermal unit and Toner Unit, sensors used in the copier and their fixtures.

UNIT II

THEORY COMPONENT – II

Troubleshoot the fault in the given SMPS unit, rectify the defect and verify the output with load, Troubleshoot the fault in the given inverter unit, rectify the defects and verify the output with load. Testing of the paper sensor, print head coils, home position sensor, print head needle coil & cleaning of ribbon mask, paper feed motor gears, printer head movement gears & print head guide, identification & use of controls/ switches/ sockets of a Laser printer. Identify the faults & rectify.

UNIT III

LABORATORY COMPONENT:

Visiting factory, workshop and customer's site, counseling and dealing with the customer, site checking, installation and assembling of parts, functional testing, fault identification and repair/remedy thereof at customer and workshop/factory sites.

UNIT IV

ON JOB TRAINING

Visiting hospitals, workshop; medical imaging equipment checking, installation and assembling of parts, functional testing, fault identification and repair/remedy thereof at workshop sites.

BOOKS RECOMMENDED:

1. Stephen Bigelow, Easy Laser Printer Maintenance and Repair, Windcrest McGraw Hill Inc
2. Stephen J. Bigelow Printer Troubleshooting Pocket Reference, McGraw Hill Inc
3. Eric Kuaimoku, Photocopier Maintenance and Repair Made Easy, TAB Books Inc
4. Eric Kuaimoku, Professional Photocopier Troubleshooting and Repair, TAB Books Inc
5. R.S. Khandpur, Troubleshooting Electronic Equipment: Includes Repair and Maintenance, Second Edition, McGraw Hill Education (India) Private Limited

SEMESTER 3rd
SKILL ENHANCEMENT COURSE
CEL322S: CONSUMER ELECTRONICS (COMMUNICATION APPLIANCES)
CREDITS: THEORY – 02, PRACTICAL - 02

Course Objectives:

To train and develop professional skills for interaction, installation, problem diagnosis and rectification of minor and major malfunctioning of DTH set-top box, LCD & LED TV's, Digital Camera and CCTV systems at customer's site or at factory/workshop.

Learning Outcomes:

After studying this course, the students shall be able to:

- ✓ 1. Develop the interactive and professional skills.
- ✓ 2. Identification of proper location for the appliances.
- ✓ 3. Installation and checking of accessories.
- ✓ 4. Checking appliance functioning.
- ✓ 5. Understand the symptoms and faults.
- ✓ 6. Repair and replacement of dysfunctional parts and check functionality.

UNIT I

THEORY COMPONENT – I

DTH set-top box: - Block diagram and functions, optimum signal strength for good reception, cable-parameters and the implications on signal, functions of tuners, remote control, LCD and LED TV: Principle of working and functions of its different sections, Basic principle and working of 3D TV. IPS panels and their features.

UNIT II

THEORY COMPONENT – II

Digital Image formation, Digital camera- working of digital cameras, Types - Floppy Disc type, Flash Card type, Hard Disc type, Overview of current digital cameras, CCTV: Types of cameras and their specifications used in CCTV systems, CCTV setup, Working of and types of Digital Video Recorders.

UNIT III

LABORATORY COMPONENT:

Identification and use of different tools and equipment used in DTH installation procedure & cabling procedure, fault identification in DTH system & rectification. Identify, operate various controls, trouble shoot and replace modules of the LCD/LED TV & its remote, CCTV system Installation and configuring the system for surveillance function, Identification and use of various parts of digital camera, fault diagnosis and repair.

UNIT IV

ON JOB TRAINING

Visiting factory, workshop and customer's site, counseling and dealing with the customer, site checking, installation and assembling of parts, functional testing, fault identification and repair/remedy thereof at customer and workshop/factory sites.

BOOKS RECOMMENDED:

1. Phillip Krejcarek Digital Photography-A hands on Introduction, Delmer Publishers.
2. Jon Torrant Understanding Digital Cameras Focal Press.
3. Imran Ashraf Khan, Masters LCd LED TV Repairing And Screen Bypassing Book, Saz Publication
4. Prabhu, CCTV Camera installation, Chip Systems.
5. Herman Kruegle, CCTV Surveillance: Video Practices and Technology, Butterworth-Heinemann.