

## **INSTRUMENT FABRICATION AND MAINTENANCE**

### **Unit-I:**

#### **Transformers, UPS and Batteries**

Transformers: Single-Phase Transformers, Construction, Types, Transformer ratio, Cooling, Auto Transformer, Transformer Tests, Efficiency of Transformer, Transformer winding, autotaps and line protection. Three phase transformers - connections, parallel operation -- auto transformer. Fabrication and repairs of Transformers.

UPS: Principle and operation, performance parameters, capacity.  
Repairs of UPS.

Rechargeable Batteries: Principle, types, capacity, AH rating. Fabrication and repairs of batteries.

### **Unit-II:**

#### **Generators, Motors and other Appliances:**

DC/AC Generators: Magnetic induction, Principle, Torque Equation, Main Parts, Types, Application.

Motor Winding, Fan Winding

Repairs of DC/AC Motors, Generators, Fans.

Repairs of Xerox Machines, FAX Machines & Telephone equipment.

Repairs of Washing Machines.

### **Unit-III**

#### **Computer Assembling, Maintenance and Accessories**

Fundamental Parts of a computer system; various computer configurations, Assembling of a computer system, Hardware maintenance of a computer system, memory upgradation, software faults and uploading.

Maintenance of printers and other computer accessories.

Computer Networking.

### **Unit-IV:**

#### **Maintenance of Mobile Phones and Bio-medical Equipment**

Mobile Phones: Computerized Chip Level Mobile Repairing, including IC Replacement and Reburning, all methods of Flashing, including Mobile Flashing, Mobile Unlocking, Mobile Formatting, UI Settings. Mobile Downloading, including Blue-Tooth, Card-Reader Cables.

Course No.: PDI-203

**Bio-medical Equipments:**

ECG, EMG, EEG, defibrators. Repairing of X-Rays, USG, BOD incubator and other Bio-medical equipment.

**BOOKS RECOMMENDED**

1. "Engineering Fundamental and Problem Solving" by Eide, et. al., 2002, John Wiley & Sons.
2. Manuals for Transformer and motor winding
3. Manuals for UPS, Mobile Phones, Bio-medical equipment.
4. Computer Assembling and maintenance manuals.
5. Digital Board testing by Sanjeev Singhal, Kataria Publications.