

### Syllabus on Vocational Education and Training Course (VTC)

|  |   |              |                |                    |  |                  |                     |                  |
|--|---|--------------|----------------|--------------------|--|------------------|---------------------|------------------|
| <b>Paper Title</b>                     | <b>: Electronic Repairing - I</b>   |              |                |                    |  |                  |                     |                  |
| <b>CODE</b>                            | <b>: VTC: 242.3</b>   |              |                |                    |  |                  |                     |                  |
| <b>Number of Credits</b>               | <b>: 4</b>  |              |                |                    |  |                  |                     |                  |
| <b>Semester</b>                        | <b>: III</b>  |              |                |                    |  |                  |                     |                  |
| <b>No. of Theory Hours Per Week</b>    | <b>: One (1 hour)</b>   |              |                |                    |  |                  |                     |                  |
| <b>No. of Practical Hours per Week</b> | <b>: Three (3 Hours)</b>  |              |                |                    |  |                  |                     |                  |
| <b>Outline of the Paper:</b>           |   |              |                |                    |  |                  |                     |                  |
| <b>Type of Course</b>                  | <b>Units in the VTC</b>   | <b>Hours</b> | <b>Credits</b> | <b>Total Marks</b> | <b>Distribution of Marks (as per OC-8)</b> |                  |                     |                  |
| <b>Electronic Repairing-I</b>          | <b>Unit-I Theory (25 Marks)</b>   | <b>15</b>    | <b>4</b>       | <b>100</b>         | <b>In-Semester</b>                         |                  | <b>End-Semester</b> |                  |
|  |   |              |                |                    | <b>Theory</b>                              | <b>Practical</b> | <b>Theory</b>       | <b>Practical</b> |
|  | <b>Unit-II to IV Theory (75 Marks)</b>  | <b>90</b>    |                |                    |  |                  | <b>15</b>           |                  |
| <b>Marks Distribution</b>              | <b>: Internal Assessment: 40</b><br><b>: External Assessment: 60</b>  |              |                |                    |  |                  |                     |                  |
| <b>Course Objectives</b>               | <ol style="list-style-type: none"> <li>1. To recognise various electrical symbols</li> <li>2. To explain the electrical safety and precautions</li> <li>3. To understand various tool kits used in electrical and electronic repairing</li> <li>4. To describe various passive electronic passive and active components</li> <li>5. To explain various test and measurement instruments used in electronic repairing</li> </ol>   |              |                |                    |  |                  |                     |                  |
| <b>Course Learning Outcome</b>         | At the end of the course students are able to: <ol style="list-style-type: none"> <li>1. identity various electrical and electronic symbols</li> <li>2. describe and take necessary safety precautions at the workplace</li> <li>3. explain various electronics and electrical tools kits used in electrical and electronic repairing</li> <li>4. identify the functions of various active and passive electronics components and circuits</li> <li>5. use of various test and measurement instruments, such as analog and digital multimeters</li> </ol> |              |                |                    |  |                  |                     |                  |
| <b>Unit I: (Theory) 15 Hours</b>       | <b>Electrical Safety and Tools</b> <ul style="list-style-type: none"> <li>• Electrical Symbols</li> <li>• Electrical safety</li> <li>• Tool Kit</li> </ul> <b>Fundamentals of Electrical Technology</b> <ul style="list-style-type: none"> <li>• Passive Components: Resistor, Capacitor, Inductor, Connecters, Fuses- CircuitSymbol, Working principle, Types, Specification, Application.</li> <li>• Batteries: Battery Chemistry, Circuit Symbol, Working</li> </ul>   |              |                |                    |  |                  |                     |                  |

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|   | <p>principle, Types and Specification.</p> <ul style="list-style-type: none"> <li>• Cables: Twisted pair cable, Co-axial cable, fibre optic cable- Specification, Applications.</li> <li>• Switches: Circuit Symbol, Working principle, Types, specification, Application.</li> <li>• Relays: Circuit Symbol, Working principle, Types, Specification, Application.</li> <li>• Test &amp; Measuring Instruments: Moving Coil Galvanometer, Voltmeter, Ammeter, Digital meter, Multimeter, Tachometer, Earth resistance tester: Megger, Wattmeter, Energy meter</li> </ul> <p><b>Electrical Appliances-I:</b></p> <ul style="list-style-type: none"> <li>• Testing Equipment</li> <li>• Basic Control Equipment</li> </ul> |
| <b>UNIT-II: (Practical)<br/>30 Hours</b>  | <ul style="list-style-type: none"> <li>• Hands-on training on Multimeter: Analog &amp; Digital. 30 Hours</li> <li>• Experiments on Passive Components: Resistor, Capacitor, Inductor, Connectors, Cables &amp; Fuses.</li> <li>• Experiments on switches and Relays: Mechanical, Electronic &amp; Electro-mechanical.</li> <li>• Hands-on training on Batteries: Physical (Solar &amp; Thermal),</li> <li>• Hands-on training on Chemical Batteries (Fuel cell, Rechargeable, Non-Rechargeable)</li> </ul>  |
| <b>UNIT-III: (Practical)<br/>30 Hours</b> | <ul style="list-style-type: none"> <li>• Hands-on- use of Voltmeter &amp; Ammeter.</li> <li>• Experiments on Earth resistance tester.</li> <li>• Experiments on Electrical Energy Meter.</li> <li>• Hands-on training on Line tester, MCB (Miniature Circuit Breaker),</li> <li>• Hands-on training on ELCB (Earth Leakage Circuit Breaker).</li> </ul>   |
| <b>UNIT-IV: (Practical)<br/>30 Hours</b>  | <ul style="list-style-type: none"> <li>• Dismantling and reassembling of basic home appliances</li> <li>• Testing and repairs of basic home appliances.</li> <li>• Testing and repairing of Switches</li> <li>• Testing and repairing of various types of Fuses.</li> <li>• Visit the Electrical appliances service and repair shop.</li> </ul>   |
| <b>Suggested Readings</b>                 | <ul style="list-style-type: none"> <li>• Balasubramanyam M. Business Communication. Vani Educational Books, New Delhi, 1985.</li> <li>• Bhatiya, K. B. Study of Electrical Appliances and Devices. Khanna, 1983.</li> <li>• Brook P.T. Woll Jr., Small Appliance Servicing. McGraw-Hill, 1957.</li> <li>• Fitzgerald, E. Arvin Gabel, David E. Higginbotham,</li> </ul>   |

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|                              | Textbook of Basic Electrical Engineering. TMH Publishing Co.   |
| <b>Requirements</b>          | <ul style="list-style-type: none"> <li>• Multimeter (Analog and Digital)</li> <li>• Cathode Ray Oscilloscope (CRO)</li> <li>• Function Generator</li> <li>• Soldering Iron (25-50 Watts)</li> <li>• Solder Wire and Flux</li> <li>• Breadboard</li> <li>• DC Power Supply (Variable, 1-30V)</li> <li>• Hook-Up Wires</li> <li>• Soldering Station</li> <li>• Long Nose Pliers and Tweezers</li> <li>• Screwdriver Set (Various Sizes)</li> <li>• Wire Stripper</li> <li>• Crocodile Clip</li> <li>• Capacitance Bridge Meter</li> <li>• Desoldering Pump and Wick</li> <li>• Wheatstone Bridge Meter</li> </ul> <p><b>Any other item as required</b></p> |
| <b>Qualified Instructors</b> | <ul style="list-style-type: none"> <li>• Instructors with experience in Electronic Repairing and teaching.</li> <li>• Certifications or relevant qualifications in Electrical Repairing</li> </ul>   |

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| <b>Paper Title</b>                     | <b>: Electronic Repairing-II</b>   |              |                |                    |  |                  |                     |                  |
| <b>CODE</b>                            | <b>: VTC: 262.3</b>  |              |                |                    |  |                  |                     |                  |
| <b>Number of Credits</b>               | <b>: 4</b>   |              |                |                    |  |                  |                     |                  |
| <b>Semester</b>                        | <b>: IV</b>  |              |                |                    |  |                  |                     |                  |
| <b>No. of Theory Hours Per Week</b>    | <b>: One (1 hour)</b>  |              |                |                    |  |                  |                     |                  |
| <b>No. of Practical Hours per Week</b> | <b>: Three (3 Hours)</b>   |              |                |                    |  |                  |                     |                  |
| <b>Outline of the Paper:</b>           |  |              |                |                    |  |                  |                     |                  |
| <b>Type of Course</b>                  | <b>Units in the VTC</b>  | <b>Hours</b> | <b>Credits</b> | <b>Total Marks</b> | <b>Distribution of Marks (as per OC-8)</b> |                  |                     |                  |
| <b>Electronic Repairing-II</b>         | <b>Unit-I Theory (25 Marks)</b>  | <b>15</b>    | <b>4</b>       | <b>100</b>         | <b>In-Semester</b>                         |                  | <b>End-Semester</b> |                  |
|  |  |              |                |                    | <b>Theory</b>                              | <b>Practical</b> | <b>Theory</b>       | <b>Practical</b> |
|  | <b>Unit-II to IV Theory (75 Marks)</b>   | <b>90</b>    |                |                    | <b>25</b>                                  | <b>15</b>        |                     | <b>60</b>        |
| <b>Marks Distribution</b>              | <b>: Internal Assessment: 40<br/>: External Assessment: 60</b>   |              |                |                    |  |                  |                     |                  |
| <b>Course Objectives</b>               | <ol style="list-style-type: none"> <li>1. To recognize electrical shock treatments and use first aid methods</li> <li>2. To use electrical tools used in electrical repairing</li> <li>3. To demonstrate soldering and domestic wiring</li> <li>4. To describe various power supplies, rectifiers, and regulators</li> <li>5. To repair various electrical home appliances</li> </ol>  |              |                |                    |  |                  |                     |                  |
| <b>Course Learning Outcome</b>         | <p>At the end of the course the students are able to:</p> <ol style="list-style-type: none"> <li>1. use safety precautions and apply shock treatment wherever needed</li> <li>2. use and explain various utilizations of electrical tool kits</li> <li>3. make use of simple house wiring, design half-wave and full wave rectifier circuits</li> <li>4. describe the functions of various active and passive electronic components and circuits.</li> <li>5. explain the working principles of air coolers, fans, mixers, microwave ovens etc</li> <li>6. repair domestic home appliances, including induction stoves, washing machine</li> </ol> |              |                |                    |  |                  |                     |                  |
| <b>Unit I: (Theory) 15 Hours</b>       | <b>Electrical Wiring</b> <ul style="list-style-type: none"> <li>• Safety precautions and shock treatment: Workplace Discipline, Electrical shocks, and procedures for separating the person from contact with a live wire, First Aid, different methods of artificial respiration, Electric fire, and Fire extinguishers.</li> <li>• Electrical Tools: Pliers, combination, side cutting, round nose, long nose, Screwdrivers, connectors, electrical knife, neon tester, test lamp, Symbols used in electrical technology, reading of electrical drawing.</li> </ul>  |              |                |                    |  |                  |                     |                  |

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|  | <ul style="list-style-type: none"> <li>• DC Circuits: Series circuit, Parallel circuit, Ohm’s law, Kirchhoff’s current and voltage law.</li> <li>• Soldering: Introduction, equipment, precautions &amp; technique.</li> <li>• Common electrical wiring accessories.</li> <li>• Domestic wiring (house wiring): Introduction of wiring, selection of wiring,types of wiring, I.E.(Indian Electricity) rules of domestic wiring, testing and installation of domestic wiring, and Earthing formats for electrical connections.</li> </ul> <p><b>Power Supplies</b></p> <ul style="list-style-type: none"> <li>• Rectifier Circuits: Half wave, Full wave, Bridge, Merits, Demerits.</li> <li>• Filters: Reactance, Capacitor, Inductor, RC, RL, RLC, and their types.</li> <li>• Spike Guard: Principle &amp; Working.</li> <li>• Zener Regulator: Avalanche breakdown, Zener breakdown, Zener Characteristics.</li> <li>• Power Supply: Block diagram, line regulation, load regulation, series &amp; shunt regulation.</li> <li>• Stabilizer: Block diagram, Principle, working, specification, Maintenance, and troubleshooting</li> <li>• Power Transistor: Symbol, Construction, working, and their types.</li> <li>• Inverter: Principle &amp; block diagram, UPS-Online, offline.</li> </ul> <p><b>Electrical Appliances-II:</b></p> <ul style="list-style-type: none"> <li>• Water purifier</li> <li>• Air Cooler</li> <li>• Fan</li> <li>• Blender</li> <li>• Mixer</li> <li>• Induction stove</li> <li>• Microwave Oven</li> <li>• Washing Machine</li> <li>• Drill Machine.</li> </ul> |
| <p><b>UNIT-II: (Practical)</b><br/><b>30 Hours</b></p> | <ul style="list-style-type: none"> <li>• Experiments on Safety precautions while working on electrical installations &amp; necessity of earthing (Grounding).</li> <li>• Hands-on training on Personal protection, basic injury prevention, symbols&amp; signs for danger, warning &amp; caution, and elementary first aid.</li> <li>• Artificial respiration techniques of separating person in contact with &amp; live wire.</li> <li>• Demonstration of the use of Fire Extinguishers</li> <li>• Demonstration and use of electrical tools and different types of wires.</li> <li>• Experiments on Series circuits, Parallel circuits, and</li> </ul>   |

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|   | <p>voltage law.</p> <ul style="list-style-type: none"> <li>• Experiments on PCB and its testing</li> <li>• Experiments on f soldering techniques.</li> <li>• Experiments on Domestic Electrical Wiring.</li> </ul>  |
| <b>UNIT-III: (Practical)</b><br><b>30 Hours</b> | <ul style="list-style-type: none"> <li>• Rectifier diode characteristic (Forward and Reverse).</li> <li>• Experiment on Half wave rectifier.</li> <li>• Experiment on Full Wave / Bridge Rectifier.</li> <li>• Experiment with passive filters. 5. Experiment on Zener diode characteristics</li> <li>• Hands-on-training on 1) Line Regulation 2) Load Regulation in laboratory power supply.</li> <li>• Hands-on training on testing of Inverter.</li> <li>• Hands-on training on UPS.</li> </ul>   |
| <b>UNIT-IV: (Practical)</b><br><b>30 Hours</b>  | <ul style="list-style-type: none"> <li>• Dismantling, reassembling, testing,and repairing water purifier, air cooler, fan, blender, induction stove</li> <li>• Hands-on training on drill machine.</li> <li>• Hands-on training on the microwave oven and washing machine</li> <li>• Dismantling, reassembling, testing,and repairs of domestic flour mill.</li> <li>• Hands-on training on inverters</li> <li>• Visit to Shop and Market Survey.</li> </ul>  |
| <b>Suggested Readings</b>                       | <ol style="list-style-type: none"> <li>1. BharochaNausheer .Guide to the Electricity Laws. LexisNexis, India, 2018</li> <li>2. Brook Woll Jr. P.T. Small-appliance servicing. McGraw-Hill, 1957.</li> <li>3. Darr,Jack How to repair small Appliances. Hassell Street Press, 2021.</li> <li>4. Gupta , J. D. Business Communication. Vani Educational Books, New Delhi, 1985.</li> <li>5. Lal R. B. Maintenance and Safety of Domestic Electrical Appliances During Pandemic Covid-19. (2020) SOET, IGNOU, 2020.</li> <li>6. Millman, Halkias, and Jit, Electronic Devices and Circuits. McGraw-Hill Book Co, 1967</li> </ol> |
| <b>Requirements</b>                             | <ul style="list-style-type: none"> <li>• Multimeter (Analog and Digital)</li> <li>• Cathode Ray Oscilloscope (CRO)</li> <li>• Function Generator</li> <li>• Soldering Iron (25-50 Watts)</li> <li>• Solder Wire and Flux</li> <li>• Breadboard</li> <li>• DC Power Supply (Variable, 1-30V)</li> <li>• Hook-Up Wires</li> <li>• Soldering Station</li> </ul>  |

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|                              | <ul style="list-style-type: none"> <li>• Long Nose Pliers and Tweezers</li> <li>• Screwdriver Set (Various Sizes)</li> <li>• Wire Stripper</li> <li>• Crocodile Clip</li> <li>• Capacitance Bridge Meter</li> <li>• Desoldering Pump and Wick</li> <li>• Wheatstone Bridge Meter</li> <li>• <b>Any other item as and when required</b></li> </ul> |
| <b>Qualified Instructors</b> | <ul style="list-style-type: none"> <li>• Instructors with experience in Electronic Repairing and teaching.</li> <li>• Certifications or relevant qualifications in Electrical Repairing</li> </ul>  |

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| <b>Paper Title</b>                     | <b>: Electronic Repairing-III</b>  |   |                |                    |  |  |                     |  |
| <b>CODE</b>                            | <b>: VTC: 362.3</b>  |   |                |                    |  |  |                     |  |
| <b>Number of Credits</b>               | <b>: 4</b>   |   |                |                    |  |  |                     |  |
| <b>Semester</b>                        | <b>:VI</b>   |   |                |                    |  |  |                     |  |
| <b>No. of Theory Hours Per Week</b>    | <b>: One (1 hour)</b>  |   |                |                    |  |  |                     |  |
| <b>No. of Practical Hours per Week</b> | <b>: Three (3 Hours)</b>   |   |                |                    |  |  |                     |  |
| <b>Outline of the Paper:</b>           |  |   |                |                    |  |  |                     |  |
| <b>Type of Course</b>                  | <b>Units in the VTC</b>  | <b>Hours</b>  | <b>Credits</b> | <b>Total Marks</b> | <b>Distribution of Marks (as per OC-8)</b> |  |                     |  |
| <b>Electronic Repairing-III</b>        |  |   |                |                    | <b>In-Semester</b>                         |  | <b>End-Semester</b> |  |
|  | <b>Theory</b>  | <b>Practical</b>  | <b>Theory</b>  | <b>Practical</b>   |  |  |                     |  |
|  | <b>Unit-I Theory (25 Marks)</b>  | <b>15</b>   | <b>4</b>       | <b>100</b>         | <b>25</b>                                  |  |                     |  |
| <b>Unit-II to IV Theory (75 Marks)</b> | <b>90</b>  |   |                |                    | <b>15</b>                                  |  | <b>60</b>           |  |
| <b>Marks Distribution</b>              | <b>: Internal Assessment: 40<br/>: External Assessment: 60</b>   |   |                |                    |  |  |                     |  |
| <b>Course Objectives</b>               | <ol style="list-style-type: none"> <li>1. To identify the working principle of amplifiers and oscillators</li> <li>2. To explain the working principle and block diagram of color TV</li> <li>3. To describe the working principle of refrigerators</li> <li>4. To illustrate the working principle of air-conditioners</li> <li>5. To demonstrate the working principle of DC and AC motors</li> </ol>  |   |                |                    |  |  |                     |  |
| <b>Course Outcome</b>                  | <b>Learning</b>  | At the end of the course students are able to: <ol style="list-style-type: none"> <li>1. identify various amplifiers and oscillator circuits used in the circuits and appliances</li> <li>2. demonstrate Minor repairing and installation of various apps used in modern color TV</li> <li>3. illustrate Minor repairing of refrigerators and air-conditioners</li> <li>4. describe the functions of various DC motors and starters</li> <li>5. explain the working principles of single-phase transformer, single-phase AC motors</li> </ol> |                |                    |  |  |                     |  |
| <b>Unit I: (Theory)<br/>15 Hours</b>   | <b>Consumer Electronics</b> <ul style="list-style-type: none"> <li>• Amplifiers &amp; Oscillators: Amplifiers: History, Principle, Types: Poweramplifier, operational amplifier, distributed amplifier, Oscillators: Construction and working, Basic oscillators.</li> <li>• Speakers (Introduction, History, Drive design, Driver types) and Car mp3 players (Various types of m/c, Various Audio systems, Standard specification of Audio system, mp3 players used in cars).</li> <li>• Colour TV. System: Colour TV Block diagram,</li> </ul> |   |                |                    |  |  |                     |  |



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|  | <p>various sections of color TV</p> <ul style="list-style-type: none"> <li>• Modern Colour TV's: Various new types (except CRT type).</li> </ul> <p><b>Refrigerator and Air Conditioning</b></p> <ul style="list-style-type: none"> <li>• Introduction to Refrigeration: Definition of Refrigeration, method of refrigeration, laws of refrigeration, principles of refrigeration, unit of refrigeration, coefficient of performance, reversed Carnot cycle, rating of refrigeration machine.</li> <li>• Vapour compression refrigeration System.</li> <li>• Refrigerants: Properties and applications of commonly used refrigerants</li> <li>• Introduction to Air conditioning: Definition of air conditioning, troubleshooting, and application of air conditioning.</li> <li>• Types of Air Conditioning Systems: Room air conditioners, central air conditioning systems, split air conditioner systems.</li> </ul> <p><b>Electrical Workshop</b></p> <ul style="list-style-type: none"> <li>• Electromagnetism: Introduction, types of magnets, basic magnetic terms, electromagnet, the difference between the permanent magnet and electromagnet.</li> <li>• D.C. motor: Introduction of D.C. motor, working principle, construction, types of D.C. motors, necessity of starters, types of starters.</li> <li>• Single phase transformer: Introduction, types of transformers, transformation ratio, rewinding, transformer testing.</li> <li>• Single Phase A.C. Motor: Introduction, types of single-phase motor winding, fundamental definitions, winding tools and types of equipment, winding materials, single phase motor winding.</li> <li>• Single phase A.C. motor and rewinding, winding: Introduction, working principle, types, construction, speed control and change of DOR (direction of rotation), testing, fault finding, Maintenance, lubricants.</li> </ul> |
| <p><b>UNIT-II: (Practical)</b><br/><b>30 Hours</b></p> | <ul style="list-style-type: none"> <li>• Experiments on Temperature Sensor.</li> <li>• Hands-on-training in Testing Pressure and Piezoelectric Sensor.</li> <li>• Experiments on Displacement Sensor.</li> <li>• Experiments on IR sensor.</li> <li>• Testing and repairing of Amplifier, speaker, microphone, MP3 player, TV (LED).</li> <li>• Visit to Shop &amp; Market Survey.</li> </ul>  |
| <p><b>UNIT-III: (Practical)</b></p>                    | <ul style="list-style-type: none"> <li>• Hands-on training on Domestic or Household</li> </ul>   |

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| <b>30 Hours</b>                                | Refrigerator. <ul style="list-style-type: none"> <li>• Hands-on training on tools used in the refrigeration Lab.</li> <li>• Trial on Air Conditioning Test Rig.</li> <li>• Installation of Air Conditioner.</li> <li>• General Maintenance and repair of refrigerator.</li> <li>• General Maintenance and repair of air conditioner.</li> <li>• Technical report on visit to Refrigeration and Air Conditioning establishments (shop/showroom).</li> </ul>   |
| <b>UNIT-IV: (Practical)</b><br><b>30 Hours</b> | <ul style="list-style-type: none"> <li>• Wiring of a calling bell/ buzzer.</li> <li>• Wiring of lighting circuit for a go-down wiring.</li> <li>• Wiring the consumer's main board with ICDP &amp; distribution fuse box and LCB / MCB</li> <li>• Calculation of Fuel value of wood/charcoal.</li> <li>• Calculation of Efficiency and fill factor of solar cells.</li> <li>• Experiments on Electrical power generation using Solar panels.</li> </ul>  |
| <b>Suggested Readings</b>                      | <ol style="list-style-type: none"> <li>1. Anderson, E. P. ,Audels Home Appliance Service Guide. T. Audel, Indianapolis, 1971.</li> <li>2. Anwani, I. M. Electric Motor Repair: A Practical Book on the Winding, Repair, and Troubleshooting of A-C and D-C Motors and Controllers.</li> <li>3. Bhatiya, K. B. Practical A.C. and D.C. Motor Winding. Standard Publishers Distributors, 2002</li> <li>4. Lal, R. B., Maintenance and Safety of Domestic Electrical Appliances During Pandemic Covid-19. SOET, IGNOU, 2020.</li> <li>5. Millman, J., Halkias, C. C., &amp; Jit, S, Integrated Electronics, McGraw-Hill Book Co., New York, 2017.</li> <li>6. Robert Rosenberg, Electric Motor Repair: A Practical Book on the Winding, Repair, and Troubleshooting of A-C and D-C Motors and Controllers, Volumes 1-2,Holt, Rinehart and Winston, 1970.</li> </ol> |
| <b>Requirements</b>                            | <ul style="list-style-type: none"> <li>• Multimeter (Analog and Digital)</li> <li>• Cathode Ray Oscilloscope (CRO)</li> <li>• Function Generator</li> <li>• Soldering Iron (25-50 Watts)</li> <li>• Solder Wire and Flux</li> <li>• Breadboard</li> <li>• DC Power Supply (Variable, 1-30V)</li> <li>• Hook-Up Wires</li> <li>• Soldering Station</li> <li>• Long Nose Pliers and Tweezers</li> <li>• Screwdriver Set (Various Sizes)</li> </ul>   |

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|                              | <ul style="list-style-type: none"><li>• Wire Stripper</li><li>• Crocodile Clip</li><li>• Capacitance Bridge Meter</li><li>• Desoldering Pump and Wick</li><li>• Wheatstone Bridge Meter</li><li>• <b>Any other item as and when required</b></li></ul> |
| <b>Qualified Instructors</b> | <ul style="list-style-type: none"><li>• Instructors with experience in Electronic Repairing and teaching.</li><li>• Certifications or relevant qualifications in Electrical Repairing</li></ul>  |