

HOUSE WIRING & ELECTRICAL APPLIANCE REPAIRING COURSE(601 & 701) – PCP (THEORY & PRACTICAL)
TRAINING SCHEDULE

8/10/2019

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| Total course duration (400 hrs) | |
| PCP (140 hrs) | Self learning (260 hrs) |
| Practical (90 hrs) | Theory (50 hrs) |

| Week | Schedule | | PCP- Topic | | Instruction to instructor | Learning outcomes | | |
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| | Topic | Day | Duration (Hr) | Theory | | | Practical | |
| Week 1 | Introduction to electricity | DAY 1 | 2 hrs | <ul style="list-style-type: none"> Introduction to electricity. Conductor insulators & their types. Quality & characteristics of good conductor and insulator. International color code for identification of electric wires. Classification of wires & cables. Sign & symbols used in electricity. | 2 hrs | <ul style="list-style-type: none"> Physical demonstration of sources of electricity. Identification of range of conductor & insulator. Demonstration of various types of wires and cables. Identification of a range of various types of wire & cables. Identify the symbols. | <ul style="list-style-type: none"> Demonstrate a range of conductors & insulators. Learner should be able to identify and understand the use of a range of conductor and Insulator. Learner should be able to identify the color code. Learner should be able to identify the various signs & symbols used in electricity. | <ul style="list-style-type: none"> Learner will be able to:- Identify types of wires their uses and size. Identify signs and symbols. Demonstrate various types of wires and cables. Differentiate between conducting & insulating materials. State the uses & generation of static and dynamic electricity. State the electrical properties of conducting materials. |

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| | Introduction to electricity | DAY 2 | 2 hrs | <ul style="list-style-type: none"> Fundamental units Concept of resistance. Series parallel combination of resistors. Mixed combinations of series and parallel connection. Basic definition of parameter like-: Voltage, Ampere, e.t.c. Ohm's Law & magic triangle. Factors affecting the resistance of conductor. | 2hrs | <ul style="list-style-type: none"> Practice series and parallel connection of resistance & record the observations. Verify Ohm's Law. | <ul style="list-style-type: none"> Learner should be able to know the basic parameters, Ohm's law, the series & parallel connection of resistances. | <ul style="list-style-type: none"> Learner would be able to :- Describe & apply fundamental units & basic parameters used in study of electricity. State the Ohm's law Carry out connection of series & parallel combination of resistors in circuits. |
| Week 2 | Tools and equipments used in electrical work & their maintenance | DAY 1 | 2 hrs | <ul style="list-style-type: none"> Description of various types of hand tools & power tools & equipments. | 3 hrs | <ul style="list-style-type: none"> Demonstrate the range of tools & equipments as per requirement | <ul style="list-style-type: none"> Learner should be able to identify the tools as per the required work. | <ul style="list-style-type: none"> Learner would be able to :- Select different sizes of electrical hand tools and electrical equipments. Choose the appropriate tool/equipment according to job. Use various tools/equipments Take proper care and maintenance of tools and equipment. |
| | Tools and equipments used in electrical work & their maintenance | DAY 2 | 2 hrs | <ul style="list-style-type: none"> Care & maintenance of a range of tools & equipments | 3hrs | <ul style="list-style-type: none"> Demonstration of handling the tools and equipments. Demonstrate the care and maintenance of a range of tools & equipments. | <ul style="list-style-type: none"> Learner should be able to use, care & maintain and store the tools & equipment. | |

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| Week 3 | Safety precaution | DAY 1 | 2 hrs | <ul style="list-style-type: none"> Personal protection. Use of ladder and Tools. | 2 hrs | <ul style="list-style-type: none"> Demonstrate the various safety precautions to be taken by learners, while doing electric works. Learner should be taught how to use ladder and ascertain the insulation of handling tools. | <ul style="list-style-type: none"> Learner should be able to know the various techniques for self protection and safe use of ladder and handling equipments. | <ul style="list-style-type: none"> Learner would be able to :- Adopt personal protection measures while doing electrical jobs. Adopt proper plant protection measures Handle tools & equipment with proper safety measures. Adopt proper safety measures for lowering tools and materials at work place. State the general precautionary measures to be taken for prevention of fire and safety. |
| Week 4 | Electrical accessories and meters used in electrical installation | DAY 1 | 1 hr | <ul style="list-style-type: none"> Various accessories, fixtures and their specifications. | 3 hrs | <ul style="list-style-type: none"> Demonstrate a range of electrical accessories. Fixing of various accessories on the board. | <ul style="list-style-type: none"> Learner should be able to identify a range of electrical accessories. | <ul style="list-style-type: none"> Learner would be able to :- Identify various electrical accessories and their specifications. Install different types of electric meters and instruments. Use and read various meters. Use various measuring instruments. |
| | | DAY 2 | 1 hr | <ul style="list-style-type: none"> Function of a range of measuring instruments and meters | 3 hrs | <ul style="list-style-type: none"> Demonstration of various types of electrical measuring instruments & meters. | <ul style="list-style-type: none"> Learner should be able to identify the use and connection of a range of measuring meters. Chart and Audio-visual demonstration and connections of meters. | |

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| | | | | | | | <ul style="list-style-type: none"> • Take care in handling and storage. | |
| Week 5 | Soldering | Day 1 | 1 hr | <ul style="list-style-type: none"> • Types of equipments used in soldering. • Material used for soldering. | | <ul style="list-style-type: none"> • Identification of soldering equipments. • Identification of soldering material. | <ul style="list-style-type: none"> • Learner should know the use of soldering iron. • Learner should know the various soldering material. | Learner would be able to :- <ul style="list-style-type: none"> • Identify and use equipment required for soldering. • Perform soldering of different metals. • Use right type of solder and flux for different types of metals. • Carry care and maintenance of soldering equipment. |
| | | Day 2 | 2 hrs | <ul style="list-style-type: none"> • Methods of soldering. • Care & maintenance of soldering equipment. | | <ul style="list-style-type: none"> • Demonstration on use of soldering equipment and proper flux as per the requirement of soldering metal. • Practice in soldering of different metals. | <ul style="list-style-type: none"> • Learner should be able to perform soldering and care & maintain the soldering equipment. | |
| Week 6 | Protective devices | Day 1 | 1 hr | <ul style="list-style-type: none"> • Introduction to various types of protective devices, their significance and uses. • Connection of protective devices | | <ul style="list-style-type: none"> • Identification of range of protective devices-: fuses, circuit breakers, thermostat. • Selection of fuse wire. | <ul style="list-style-type: none"> • Instructor should use charts, Audio-Visual aid and physical display of a range of protective devices. | Learner would be able to :- <ul style="list-style-type: none"> • Identify fuses, circuit breakers and • Select proper fuse wire. |
| | | Day 2 | 2 hrs | <ul style="list-style-type: none"> • Significance of earthing. • Method of earthing. • Indian electricity rules for earthing. | | <ul style="list-style-type: none"> • Laying of earth wire for earthing in single and three phase connection. • Practice in taping of joints. | <ul style="list-style-type: none"> • Learner should be able to select right type of earth wire. • Learner should understand the laying of earth wire. • Learner should be | |
| | Earthing | Day 2 | 2 hrs | | | | | Learner would be able to :- <ul style="list-style-type: none"> • Demonstrate method of earthing. • Select proper earth wire. • Carry out earthing of wires. |

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| | | | | | | able to differentiate the appropriate earthing by observing the type of coil. | | |
| Week 7 | Electrical wiring | Day 1 | 1 hr | <ul style="list-style-type: none"> System of wiring -: Tree system, distribution system, looping system | 3 hrs | <ul style="list-style-type: none"> Selection of particular type of wiring and wiring material. Practice in all types of joints and wiring on demonstration boards. | <ul style="list-style-type: none"> Charts and Audio-visual aid should be used along with practical performed. Before performing practical learner should be made aware of the relevant safety precautions. | <ul style="list-style-type: none"> Learner would be able to-: • Select proper wiring and wiring material. • Carry on jointing of wiring like stripping, crimping. • Carry out opening and re-fixing of inspection cover on walls, floor board, false ceiling. |
| | Electrical wiring | Day 2 | 2 hrs | <ul style="list-style-type: none"> Types of wiring Cleat, batten casing & capping surface conduit, concealed conduit wiring | 3hrs | <ul style="list-style-type: none"> Identification of Cleat and batten wiring. • Opening & refixing of inspection cover provide on false ceiling/walls/floor board | <ul style="list-style-type: none"> Charts and Audio-visual aid should be used along with practical performed. • Before performing practical learner should be made aware of the relevant safety precautions. | |

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| Week 8 | Electric meters and switches | Day 1 | 2 hrs | <ul style="list-style-type: none"> Electric meters and type of switches Method of fixing various types of switches and meters. | 3 hrs | <ul style="list-style-type: none"> Preparation of switch board mounting of various switches on sheet/wooden boards. Fixing switch boards on walls. Preparing energy meter board with cutout and switches. Installing energy meter. Connecting the meter board with power supply | <ul style="list-style-type: none"> Before performing practical learner should be taught about the connections using charts | <ul style="list-style-type: none"> Learner would be able to:- Carry fixing various types of switches. Prepare switch boards, mounting of switches on sheet/wooden board. Fix switch boards on walls. Prepare & install energy meter. Prepare meter board. |
| Week 9 | Circuit, fixtures and accessories | Day 1 | 1 hr | <ul style="list-style-type: none"> Testing of wiring installation with Megger. | 3 hrs | <ul style="list-style-type: none"> Practice in preparing layout for circuits and fixture. Fixing & Installing the accessories and fixtures according to the circuits Fan regulators (different types) | <ul style="list-style-type: none"> Learner should have knowledge of selecting and handling with care the fixtures and accessories, fluorescent tube, bulb holders, night lamps, high pressure mercury vapor, lamps and sodium vapor lamp and hanging lights. | <ul style="list-style-type: none"> Learner would be able to :- Prepare layout for circuits & fixtures. Fix & install various accessories and fixtures. Carefully handle & select fixtures and accessories. prepare circuits like: simple circuits, staircase, go-down, hostel bell, lamp indicator |
| | Testing & rectification | Day 1 | 1 hr | <ul style="list-style-type: none"> Testing of wiring installation with Megger. | 3 hrs | <ul style="list-style-type: none"> To perform test to measure insulation resistance between | <ul style="list-style-type: none"> Safety precaution while using megger should be taught with the help of | <ul style="list-style-type: none"> Learner would be able to :- Test wiring installation with |

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| | Heating and lighting effect of current | Day 2 | 1 hrs | <ul style="list-style-type: none"> Heating effects of current Joule's law, heating efficiency Introduction to a range of domestic appliances of heating effect. | 3hrs | <ul style="list-style-type: none"> Verifying the heating and lighting effects of current | Focus should be on the application of heating effect | <ul style="list-style-type: none"> Learner would be able to :- Verify heating & lighting effects of current in domestic applications Demonstrations of working of various types of lamps. Make connections for the range of lamps. |
| Week 12 | Heating and lighting effect of current | Day 1 | 1 hrs | <ul style="list-style-type: none"> Construction and working of Incandescent lamp, SVL, Arc lamp, neon lamp. | 3 hrs | <ul style="list-style-type: none"> Demonstration of different types of lamps and making connections of the range of lamp. | Learner should understand all the parts and connection of different types of lamps. | <ul style="list-style-type: none"> Learner would be able to :- Prepare simple electromagnet. Trace the field of electromagnet. Polarities of an electromagnet and rules for finding polarity. Fleming's left hand rule. |
| | Electromagnetic effects of current | Day 2 | 2hrs | <ul style="list-style-type: none"> Introduction to permanent magnets and electromagnets, their construction & uses. Polarities of an electromagnet and rules for finding polarity. Fleming's left hand rule. | 3hrs | <ul style="list-style-type: none"> Preparation of simple electromagnet. Tracing the field of electromagnet and study the variation of field strength by varying current and number of turns. | <ul style="list-style-type: none"> Demonstrate the different shapes of permanent and electromagnets with the help of charts. Learner should be able to find the polarity. | <ul style="list-style-type: none"> Learner would be able to :- Apply the concept of thermostat in making electrical connections. Identify different types of thermostat. Carry out dismantling and assembling of thermostat testing of |
| Week 13 | Principles of thermostat & proper earthing | Day 1 | 1 hr | <ul style="list-style-type: none"> Introduction to principle, construction & working of Thermostat Type of thermostats | 2hrs | <ul style="list-style-type: none"> Dismantling, studying the parts of a thermostat testing of earthing. | <ul style="list-style-type: none"> Learner should understand the principle of thermostat. Physical display and demonstration of dismantling the parts of thermostat testing of earthing. | <ul style="list-style-type: none"> Learner would be able to :- Apply the concept of thermostat in making electrical connections. Identify different types of thermostat. Carry out dismantling and assembling of thermostat testing of |

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| Week 14 | Principles of thermostat & proper earthing | Day 2 | 1hr | <ul style="list-style-type: none"> Earthing and its importance. Method of performing earthing in circuits. | 3hrs | <ul style="list-style-type: none"> Reassembling the parts of a thermostat testing of earthing. | <ul style="list-style-type: none"> Physical display and demonstration of reassembling the parts of thermostat testing of earthing. Learner should be able to perform earthing in circuits. | <ul style="list-style-type: none"> earthing. Apply the concept of earthing wherever necessary while making electrical connections. Carry out earthing in a circuit. |
| | | Day 1 | 2 hrs | <ul style="list-style-type: none"> Working principle and construction of electric regulator. Working principle and construction of electronic regulator. Difference between thermostat, regulator and dimmer. | 3 hrs | <ul style="list-style-type: none"> Dismantling, studying the parts and reassembling of an electric/electronic regulator and dimmer. | <ul style="list-style-type: none"> Physical display and demonstration of dismantling and reassembling the parts of an electric/electronic regulator and dimmer. Focus should be on the construction of electric/electronic regulator. | <ul style="list-style-type: none"> Learner would be able to :- Identify the parts of electric regulator. Differentiate between thermostat, regulator and Dimmer. Carry out dismantling and reassembling the parts of an electric/electronic regulator and dimmer. |
| | Different types of electric gadgets | Day 2 | 2 hrs | <ul style="list-style-type: none"> Construction of appliances working on heating effects, their common defects and rectification :- Electric iron (ordinary/automatic thermostat control type. Electric stove, coiled type, hot plate. | 3hrs | <ul style="list-style-type: none"> Dismantling and studying the various parts, locating faults, and their rectification in :- electric iron, electric stove & hot plate (artificial faults to be put in). | <ul style="list-style-type: none"> Physical demonstration of appliances working on heating effect. Use Audio-visual aid for demonstrating working of appliances. | <ul style="list-style-type: none"> Learner would be able to :- Identify the internal parts of the range of heat appliances (Electric iron, Electric stove, Cooking range, Geyser). Locate faults in these appliances. |

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| Week 15 | Different types of electric gadgets | Day 1 | 2hrs | Construction of appliances working on heating effects, their common defects and rectification:- <ul style="list-style-type: none"> Grill Oven and cooking range. Electric toaster, electric kettle, gas lighter & Mosquito repeller. | 3 hrs | <ul style="list-style-type: none"> Dismantling and studying the various parts, locating faults, and their rectification in different types of geyser (artificial faults to be put in) | <ul style="list-style-type: none"> Physical demonstration of appliances working on heating effect. Use Audio-visual aid for demonstrating working of appliances. | <ul style="list-style-type: none"> Rectify the general faults by dismantling & replacing the faulty part. Carry out reassembling of the range of appliances. Adopt appropriate safety measures while dismantling, testing & reassembling of the appliances. |
| | Different types of electric gadgets | Day 2 | 1hr | <ul style="list-style-type: none"> Geyser (different types and principle) | 3hrs | <ul style="list-style-type: none"> Dismantling and studying the various parts, locating faults, and their rectification in different types of geyser (artificial faults to be put in) | <ul style="list-style-type: none"> Physical demonstration of appliances working on magnetic effect. Use Audio-visual aid for demonstrating working of appliances. | <ul style="list-style-type: none"> Identify the internal parts of appliances working on magnetic effects (Washing machines, Fans, Mixer/juicer/grinder, Vacuum cleaner). |
| Week 16 | Different types of electric gadgets | Day 1 | 2hrs | Construction of appliances working on magnetic effect their common defects and rectification:- <ul style="list-style-type: none"> Fans (table & ceiling), room cooler and heat convector. Mixer/juicer/grinder. | 3 hrs | <ul style="list-style-type: none"> Dismantling and studying the various parts, locating faults, and their rectification in different types of fans, room cooler, heat convector, juicer/ mixer/grinder (artificial faults to be put in) | <ul style="list-style-type: none"> Physical demonstration of appliances working on magnetic effect. Use Audio-visual aid for demonstrating working of appliances. | <ul style="list-style-type: none"> Learner would be able to :- Identify the internal parts of appliances working on magnetic effects (Washing machines, Fans, Mixer/juicer/grinder, Vacuum cleaner). |

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| | Different types of electric gadgets | Day 2 | 2 hrs | Construction of appliances working on magnetic effect their common defects and rectification like-: <ul style="list-style-type: none"> • Washing machines (different types). | 3hrs | <ul style="list-style-type: none"> • Dismantling and studying the various parts, locating faults and their rectification in different types of washing machine. | <ul style="list-style-type: none"> • Physical demonstration of appliances working on magnetic effect. • Use Audio-visual aid for demonstrating working of appliances. | <ul style="list-style-type: none"> • Locate faults in these appliances. • Rectify the general faults by dismantling & replacing the faulty part. |
| Week 17 | Different types of electric gadgets | Day 1 | 2 hrs | Construction of appliances working on magnetic effect their common defects and rectification like-: <ul style="list-style-type: none"> • Vacuum cleaner. Construction working and repairing of voltage stabilizer | 3 hrs | <ul style="list-style-type: none"> • Dismantling and studying the various parts, locating faults, and their rectification in different types of vacuum cleaner and voltage stabilizer | <ul style="list-style-type: none"> • Demonstrate physically the voltage stabilizer and its internal part • Use audio visual aid for showing its working. | <ul style="list-style-type: none"> • Carry out reassembling of the range of appliances. • Adopt appropriate safety measures while dismantling, testing & reassembling of the appliances. |