

1	Name of Syllabus	C. C. IN ELECTRICAL WIREMAN (302102)																																									
2	Max.Nos of Student	25 Students																																									
3	Duration	6 Month																																									
4	Type	Part Time																																									
5	Nos Of Days / Week	6 Days																																									
6	Nos Of Hours /Days	4 Hrs																																									
7	Space Required	Workshop = 300 Sq feet <u>Class Room = 200 Sq feet</u> TOTAL = 500 Sq feet																																									
8	Entry Qualification	VIII th Passed																																									
9	Objective Of Syllabus/ introduction	1) Trainee should be able to Check & Repair house Wiring & Electrical appliances 2) Trainee should know the maintenance & repairing work of electric equipments, wiring installation																																									
10	Employment Opportunity	<ul style="list-style-type: none">To start his own electrical equipment, sale, spare shops.To work as a Wireman. in pvt establishment at contractor																																									
11	Teacher’s Qualification	2) I.T.I./ N.C.T.V.T. in Electrician / Wireman OR 3) H.S.C. Vocational in M.R.E.D.A. Pass																																									
12	Training System	<table><tr><th colspan="7">Training System Per Week</th></tr><tr><td>Theory</td><td>Practical</td><td colspan="5">Total</td></tr><tr><td>6 Hours</td><td>18 Hours</td><td colspan="5">24 Hours</td></tr></table>							Training System Per Week							Theory	Practical	Total					6 Hours	18 Hours	24 Hours																		
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13	Exam. System	<table><tr><th>Sr. No.</th><th>Paper Code</th><th>Name of Subject</th><th>TH/PR</th><th>Hours</th><th>Max. Marks</th><th>Min. Marks</th></tr><tr><td>1</td><td>30210211</td><td>Wireman</td><td>TH-I</td><td>3 hrs</td><td>100</td><td>35</td></tr><tr><td>2</td><td>30210221</td><td>Basic electricity</td><td>PR-I</td><td>3 hrs</td><td>100</td><td>50</td></tr><tr><td>3</td><td>30210222</td><td>Domestic appliances</td><td>PR-II</td><td>6 hrs</td><td>200</td><td>100</td></tr><tr><td></td><td></td><td>Total Marks :-</td><td></td><td></td><td>400</td><td>185</td></tr></table>							Sr. No.	Paper Code	Name of Subject	TH/PR	Hours	Max. Marks	Min. Marks	1	30210211	Wireman	TH-I	3 hrs	100	35	2	30210221	Basic electricity	PR-I	3 hrs	100	50	3	30210222	Domestic appliances	PR-II	6 hrs	200	100			Total Marks :-			400	185
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ELECTRIC WIREMAN

SYLLABUS :-

THEORY PAPER – I, WIREMAN

Safety Precautions & Elementary First Aid

- 1) Treatment in case a person suffering from electrical shock, burns etc.
- 2) Introduction to the common hand tools used by Wireman such as Steel Rule, Pliers, Cutters, Screw drives, Connectors, Line tester, Knife and such other tools as commonly used by the Wireman. Includes also the carpentry hand tools such as:-
Plump pop planes, different chisels marking & holding tools, such as mallets, claw hammer. Try square marking gauges and also the fitters tools as are most commonly used by wireman. such as steel Rules scribe, different types of Hammers, Calipers, files, punches (hand) hacksaw, hacksaw blade, Taps, drills, die of different types, hand vice, pipe vice, Adjustable wrenches etc., Their identification use general care and maintenance. Use of test lamp.
- 3) Conductors & Insulators common conductors, insulators, common terms, current voltage and resistance, their units & ohms law, use of (A) & (V) , size of wire, cable, etc. current carrying capacity, use of standard wire gauge I. S. specification for current ratings of wires used in common cables and their safe currents.
- 4) Work, Power, Energy and their units. Readings of energy meters. Simple calculations of power & energy, difference between A.C. & D.C. supply. Testing of supply. Testing of supply OFF & ON Positive and Negative (for D.C.) phase or live & Neutral (for A.C.) Methods of testing polarity. Various uses of Bell & Test lamp.
- 5) Study of common Electrical accessories & material such as, cut outs, switches (including too way & intermediate) ceiling roses; lamp holders, wall sockets, adapters, cleats. clips, various types of screw- their sizes, T.W. Button round Blocks, boards, conduct pipes, and its a accessories such as bends, coupling, elbows, Tee Importance of fuse for the circuit. types of fuses o proper size of fuse wire in a circuit.
- 6) **Diagram and Wiring layout for simple Connections.**
 1. **Wiring :-** Cleat wiring lead covered, wiring on T.W. button, conduct cable laying & its termination B.C. lamps, single & twin tube light fixtures, discharge lamps.
 2. Connections & diagram for distribution & fuse boards of supply circuits, lighting. point and their control.
- 7) The installation of electric bells & indicators. Soldering, purpose, flaxes, solder composition.
- 8) Soldering lugs wires and cables, copper & alluminium knowledge of soldering equipment and aping the joints.

9) Connection of fans & regulators, common faults & their remedies. Elementary knowledge of primary & secondary cells.

10) Energy meter installation, wiring of fittings & other consuming devices i.e. Electric heater, geyser, iron, hot plate etc.

11) **Jointing :-** Straight & tee joints in stranded insulated wires: making Britannia & Western Union joints in bare wires.

12) **Methods of carrying overhead bare & insulated wires over a short distances.**

Service line from company to consumer's terminals.

Earthing, necessity of earthing & I.E.E. Rules.

Star, Delta connection, voltage & current relationships between phase and line Values.

13) **Motors :-** Ideal of different types of 1 phase & 3 phase motor, commonly used. Method of wiring controlling & starting devices, connection diagram of D.O.L. starter, star- Delta starter and Rotor resistance starter.

14) Testing with Megger, of wiring installation for insulation resistance, continuity test, earthing test, Filling up Test Form use of multimeter.

15) Elementary study of transformer use for bed lamps.

PRACTICAL - I :- Basic Electricity

1. To make the trainees familiar with Wiremen's tool /Carpentry tools /Fitter's tools
2. To make trainees familiar with wiring accessories such as switches holders, ceiling root plug pins & sockets. T. W. boards, Rounds, Screw, Clips, ear thing Clips, conduit accessories
- 3.
4. Fixing of the & surface mounting type switches sockets, on boards, bell push ceiling roses on T. W. rounds, jointing clips on battens, fixing of T. W. battens on walls, ceiling .
5. Study of various types of wire used for wiring such as C.T.S., P.V.C., V.I.R., flexible, earthing (copper & aluminium) wire, two, three and four core cables.
6. Simple electric in loose wiring (in-dry cell, 6 V. lamps and flexible wires)
7. Study of series circuits.
8. Study of parallel circuits.
9. One lamp control from one points, Cleat wiring.
10. Control of lamps from two points, Cleat wiring.
11. Control of lamps front two points, T. W. button, wiring.
12. Batten joint bends, corner, etc.
13. Control of lamps from two points, wiring with C.T.S/TVC on T.W. Batten.
14. Control of lamps from 3 different places (Use of intermediate switch.)
15. Cutting& threading of conducts pipe & giving shape to conduct pipe.
16. Installing pipe on wall & ceiling using spacers & drawing wires through it.
17. All above examples (Nos. 8/9/10/11&13) using conduit wiring.
18. Conduct enter exit from I.C. switch, B.D. etc.
19. Earthing concept pipe system.
20. Connection of voltmeter & ammeter in a circuit.
21. Connection of wattmeter & Ammeter & Voltmeter in a circuit.
22. Installation of single phase energy ineter.
23. Preparing battery for charging tests.
24. Fluorescent tube installation tests.
25. Fluorescent true light installation other Discharge lamps wiring & installation.
26. Connection of Domestic appliances.
27. To control six light pints, three fans points. Two power plugs, wiring main and D.B.
28. Megger testing of installation.
29. Preparing of ear thing pit for plate & pipe ear thing

PRACTICAL - II - DOMESTIC APPLIANCES

To study line and phase, current and voltage relationship in star and delta connection.

30. Starting running and reversing 1 Ph Motors.
31. To concept 3 phase Induction motor with DOL starter & to change the direction of Rotation.
32. To connect star? Delta starter for an Induction Motor and to reverse direction of rotation.
33. To conduct, start, run & reverse the direction of ship Ring Induction Motor using rotor resistance starter.
34. Erection of bus bar panel boards & D.B.
35. Drawing the off service line.
36. Use of real insulators for overhead line over short distances.
37. Building of different types of insulators.
38. Connection of ceiling & tables fans, regulators, soldering exercise.
39. Repair and maintances of common household apparatus like electric irons, hot plates, kettle immersion heaters, gas lighters etc.
40. Preparing test board with provision of a two-way switch, two pin plug- socket, a fuse bridge aid a lamp with holder.
41. Testing a buzzer and removing mechanical and electrical faults in them.

Reading of Ph, 3Ph, energy meters.

42. Dismantling and reassembling a single phase capacitor start motor, with a centrifugal switch and capacitor.

TOOLS & EQUIPMENT

Sr.No.	Trainees ' Kit																
1.	Rule wooden 4 fold 600 m.m	1															
2.	Scriber 15 mm x 4 mm. (knurled centre portion)	1															
3.	Pincer 150 mm.	1															
4.	Pliers insulated 150 mm.	2															
5.	Screw Driver Insulated 150 mm.	2															
6.	Punch Centre 150 mm. x 9 mm .	1															
7.	Knife double bladed electrician	4															
8.	Hammer Cross pin 115 grams. With handle.	2															
9.	Electrician connector, insulated handle.	4															
10.	Electrician Testing Pencil (Neon tested) 500 V.	2															
11.	Heavy duty Screw driver 200 mm. (Insulated)	2															
12.	Heavy duty screw driver 250 mm. (Insulated)	2															
13.	Rule Steel 300 mm.	1															
14.	Saw Tenon 250 mm.	4															
15.	Hammer Ball Pin 0.75 kg. with handle.	2															
16.	Firmer chisel wood 12 mm.	1															
17.	Gimlet 6 mm.	1															
18.	Bradawl – 8”	1															
19.	Side outing Pliers Insulated	2															
20	Spanner 150 mm. adjustable 15 degree.	2															
21	Blow lamp 5 litters.	2															
22	Melting pot	2															
23	Ladder	1															
24	Chisel cold flat 12 mm x 200 mm.	2															
25	Chisel wood firmer 25 mm. and 6 mm.	2															
26	Drill machine hand to 5 mm. capacity	2															
27	Electric drill machine portable 6 mm capacity	1															
28	Oil can 0.12 liter.	1															
29	Grease gum .	1															
30	Pulley Puller	1															
31	Rawl plug tool with Bit 6 No. & 8 No.	2 Sets.															
32	Bearing puller	1															
33	Variable Resistance 0 to 2000 Ohms 2.5 to 5000 volt <table border="1" style="margin-left: 40px;"> <tr><td>10R</td><td>5.2 amp.</td><td>1Nos.</td></tr> <tr><td>20R</td><td>2.7 amp.</td><td>1Nos.</td></tr> <tr><td>50R</td><td>4.1 amp.</td><td>1Nos.</td></tr> <tr><td>296R</td><td>2.8 amp.</td><td>1Nos.</td></tr> <tr><td>190R</td><td>3.3 amp.</td><td>2Nos.</td></tr> </table>	10R	5.2 amp.	1Nos.	20R	2.7 amp.	1Nos.	50R	4.1 amp.	1Nos.	296R	2.8 amp.	1Nos.	190R	3.3 amp.	2Nos.	1
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34	K.W. Meter 0 to 1 k.w. capacity	1
35	Tong tester (Clip on meter)	1
36	Lamp bank for loading up to 10 A 250 x	1
37	Test lamp	2
38	Mallet hardwood 0.50 kg.	2
39	Hacksaw frame 200 mm. 300 mm. adjustable.	2
40	Try square 150 mm. blade.	2
41	Pliers flat Nose 100 mm. (Insulated)	2
42	Pliers round Nose 100 mm. (Insulated)	2
43	Drill set 3 mm., 5 mm. 6 mm.	2 (each)
44	Wire gauge Imperial	2
45	Soldering Iron, 125 watt, 65 w	1 (each)
46	File half round, bastard 8"	2
47	Hand Vice 2" jaw	2
48	Magnet bar	2
49	Magnet horse shoe	1
50	Compass Magnetic needle	1
51	Stock and digs conducts (1/2", 3/4", 1")	1
52	Voltmeter M.C.O. 500 V.D.C. (Box type)	1
53	Ammeter M.C.O. 15 A.D.C. (Box type)	1
54	Ammeter M.C.O. - 5 A.X.C.	1
55	A.C. Voltmeter M.I.O. 500 V	1
56	A. C. Ammeter M.I.O. 75 A	1
57	A. C. Ammeter M.I.O. 5 A	1
58	Magger 500 volts.	1
59	A. C. Energy meter single phase 5A 250V	1
60	Bench Vice 5'	2
61	Bench working 2.5 x 1.20 x 0.75	2
62	Almeria 2.5 x 1.20 x 0.50 meters	1
63	Instructor's table (3' x 2' x 2 1/2')	1
64	Instructor's chair.	1
65	Fire extinguishers	2
66	Fire Buckets	2
67	Copper bit soldering iron 1/2 lb.	1 set.
68	Series type Ohm- meter 0.2000 app.	1
69	Shunt type Ohm - meter 0.25 app.	1
70	Pipe vice to take pipes up to 2" dia.	1
71	Motor A.C. squirrel cage 3 phase 400 volt 50 cycles 2 to 3 H. P. with star - delta starter and triple. Pole iron - clad switch ruse.	1
72	Motor A.C. phase wound slip ring type 5 H.P. 400 volts 3 phase, 50 cycle with starter and switch.	1
73	Motor A.C. Single phase 230 volt 1 H.P. repulsion type complete with starter switch.	1
74	Motor A.C. single phase 230 volt 1 H.P. repulsion type complete with starter Switch.	1

75	Motor A.C . single phase 230 volts, 50 cycle , capacitor type with starter switch 1 H.P.	1
76	Motor universal 230 volt , 50 cycles with starter/ switch, 1 H.P.	1 No.
77	Ceiling Fan 48"	1 No.
78	Hot Plate 2 KW. 250 V.	1
79	Geyser simple plate Kitko	1
80	D.C. Compound motor	1
81	Mixer Grinder Small type	1
82	Table fan	1

REFERANCE BOOKS

- | | |
|---------------------------------|---------------------|
| 1) SUBODH VIDYUTSHAstra | BY TRAMBAK WAGHMARE |
| 2) ADHUNIK VIDYUTSHAstra | BY PRAKASH SHAHA |
| 3) BASIC ELECTRICITY | BY M L ANWANI |
| 4) SOPE VIDYUTSHAstra | BY SHAM PITKE |
| 5) BASIC ELECTRICAL ENGINEERING | BY P S DHOGAL |
