

BANGLADESH TECHNICAL EDUCATION BOARD



SYLLABUS FOR THE SHORT COURSE

ON

Electrical Housing Wiring

Total Duration: 360 hours

Course Title: Electrical Housing Wiring

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INTRODUCTION

This course of study on Basic Electrical wiring will enable the students having sufficient ability to do the specific Job independently in comfort developing the following competencies.

Objective

1. Practice electrical equipment and industrial safety rules and regulation.
2. Study theory and practical of house wiring.
3. Develop idea and analyse drawing and blue print of house wiring.
4. Ensure the theory and practical application on all types of circuit and connection.
5. Practice the theory and practical application all types of electrical Testing.
6. To develop skills workforce.

COURSE OUT LINE

Name of Course	Duration of Course		Entry Qualification
Electrical Housing Wiring	Total 360 hrs	5 days per week, Per day 3 hrs	Minimum Eight Pass. JSC/JDC or equivalent
	Theory= 60 hrs Practical= 240 hrs.	Theory = 1 hr, per lesson Practice = 2 hrs. per practice	
	Basic Competency & Communicative English= 60 hrs	Total = 3 hrs, per working day	

LIST OF COMPETENCIES

Basic Competencies: Contents:

a) (i) Basic Competencies - 30 hours

Period	Topics	hours
1. Receive and Respond, Participate and Lead to workplace communication:		
1	a) Explain & follow routinary speaking & messages in a workplace.	1
2	b) Follow routinary Speaking & message.	1
3	c) Perform work duties following written notices.	1
2. Work with others, Team Environment and Lead small Teams:		
3	a) Develop effective workplace relationship.	1.5
4	b) Contribute to work group activities.	1.5
3. Demonstrate work values, Practice career professionalism and Develop & Practice Negotiation skills		
5	a) Define the purpose of works.	1
6	b) Apply work values/ethics.	1
7	c) Deal with ethical problems.	1
8	d) Maintain integrity of conduct in the workplace.	1
4. Practice housekeeping procedures, Occupational health and safety procedure and Solve problems related to work Activities:		
9	a) Sort and remove unnecessary items.	1
10	b) Arrange items.	1
11	c) Maintain work areas, Tools and Equipments.	1
12	d) Follow standardizes work process and procedures.	1
13	e) perform work spontaneously.	1
14	a. Use Mathematical Concepts & Techniques and Use Relevant Technologies:	3
6. Personal Manner:		
15	a) Show good Manner.	2
16	b) Respect honorable person (Sir, Senior, Trainees).	2
17	c) Cooperate & Thinking to each and other about practical works.	2
18	d) Maintain sequence in practical works.	2
19	e) Own Responsibility & Duties of practical works.	2
20	f) Observation of all practical works.	2

a) (ii) Communicative English - 30 hours

Related Subject-10 hours and General Subject- 20 hours 1 hour/period

On the completion of this course trainees will be able to:

1. Speak in English with confidence
2. Communicate with target persons effectively.
3. Understand the speech of English users.
4. Achieve better professional performance.

No. of period	Tropics- Conversational Situation	hours
01	Speaking English – Getting Information & Finding one's way	1
03	Speaking English – About Tools and Equipments	1
02	Speaking English – About meeting some one & participating in class.	1
04	Speaking English – Daily Activities & Asking About Activities	1
05	Speaking English – Evening Activities and about theoretical contents.	1
06	Speaking English – Meeting at the Train station & Asking Question at the Train station.	1

07	Speaking English – Meeting at the Airport & Getting information at the Airport's	1
08	Speaking English – About different type of Measuring Tools and Cutting Tools	1
09	Speaking English – Getting to the Hotel & Asking direction.	1
10	Speaking English – Asking about Buses & Traveling by bus.	1
11	Speaking English - About Practical Class.	1
12	Speaking English – Going by Taxi and Asking the time.	1
13	Speaking English – Arriving early or late and Time and the calendar.	1
14	Speaking English – Living in an Apartment.	1
15	Speaking English – Using the Telephone.	1
16	Speaking English – Getting help in stores and talking about shopping.	1
17	Speaking English – Sending and Receiving Letters.	1
18	Speaking English – Talking about the Weather & Trips and sight seeing.	1
19	Speaking English – Talking about Eating & Dinner Conversation.	1
20	Speaking English – About Machines and Materials.	1
21	Speaking English – Common Health problem and Quitting & Finding Jobs.	1
22	Speaking English – Office Details and Office Conversation.	1
23	Speaking English – About Practical Job.	1
24	Speaking English – On a specific situation & Public speaking.	1
25	Speaking English – About Exchanging view with a Persons & Introducing oneself.	1
26	Speaking English – Describing and Narrating events, place, Objects etc.	1
27	Speaking English – About different type of computer, operating system, system and operating software, add remove software, DBM, Email and internet .	4

Practical:

1. Speaking on a specific Situation.
2. Public Speaking.
3. Exchanging views with target persons.
4. Introducing one self.
5. Describing & Narrating events, places, objects etc.
6. Producing the meaning of given words (by the teachers)-Vocabulary.
7. Prepared speech.

**BASIC TRADE COURSE
BASIC ELECTRICAL TRADE
(ELECTRICAL WIRING)**

LIST OF COMPETENCIES

1. Acquainting the hand tools used in wiring.
2. Measuring the proper size of wires by S.W.G.
3. Striping the sheath of cables.
4. Scraping the wires.
5. Preparing the pig tail Joint.
6. Preparing the simple splice.
7. Preparing the duplex slice.
8. Preparing the tap Joints.
9. Preparing the duplex tap Joint.
10. Preparing the Britannia Joint.
11. Preparing the butt Joint.
12. Preparing the bell hanger Joint.
13. Soldering the Joints.
14. Connecting simple circuit one lamp controlled by one switch.
15. Connecting two lamps in series controlled by one switch.
16. Connecting two lamps in parallel controlled by two switches.
17. Connecting one lamp controlled by two switches individually.
18. Connecting one lamp controlled by three switches individually.
19. Connecting one fluorescent lamps controlled by one switch.
20. Connecting two fluorescent lamp controlled by one switch.
21. Connecting a calling bell controlled by one push button switch.
22. Connecting a calling bell with indicator lamp controlled by two push button switches individually.
23. Connecting a buzzer with as many indicator lamps controlled from as many points individually.
24. Connecting a ceiling fan.
25. connecting ammeter to measure current.
26. Connecting voltmeter to measure voltage.
27. Marking wiring lay out by blue thread for 6 points batten wiring.
28. Drilling holes in the wall by electric hand drill machine.
29. Fixing the rowel plug in the hole.

30. Fixing the wooden batten on the wall.
31. Fixing the link clip on the batten.
32. Installing the proper size of wire on the batten.
33. Fixing the round block.
34. Fixing the round block.
35. Fixing the D.F.B.
36. Fixing the BDFB.
37. Fixing the main switch.
38. Cutting the ebonite sheet for switch board.
39. Fixing PIANO type B.P.S.T switches on the switch board.
40. Fixing two pin socket on the switch board.
41. Fixing 3-pin socket on the switch board.
42. Fixing the ceiling rose on the round block.
43. Fixing the bracket holder.
44. Fixing the pendent holder on the round block.
45. Fixing the W/T bracket.
46. Fixing the base for fluorescent lamp.
47. Fixing the holder for fluorescent lamp.
48. Fixing the ohoke coil for fluorescent lamp.
49. Fixing the fan regulator on the switch board.
50. Fitting the incandescent lamp.
51. Fitting the fluorescent lamp.
52. Fitting the ceiling fan.
53. Measuring the insulation resistance of the wiring installation by Megger.
54. Drawing the earth continuity wire from main switch.
55. Marking the wiring lay out by blue thread for surface conduit wiring for 6 points.
56. Cutting the pipe by hack-saw.
57. Fixing the conduit pipe on the wall by saddle.
58. Drawing the G.I. wire through the pipe for fishing cables.
59. Connecting the tumbler switches on the switch board.
60. Pulling the proper size of cable through the conduit pipe by fishing wire.
61. Connoting the Junction box.
62. Connecting BDFB.
63. Connecting DFB.
64. Connecting Main switch.

65. Marking the wiring layout for concealed conduit wiring by blue thread for 6 points.
66. Cutting grooves in the wall.
67. Cutting thread by die machine.
68. Bending the conduit by conduit by conduit bender machine.
69. Connecting the pipe through socket.
70. Connecting the circular boxes with the conduit.
71. Placing the conduit in the grooves.
72. Pulling the G.I. wire through the conduit for fishing cables.
73. Pulling the cables through the conduit by fishing wire.
74. Fixing the concealed type of switch board.
75. Fixing the concealed type BDFB.
76. Fixing the concealed type DFB.
77. Powering the concrete in the groove.
78. Plastering the groove.
79. Connecting the PIANO type S.P.S.T switch on the concealed type switch board.
80. Boring earthing pipe.
81. Connecting earthing leads with main switch.
82. Measuring the earthing resistance by earth testing Megger.

DURATION : 40 MEETING 1½ HOURS PER MEETING 60 HOURS

- 1st Meeting : Understand Electricity and Electron Theory.
- 2nd ” : Understand the current, voltage, resistance and the different units and their relation
- 3rd and 4th ” : Apply the principles of Ohms law, its application and solving problems related to Ohm’s Law.
- 5th ” : Understand the conductors, semiconductors and insulators with examples.
- 6th ” : Understand inductance, Capacitance and its units with example.
- 7th ” : Apply the different types of electrical circuits, classification, characteristics and their applications.
- 8th ” : Apply Ohm’s law in solving problems related to parallel circuit.
- 9th ” : Apply Ohm’s law in solving problems related to simple mixed (series and parallel) circuits.
- 10th ” : Understand the wires and cables and their different sizes (Practical)
- 11th ” : Understand the classification of wires and cables such as P.V.C, V.I.R, C.T.S, T.R.S,PILCDSTA, Weather proof wire, flexible wires, cables etc.
- 12th ” : Understand the Joints and their classification.
- 13th ” : Understand the pig tail Joint, simple splice Joint, duplex Joint, tap Joint, Britannia Joint, Butt Joint and their application.
- 14th (a) ” : Understand the wiring hand tools and their sketches and their electrical symbols.
- 15th ” : Know the wiring and classification of wiring.
- 16th ” : Understand the merits and demerits of wood batten wiring, conduit wiring (concealed & surface) and under plaster wiring.
- 17th ” : Understand the types of switches, holders, ceiling rose, BDFB, buses & MCB and their applications.
- 18th ” : Understand ammeter, voltmeter, energy meter, ohmmeter, AVO meter etc. their connections and applications.
- 19th ” : Understand the wiring circuit diagram, one lamp controlled by one switch, one lamp controlled by two switches, one lamp controlled by three switches.
- 20th ” : Understand the wiring circuit diagram for a simple storied building, energy meter, main switch, individual controlled switches for four points.

- 21st ” : Understand the wiring circuit diagram of florescent lamp and its working principle.
- 22nd ” : Know the wiring circuit diagram of two florescent lamps controlled by one switch and prepare an estimate on it.
- 23rd ” : Know a calling bell circuit with an indicator lamp and describe its working Principle and prepare an estimate for it.
- 24th ” : Understand a wiring circuit diagram (minimum 6 point) and prepare a list of materials required for batten wiring in a simple storied building.
- 25th ” : Understand a wiring circuit diagram (minimum 6 points) and prepare a list of materials required for concealed conduct wiring for a single storied building.
- 26th ” : Understand a wiring circuit diagram (min 6 points) and prepare a list of materials required for surface conduit wiring for a single storied building.
- 27th ” : Know the wiring circuit diagram for a simple storied building showing energy meter main switch, BDB, Busbar, MCCB, MCB etc.
- 28th ” : Understand three phase star-delta connection and its application.
- 29th ” : Understand the wiring diagram of ceiling fan.
- 30th ” : Know the connection diagram to start a three phase induction motor by star/delta starter.
- 31st ” : Understand earthing, necessity of earthing, process of earthing.
- 32nd ” : Know the insulation resistance test of wiring installation by megger.
- 33rd ” : Understand earth resistance test by earth testing megger.
- 34th ” : Understand the decorating lighting including neon sign.
- 35th ” : Understand the traffic signal control circuit diagram for three ways and four ways road.
- 36th ” : To acquire knowledge to distribute the single phase balanced load from three phase supply.
- 37th ” : Apply the principle of service entrance connection and its estimate.
- 38th ” : Understand the connection diagram for three point and four point starter.
- 39th ” : Apply the principles of burglar alarm circuit.
- 40th ” : Understand repair and maintenance of different types of electrical wirings, installation and their remedies.

Course outline Basic Electrical Trade
Electrical wiring (Practical)

DURATION : 80 MEETINGS 3 HOURS PER MEETING 240 HOURS

- 1st Meeting : Introduction to syllabus and show skill in acquainting and handling of hand tools used in wiring and their maintenance
- 2nd " : Demonstrate the operational function and show skill in using different types of hand tools and equipments practically used in wiring system.
- 3rd " : Show skill in acquainting the different types of raw materials such as wires cables etc and measurement of their sizes.
- 4th " : To show skill in making a pig tail Joint with single strand and multi stranded wire.
- 5th " : To show skill in making a simple splice and a tap Joint with single strand P.V.C wire.
- 6th " : To show skill in duplex splice and a tap Joint with single stranded wire and soldering of Joints.
- 7th " : To Show skill in making a britannia Joint and soldering of it.
- 8th " : To Show skill in making a butt Joint with multi-stranded wire.
- 9th " : To show skill in making a bell-hanger Joint with single stranded and multi stranded wire.
- 10th " : To show skill in wiring of one lamp controlled from one point.
- 11th " : To show skill in wiring of tow lamps in series controlled from one point.
- 12th " : To show skill in wiring of two lamps in parallel controlled by one switch.
- 13th " : Show skill in wiring of two lamps in parallel controlled by two switches individually.
- 14th " : To show skill in wiring of stair-cage lighting one lamp controlled by two points individually.
- 15th " : To show skill in wiring of one lamp controlled from three points individually.
- 16th " : Show skill in wiring of one lamp controlled from four points individually.
- 17th " : Show skill in wiring of two florescent lamps controlled from one point.
- 18th " : Show skill in wiring of tow fluorescent lamp controlled from one point.

- 19th ” : Show skill in wiring of three fluorescent lamps controlled from three points individually.
- 20th ” : Show skill in wiring of an electric calling bell with indicating lamp controlled form one point.
- 21st ” : Show skill in wiring of an electric calling bell with an indicating lamp controlled form two point.
- 22nd ” : Show skill in wiring of an electric calling bell with as many indicator lamps controlled form as many points individually.
- 23rd ” : Show skill in wiring of an electric buzzer controlled from one point.
- 24th ” : Show skill in fixing up the wood pin and rowel plug for batten wiring (as per drawing given by the class teacher) for minimum 6 point.
- 25th ” : Show skill in fixing up the proper size of wooden batten for the previous Job.
- 26th ” : Show skill in fixing up the popper size of link clip on the wooden batten for the previous Job.
- 27th ” : Show skill in installing the proper size of wire on wooden batten (Previous Job) having a common neutral (Joint box system).
- 28th ” : Show skill in installing the fitting, fixtures and connect properly with the wiring circuit for the previous Job.
- 29th ” : Show skill in installing the proper size of wire having common neutral (loop system) minimum 6 points.
- 30th ” : Show skill in installing the fitting, fixtures etc. in their respective place and connect properly (previous Job).
- 31st ” : Show skill in drawing the proper size wire over the batten having individual neutral in previous Job (Joint box system).
- 32nd ” : Show skill in placing the fitting, fixtures in previous Job and connect properly.
- 33rd ” : Show skill in installing the appropriate size of wire on the batten with individual neutral (loop system).
- 34th ” : Show skill in connecting properly the fitting, fixtures of previous Job.
- 35th ” : Show skill in fixing the bowl, plug for surface conduit wiring (minimum 6 points).
- 36th ” : Show skill in laying out the MS conduit with saddle on Job no. 35.
- 37th ” : Show skill in installing switch board, circular box, I. bow, bend, Tee, etc. for surface conduit wiring.

- 38th ” : Show skill in pulling out the proper size of wire through the conduit by fishing wire and connect accordingly.
- 39th ” : Show skill in installing required fitting, fixtures including earth continuity wire on different outlet (previous Job).
- 40th ” : Show skill in cutting the duct for conceal the conduits (for minimum six points).
- 41st ” : Show skill in placing the conduit in the duct with circular boxes.
- 42nd ” : Show skill in pouring the concrete over the conduit in the duct and finishing the plastering work.
- 43rd ” : Show skill in pulling out the proper size of wire through the conduit by fishing wire.
- 44th -45th ” : Show ability in different types of testing of the wiring installation.
- 46th and 47th ”: Show skill in installing an electrical earthing system through laying of earth continuity conductor, earthing lead and finally by erecting the earthing electrode inside the earth (pipe and plate).
- 48th ” : Show skill in measuring the earth resistance by earth testing megger.
- 49th ” : Show skill in planning estimating and installation of a single phase service main connection.
- 50th ” : Show ability in measuring insulation resistance of wiring installation with a megger.
- 51st ” : Show skill in installing sub-main switch with BDFB for surface conceit wiring.
- 52nd ” : Show skill in installing sub main switch with BDFB concealed conduit wiring.
- 53rd ” : Show skill in making three phase star connection by lamps.
- 54th ” : Show skill in making three phase delta connection by lamps.
- 55th to 57th ”: Show skill in planning, estimating, installing batten wiring in a booth for three lights, 2 fans, one bell, one 2-pin socket, one 3-pin socket.
- 58th to 60th ”: Show skill in planning, estimating, installing surface conduit wiring in a booth for three lights, 2 fans, one bill, one 2 pin socket, one three pin socket.
- 61st to 63rd ”: Show skill in planning, estimating, installing concealed conduit wiring in a booth for three lights, 2 fans, one bell, one 2 pin socket, one 3 pin socket.

- 64th to 67th ” : Show skill in installing batten wiring for 3 lamp [s 2 fans and one bell, one 2 pin socket, one 3 pin socket for each room for two room Bang low including proper earthing.]
- 68th to 71st ” : Show skill in installing concealed conduit wiring for 3 lamps, 2 fans, one bell, one 2 pin socket, one 3 pin socket for each room for two room Ban low including proper earthing.
- 72nd ” : Show skill in testing tube light, starter, choke coil and regulator.
- 73rd ” : Show skill in starting a ceiling fan with regulator.
- 74th ” : Show skill in starting three phase induction motor using star delta starter.
- 75th ” : Show skill in installing the decorative lighting.
- 76th ” : Show skill in installing the traffic control signal system for 3-way road.
- 77th ” : Show skill in installing the traffic control signal system for 4 way road.
- 78th ” : Show skill in making a series test lamp board and ability in locating ground and short circuit fault.
- 79th ” : Show skill in measuring insulation resistance of a three phase induction motor.
- 80th ” : Show skill in repair and maintenance of electrical installation.

Tools & Equipment:

1.	Measuring Tape	1 No.
2.	Combination Pliers	1 No.
3.	Nose pliers	1 No.
4.	Diagonal Cutting Pliers	1 No.
5.	Ball Pin Hammer	1 No.
6.	Cross Pin Hammer	1 No.
7.	Claw Hammer	1 No.
8.	Screw Driver(Flat)	1 No.
9.	Screw Driver(Star)	1 No.
10.	Screw Driver(Connecting)	1 No.
11.	Wire Stripper	1 No.
12.	Wire Gauge	1 No.
13.	Hack saw frame with blade	1 No.
14.	Junior hack saw with blade	1 No.
15.	Sprit Level	1 No.

16.	Plum bob	1 No.
17.	Blue Printing thread	1 No.
18.	Cold & Chisel	1 No.
19.	Electric Drill Machine	1 No.
20.	Fish Wire	1 No.
21.	Adjustable	1 No.
22.	Crimping Pliers	1 No.
23.	Insulation Tester 1000V (Meggar)	1 No.
24.	Earthing Resistance Testing Meggar	1 No.
25.	Multimeter (AVO)	1 No.
26.	Tong Tester	1 No.
27.	Neon Tester	1 No.
28.	Bench Vice	1 No.
29.	Tool Box	1 No.
30.	Electric Wall Cutter	1 No.

Employment Opportunity:

Minimum Eight Pass/JSC/JDC or equivalent

Entry Qualification:

1. Govt. Service
2. NGOS
3. Industries
4. Local & Overseas employment
5. Self Employment

Reference Book:

1. Basic Electrical Knowledge - M. M. Khaibar Ali
2. Basic Electrical Engineering Practice Knowledge - M. M. Khaibar Ali

THE END