

Syllabus For Assistant House Wireman

Course Name	Assistant House Wireman
Course Code	CON/2024/ASHW/433
Sector	Construction
Level	3
Occupation	Assistant House Wireman
Job Description	The Assistant House Wireman is responsible for installing and maintaining electrical systems, making wire joints and testing connections. They will assist with scaffolding, earthing installations and electrical illumination ensuring all tasks follow safety standards.
Course Duration	Total Duration 420 Hrs (T-90, P-210, OJT-60 and ES-60)
Trainees' Entry Qualification	Grade 10 OR 8th grade pass with 2 yrs relevant experience OR 5th grade pass 5 year relevant experience
Trainers Qualification	CTS/ATS in the trade of Electrician/Wireman with 3 years experience in the relevant field OR/ Diploma in Electrical Engineering with 2 years experience in the relevant field OR/ B. Tech/BE in Electrical Engineering with 1 year experience in the relevant field

Structure of Course:

Module No.	Module name	Outcome	Compulsory/ Elective	Theory (Hrs)	Practical (Hrs)	Total (Hrs) [Multiple of 30]
1	Occupational safety hazards at workplace	Apply Safe Working Practices CON/0805/OC1	Compulsory	10	20	30
2	Electrical wire joints & soldering	Make electrical wire joints & soldering CON/0805/OC2	Compulsory	10	20	30
3	Basic electrical connection	Analyse, demonstrate and test basic electrical connection CON/0805/OC3	Compulsory	10	20	30
4	Erecting and dismantling of scaffolds	Describe the process of erecting and dismantling of 3.6 Meters Scaffolds	Compulsory	10	20	30
5	Earthing installation	Plan and prepare Earthing installation CON/0805/OC4	Compulsory	20	40	60
6	Electrical Wiring System	Assemble, install and test wiring system & lighting arrangement	Compulsory	10	50	60
7	Temporary Electrical connection	Plan and execute temporary electrical connection to a	Compulsory	20	40	60

		working site				
8	OJT	Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	Compulsory	--	60	60
9	Employability Skill	As per guided curriculum	Compulsory	60	--	60
TOTAL:				150	270	420

SYLLABUS:**Module No. 1: Occupational safety hazards at workplace****Outcome:** Apply Safe Working Practices**Theory Content:**

- Maintain procedures to achieve a safe working environment in line with occupational health and safety regulations and requirements according to site policy.
- Recognize any unsafe situations according to site policy, and assess his report accordingly.
- Identify and take necessary precautions on fire and safety hazards and report according to site policy and procedures.
- Concepts of standard operation of electrical mains.
- Response to emergencies seg. Power failure, fire and system failure.

Practical Content:

- Recognize any unsafe situations according to site policy, and assess his report accordingly.
- Demonstrate Personal Productive Equipment (PPE) like: safety helmet, safety glove, safety shoe, use the same as per related working environment.
- Demonstrate basic first aid & CPR and use them under different circumstances.
- Identify different fire extinguishers and use the same as per requirement in a mock drill.
- Concept of standard operation of electrical mains and other switches.
- Response to emergencies of power failure and system failure.

Module No. 2: Electrical wire joints & soldering**Outcome:** Make electrical wire joints & soldering**Theory Content:**

- Identify types of wires, cables and verify their specifications.
- Simple straight twist and rat-tail joints in single strand conductors / married and 'T' (Tee) joint in stranded conductors.
- Procedure for soldering and de-soldering.
- Follow the safety precautions during joints and soldering.

Practical Content:

- Make simple straight twist and rat-tail joints in single strand conductors / married and 'T' (Tee) joint in stranded conductors.
- Solder and de-solder the finished copper conductor joints with precaution.
- Demonstration & identification of Trade hand tools. Use, care & maintenance of various hand tools.
- Practice on using cutting pliers, screwdrivers etc. skinning the cables, and
- Practice on joining a single strand. Practice on bare conductors joints—Viz.

Britannia, straight, Tee, Western union.

- Identification of different types of cables.
- Practice on using standard wire gauge.
- Practice on crimping thimbles, Lugs.
- Practice on checking of cables and conductors, insulation

Module No. 3: Basic electrical connection

Outcome: Analyse, demonstrate and test basic electrical connection

Theory Content:

- Verify the characteristics of series, parallel and its combination circuit.
- Test single phase voltage using test lamp.
- Measure Voltage, current and resistance.
- Test domestic wiring installation by using Megger.
- Draw wiring of house . Practice of common domestic wiring

Practical Content:

- Test single phase voltage using test lamp.
- Measure current, voltage in a single phase system.
- Demonstrate the types of fuses, their ratings and applications and also to identify the parts of a MCB, ELCB and RCCB.
- Earthing – check installation of earthing system and test of earthing system.
- Installation of single phase Energy meters and taking reading.

Module No. 4: Erecting and dismantling of scaffolds

Outcome: Describe the process of erecting and dismantling of 3.6 Meters Scaffolds

Theory Content:

- Explain the importance of PPE and safety gadgets required for scaffold erection and dismantling.
- Discuss how to prepare a compacted and leveled surface to ensure scaffold stability.
- Demonstrate the procedures for shifting, stacking, and placing materials, including base plates and sole boards.
- Outline the steps for erecting a scaffold up to 3.6 meters.
- Describe the correct installation of walk-boards, guard rails, and toe-boards for safety.
- Review the standard procedures for dismantling scaffolds, including cleaning, stacking.

Practical Content:

- Correctly use PPE and safety gadgets during scaffold erection and dismantling.
- Prepare the ground by compacting and leveling the surface to create a stable base for the scaffold.
- Shift, stack, and place base plates, sole boards, and other materials at designated locations.
- Erect a scaffold up to 3.6 meters, ensuring it remains vertical and stable at each level.
- Install walk-boards, guard rails and toe-boards.
- Dismantle the scaffold following proper sequence, clean and stack components.

Module No. 5: Earthing installation

Outcome: Plan and prepare Earthing installation

Theory Content:

- Describe the necessity of earthing and protective devices.
- Describe the details of pipe and plate earthing.
- Explain the different types of fuse, MCB,RCCB,ELCB

Practical Content:

- Install the pipe earthing and plate earthing and test it.
- Demonstrate the earth resistance and measure it.

Module No. 6: Electrical Wiring System

Outcome: Assemble, install and test wiring system

Theory Content:

- Describe the safety rule while electrical wiring.
- Procedure for mounting of energy meter board
- Draw and wire up the consumers main board with ICDP switch and distribution fuse box in a house/building.
- Estimate the requirement for metal conduit wiring and wire up.
- Estimate the materials and wire up the lighting circuit for a PVC conduct wiring.
- Estimate the materials and wire up a lighting circuit for a corridor in metal conduit.
- Assembling process of Distribution boards.
- Describe the procedure for connection of tube light, LED light and other light connection

Practical Content:

- Practice on simple House wiring including installation of common electrical accessories Viz. fixing of switches, holders, plugs, etc. in T.W. boards. - Identification and use of wiring accessories; Connection of Calling Bell, Buzzer, Alarms, Light & Fan etc.
- Practice, Conduit wiring. Identification of conduits and accessories & their uses, cutting, threading & laying,
- Practice on Installation of conduit pipe wiring for lighting and power circuits on 230V with minimum to more number of points. Use of two way switches.
- Testing of insulation by two lamp methods & megger. Making of test boards & extension boards. Fitting fixing of suitable rated fuses & MCB
- Identify the accessories for connection of tube light, LED light and other electrical light.
- Connect the single twin tube F.L.

Distribution Boards Assembling

- Draw single line diagram before assemble
- Use personal protective equipment (PPE) like gloves and safety glasses.
- Calculate the total electrical load to select the right panel size.
- Gather all necessary tools such as screwdrivers, pliers, wire cutters, voltage tester and components before installation.
- Install required fixtures like power sockets, switches, wires, MCBs(Miniature Circuit Breakers) of appropriate specification as per circuit load requirement
- Connect neutral and earth links.
- Mount the panel securely on the wall or structure.
- Wire the incoming power supply to the main circuit breaker.
- Connect each circuit to the corresponding breaker.
- Double-check all connections for security and correctness.
- Test circuits to ensure proper functionality.
- Regularly inspect and maintain the panel for safety and efficiency

Module No. 7: Temporary Electrical connection

Outcome: Plan and execute temporary electrical connection to a working site

Theory Content:

- Identify materials required for temporary electrical connection
- Temporary connection- cleat wiring, conduit wiring.

Practical Content:

- Lay cables through ducts, conduits, underground or overhead as per instructions.
- Choose and install lights as per required illumination.
- Fix lights and accessories using screws, bolts and secure wiring through conduits to connection points.
- Extend or splice LV cables securely using insulation tapes or caps for protection.
- Repair / replace light fixtures as required.
- Conduct tests to identify power interruptions or continuity issues in lighting.
- Replace damaged cables and other components as necessary.

Module 8: OJT

Outcome: Work in real job situation with special emphasis on basic safety and hazards in this domain

Practical Content:

Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for **60 Hours**.)

Module 9: Employability Skills (60 Hrs)**Key Learning Outcomes****Introduction to Employability Skills**

Duration: 1.5 Hours

After completing this programme, participants will be able to:

1. Discuss the Employability Skills required for jobs in various industries
2. List different learning and employability related GOI and private portals and their usage

Constitutional values - Citizenship

Duration: 1.5 Hours

3. Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
4. Show how to practice different environmentally sustainable practices.

Becoming a Professional in the 21st Century

Duration: 2.5 Hours

5. Discuss importance of relevant 21st century skills.
6. Exhibit 21st century skills like Self-Awareness, Behavior Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.

7. Describe the benefits of continuous learning.

Basic English Skills

Duration: 10 Hours

8. Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
9. Read and interpret text written in basic English
10. Write a short note/paragraph / letter/e -mail using basic English

Career Development & Goal Setting

Duration: 2 Hours

11. Create a career development plan with well-defined short- and long-term goals

Communication Skills

Duration: 5 Hours

12. Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
13. Explain the importance of active listening for effective communication
14. Discuss the significance of working collaboratively with others in a team

Diversity & Inclusion

Duration: 2.5 Hours

15. Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
16. Discuss the significance of escalating sexual harassment issues as per POSH act.

Financial and Legal Literacy

Duration: 5 Hours

17. Outline the importance of selecting the right financial institution, product, and service
18. Demonstrate how to carry out offline and online financial transactions, safely and securely
19. List the common components of salary and compute income, expenditure, taxes, investments etc.
20. Discuss the legal rights, laws, and aids

Essential Digital Skills

Duration: 10 Hours

21. Describe the role of digital technology in today's life
22. Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
23. Discuss the significance of displaying responsible online behavior while browsing, using various social media platforms, e-mails, etc., safely and securely
24. Create sample word documents, excel sheets and presentations using basic features
25. utilize virtual collaboration tools to work effectively

Entrepreneurship

Duration: 7 Hours

26. Explain the types of entrepreneurship and enterprises
27. Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
28. Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
29. Create a sample business plan, for the selected business opportunity

Customer Service

Duration: 5 Hours

30. Describe the significance of analyzing different types and needs of customers
31. Explain the significance of identifying customer needs and responding to them in a professional manner.
32. Discuss the significance of maintaining hygiene and dressing appropriately

Getting Ready for apprenticeship & Jobs

Duration: 8 Hours

33. Create a professional Curriculum Vitae (CV)
34. Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
35. Discuss the significance of maintaining hygiene and confidence during an interview
36. Perform a mock interview
37. List the steps for searching and registering for apprenticeship opportunities

Learning Outcome – Assessment Criteria

Module No.	Outcome	Assessment Criteria
1	Apply Safe Working Practices	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 1.1 Apply and maintain Safe Working Practices 1.2 Recognize any unsafe situations according to site policy. 1.3 Identify fire and safety and fire hazards 1.4 Identify different fire extinguishers and use them as per requirements.
2	Make electrical wire joints & soldering	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 2.1 Make simple straight twist and rat-tail joints in single strand conductors / married and 'T' (Tee) joint in stranded conductors. 2.2 Solder and de-solder the finished copper conductor joints with precaution. 2.3 Follow the safety/ precaution during joints & soldering. 2.4 Identify trade hand tools 2.5 Identify different types of cables & their standard wire gauge. 2.6 Check insulation of cables
3	Analyse, demonstrate and test basic electrical connection	<p>After completion of this module students will be able to:</p> <ol style="list-style-type: none"> 3.1 Identify types of wires, cables and verify their specifications. 3.2 Verify the characteristics of series, parallel and its combination circuit. 3.3 Measure Current, Voltage and Resistance in a single phase supply / load. 3.4 Identify the phase, neutral and earth in a single phase supply.

Module No.	Outcome	Assessment Criteria
4	Describe the process of erecting and dismantling of 3.6 Meters Scaffolds	<p>After completion of this module students will be able to:</p> <p>4.1 Use PPE and safety gear correctly during scaffold work.</p> <p>4.2 Prepare the ground by compacting and leveling it well.</p> <p>4.3 Handle and place base plates, sole boards, and materials properly.</p> <p>4.4 Build a 3.6-meter scaffold.</p> <p>4.5 Install walk-boards, guard rails and toe-boards correctly.</p> <p>4.6 Take down the scaffold in order.</p> <p>4.7 Clean and stack parts neatly.</p>
5	Plan and prepare Earthing installation	<p>After completion of this module students will be able to:</p> <p>5.1 Install the pipe earthing / plate earthing</p> <p>5.2 Test the pipe earthing / plate earthing</p> <p>5.3 Measure earthing resistance.</p> <p>5.4 Identify different types of fuse, MCB,RCCB,ELCB</p>
6	Assemble, install and test wiring system & lighting arrangement	<p>After completion of this module students will be able to:</p> <p>6.1 Perform the wiring with the safety rules.</p> <p>6.2 Prepare and mount the energy meter board.</p> <p>6.3 Draw and wire up the consumers main board with ICDP switch and distribution fuse box in a house/building.</p> <p>6.4 Demonstrate the types of fuses, their ratings and applications and also identify the parts of a MCB, ELCB and RCCB.</p> <p>6.5 Estimate the requirement for metal conduit wiring and wire up.</p> <p>6.6 Estimate the materials and wire up the lighting circuit for a PVC conduit wiring.</p> <p>6.7 Estimate the materials and wire up.</p> <p>6.8 Alighting circuit for a corridor in metal PVC conduit.</p> <p>6.9 Test a domestic wiring installation by using Megger.</p> <p>6.10 Connect tube light, LED light and other electrical light.</p> <p>6.11 Assemble and connect a single twin tube F.L.</p> <p>6.12 Prepare a single line diagram for distribution board</p> <p>6.13 Calculate the total electrical load</p> <p>6.14 Install the correct panel size</p> <p>6.15 Install and connect components correctly,</p>

Module No.	Outcome	Assessment Criteria
		including power sockets, switches, MCBs, and wiring. 6.16 Securely mount the panel 6.17 Verify all connections, test circuits for functionality
7	Plan and execute temporary electrical connection to a working site	After completion of this module students will be able to: 7.1 Select required materials for temporary connections. 7.2 Lay cables as instructed through ducts, conduits, or overhead/underground. 7.3 Install lights for specified illumination levels. 7.4 Securely fix lights and accessories using appropriate fasteners. 7.5 Extend or splice LV cables safely with proper insulation. 7.6 Troubleshoot and repair power or continuity issues in lighting. 7.7 Replace damaged cables and fixtures as necessary.
8	OJT	Assessor will check report prepared for this component of Practical training of the course and assess whether competency has been developed to work in the real job situation with special emphasis on basic safety and hazards in this domain. (The trainee is expected to undertake work in actual workplace under any supervisor / contractor for 60 Hours.)
9	Employability Skill	As per guided curriculum

List of Tools, Equipment & materials needed for 30 Trainees (Practical)

Sl.no	Tools/Equipment	Specification	QTY
1	Steel rule	300mm	30
2	Screw Driver	200mm	30
3	Screw Driver	100mm	30
4	Terminal screw Driver	75 mm (Connector)	30
5	Knife Electrician	D.B.	30
6	Hammer Ball peen.	0.25 Kg	30
7	Plumb bob	115grams	30
8	Combination pliers insulated	200 mm	30
9	Neon tester pencil bit type	500 volt	30
10	Try square	200 mm	30
12	Spanner set DE	Set of 6 from 6x7 to 16x7	30

Sl.no	Tools/Equipment	Specification	QTY
13	Screw driver set (set of 5)	100-300 mm	30
14	File half round 2nd cut	250 mm	30
15	File round 2nd cut	150 mm	30
16	Soldering iron	60 w/230 v	30
17	Neon tester	230 v	30
18	Drill bit	6mm, 8mm & 10 mm	6
19	Rubber matting	2 meter x 1 meter x 9mm	2
20	Wiring board on stand	3 meter x1 meter with 0.5 meter projection on the top	15
21	Fire extinguishers	Dry chemical 5 Kg	2
22	Set of Rowel punch	8,10mm	16
23	Center punch	100mm	2
24	Combination pliers insulated	200 mm insulated	30
26	Bradawl	150 mm X 6mm square pointed	30
28	wooden mallet	1kg.(75mm x15mm)	6
29	Pliers side cutting insulated	200mm	5
30	Pliers flat nose insulated	150mm	5
31	Pliers round nose insulated	200mm	5
32	Pliers long nose insulated	200mm	5
33	Screw driver heavy duty	200mm	2
34	Screw driver heavy duty	300 mm	5
35	Firmer chisel	1"	10
36	Firmer chisel	J4 "	5
37	Hammer Ball Peen	0.50 kg.	5
38	Wire stripper	150mm	5
39	Hammer Ball Peen	1.00 kg	5
40	Hammer cross Peen	0.50 kg.	5
41	Rawal tool holder & Bit	No.8, 10, 14, & 16	2
42	Adjustable spanner	300mm	1
43	Bench vice	150mm	5
44	Rubber gloves	5000volts	2
45	Multi meter	0-5, 100, 200, 500 milli amperes 0-100-1000, 10000 amperes; ohms.kilo ohms, mega ohms.; 0-150, 300, 600 V AC/DC	4
46	Electrical power drilling machine	12mm, capacity 250 volts universal type	1
47	Megger (Insulation tester)	500 volts	2
48	Voltmeter M.I. multi-range	0-150, 300, 600 V	2
49	Voltmeter M.I. multi-range	0-50, 75, 150 V	1
50	Ammeter M.I.	0-5Amp. Panel board type	2
51	Ammeter M.I	0 - 10 Amp. panel board mounting type	1
52	Ammeter M.I	0 - 10 Amp. panel board mounting type	1
53	Single phase K.W.H meter digital	5A, 250 V A.C.	2
54	Single phase K.W.H meter analog	5A, 250 V A.C.	2
55	Clamp on ammeter	0-25A,0-200A	1
56	Watt meter Dynamo meter type	5 Amps.300 volt, 2.50 kw	1

Sl.no	Tools/Equipment	Specification	QTY
57	Tachometer digital type	Non contact type 0-6000 RPM	1
58	Miniature circuit breaker(MCB)	240V/ 6 Amps	2
59	Earth leakage circuit breaker (ELCB)	240V/25mA	2
60	Metal clad circuit breaker (MCCB)	240V/1A	2
61	PPE kit		30
62	PVC insulation tape Measuring devices		5
63	Lighting units (Bulbs, Halogen sets etc.)		10
64	Lighting fixtures (holders, buckets, clamps, brackets etc.)		10
65	Plugs & tops, Fuses, Screws and nuts		15 each

Marks Distribution

Outcome	Outcome code	Total Th marks	Total Pr marks	Total OJT marks
Apply Safe Working Practices	CON/0805/OC1	10	80	0
Make electrical wire joints & soldering	CON/0805/OC2	20	80	0
Analyse, demonstrate and test basic electrical connection	CON/0805/OC3	20	80	0
Describe the process of erecting and dismantling of 3.6 Meters Scaffolds	CON/0819/OC1	20	80	0
Plan and prepare Earthing installation	CON/0805/OC4	30	100	0
Assemble, install and test wiring system & lighting arrangement	CON/0819/OC2	20	130	0
Plan and execute temporary electrical connection to a working site	CON/0819/OC3	30	100	0
Work in real job situation with special emphasis on basic safety and hazards in this domain (OJT).	CON/0819/OC4	0	0	150
Employability Skills – 60 Hrs	DGT/VSQ/N0102	50	0	0