

WIREMAN – CONTROL PANEL

CURRICULUM/SYLLABUS

This program is aimed at training candidates for the job of a “Wireman – Control Panel”, in the “Electronics” Sector, “Industrial Electronics” Sub-Sector and aims at building the following key competencies amongst the learner:

1. Understanding work requirement	5. Interacting with supervisor
2. Wiring the control panel	6. Interacting with colleagues
3. Reporting to superior	7. Following safety measures and standards
4. Achieving productivity, quality and safety standards	8. Maintaining good health and posture

This course encompasses 3 out of 3 National Occupational Standards (NOS) of “Wireman – Control Panel (QPC: ELE/Q7302)” Qualification Pack issued by “Electronics Sector Skill Council”.

S. No	Topic/Module	Duration (in Hours)	Key Learning Outcomes	Corresponding NOS Code
1	Understanding Basics of Electrical & Electronics.	36	<ul style="list-style-type: none"> • Understanding Concepts of Current, Voltage, Power Factor & Power, Ohms Law / Kirchhoff’s laws • Understanding AC & DC Current & Voltage. Concept of Line & Neutral, Concept of 1-ph (L-N) & 3- ph (RYB - N) • Using Diodes, Triodes, Transistors, Resistors, Capacitors, Inductors, LEDs, Thermistors etc • Using Push Buttons, Indicating Lamps, Selector/Key Switches • Understanding Transformers (CT/PT), Voltmeter, Ammeter, Energy meter, Terminal Blocks & Din Rails • Understanding Concept of Relays and Contactors (NO/NC) • Using Power Supplies, Earthing & Grounding • Using Shielded & Unshielded Cables, Cable Gauges & AWG sizes, IS standards for Colour Codes & Application • Understanding Electrical Circuits (Series / Parallel) • Understanding Daisy Chain & Point to Point Networking • Using Star & Delta Connections, Bus Bars, Line chokes & Capacitors, ISA Symbols 	ELE/N7302

2	Wiring Drawings of Control Panels	15	<ul style="list-style-type: none"> • Reading AutoCAD drawings of Wiring • Understanding Basic AutoCAD Commands 	ELE/N7302
3	Electrical Safety	6	<ul style="list-style-type: none"> • Use of Rubber soled Shoes, Gloves and Goggles • Understanding :- <ul style="list-style-type: none"> ○ Conductivity of Water ○ MCBs, ELCBs, Fuses, SFUs ○ Earthing Pit ○ Earthing Plates & Strips 	ELE/N7302
4	Tools & Equipment	12	<ul style="list-style-type: none"> • Using a Multi-meter for Current, voltage (AC/DC), Resistance & Continuity measurements • Using a tester • Using a Tong-Tester • Using Pliers and Wire Stripper • Screw Driver Set (All terminal types) • Use of Allen Key Set • Using a Power Drill (Drill bits) • Using Insulation Tape • Using Wire Lugs • Using a soldering Iron • Using a Megger • Using Wrenches, Hammer, Wire bender etc • Using a Ladder 	ELE/N7302
5	Wiring a Control Panel	20	<ul style="list-style-type: none"> • Determining BOQ of Components • Checking received material for specifications as per drawing. • Creating Channel layout • Selecting the correct Conductor • Testing for Shorts / Continuity • Cutting required lengths • Using Ferrules & Cable lugs • Terminal Tightening Torque • Checking the circuits • Dressing the Cables • Using Cable Glands (Single Compression /Double Compression) 	ELE/N7302
6	Identifying Faulty Components	10	<ul style="list-style-type: none"> • Testing Power Supply • Testing CT/PT • Testing Relays & Contactors • Testing Pushbuttons, Indicating Lamps & Selector Switches • Testing Voltmeter, ammeter & Energy meter • Troubleshooting of Control Panels 	ELE/N7302
7	Basic PLC & HMI Components	16	<ul style="list-style-type: none"> • Understanding :- <ul style="list-style-type: none"> ○ Components of a PLC system 	ELE/N7302

			<ul style="list-style-type: none"> ○ Types of I/Os (Analog, Digital, HS Pulse) ○ Wiring for I/Os ○ Source and Sink Connections ○ Testing of I/O Terminations (Point Testing) ○ HMI Wiring & mounting 	
8	Fundamentals of Motors , Generators & Starters	12	<ul style="list-style-type: none"> ● Understanding :- <ul style="list-style-type: none"> ○ Motors and Generators ○ Slip ring Induction Motor ○ Squirrel Cage Induction Motor ○ DOL Starter ○ Star / Delta Starter 	ELE/N7302
9	Basics of AC Drives & Soft starters	12	<ul style="list-style-type: none"> ● Understanding :- <ul style="list-style-type: none"> ○ Components of a AC Drive system ○ Types of VFD Control Terminals ○ Wiring for I/Os ○ Components of a Soft starter ○ Types of Soft starter Control Terminals ○ Wiring for I/Os 	ELE/N7302
10	Professional Skills	6	<ul style="list-style-type: none"> ● Reading Job sheets ● Preparing indents, invoices and Maintenance logs ● Using MS Excel & MS Word for Record keeping ● Preparing As-built documentation, Ferrule list ● Sharing and delegation of Tasks ● Preparing Task Reports 	ELE/N7302
11	Co-ordination & Communication Skills	6	<ul style="list-style-type: none"> ● Preparing Service Reports ● Preparing Delivery Documentation ● Preparing Minutes of Meeting ● Managing Team Members ● Managing Time Targets & Commitments to Customers ● Preparing faulty parts report ● Understanding Material Workflow (Stores to Production) ● Writing e-mails ● Understanding Principles of 5S & Kaizen 	ELE/N9962
12	Workplace Health & Safety	6	<ul style="list-style-type: none"> ● Understanding Safety Policy ● Using Fire & Hazardous chemicals handling ● Incident Reporting ● Using Fire Extinguishers A,B,C, ABC ● ESD Procedures for handling electronic components ● Use of Safety Helmets, Ear plugs, Shoes, Gloves, goggles & Safety harnesses. ● Using First aid for Electrical Shock & Burn 	ELE/N9963

			<p>victims</p> <ul style="list-style-type: none"> • Fire Drills & Evacuation procedures • Use of helmet & Respect for Traffic rules • Understanding Health Policy • Understanding Posture, exercise & diet 	
13	Workplace Asset Management	3	<ul style="list-style-type: none"> • Creating Tool list & Storage of tools • Calibrating Measuring instruments • Managing Tool Crib library 	ELE/N9963

Total Programme Duration: **160 Hours**