

## Trades Details Summary

Trade Name	Description	Duration (Days)
<b>Instrument Mechanic (Electrical &amp; Electronic)</b>	<b>To give Technical Training in Instrument Mechanic (Electrical &amp; Electronics)</b>	<b>18</b>

### Theory (Instrument Mechanic (Electrical & Electronic))

Topic	Keylearning Outcomes	Equipment Required	Duration
Orientation Programme & Introduction about Entrepreneurship	<ul style="list-style-type: none"> <li>• Entrepreneur, Entrepreneurship and Enterprise</li> <li>• Scheme &amp; Types of Entrepreneurship</li> <li>• Importance of Entrepreneurship</li> <li>• Entrepreneurship Opportunities &amp; Challenges</li> <li>• Startup Business</li> <li>• Cash Flow</li> <li>• Incubation Centre like DIC &amp; IIT (BHU)</li> </ul>	Power point Presentations	2:0
Instrument safety & Knowledge about PPEs	<ul style="list-style-type: none"> <li>•What is Safety?</li> <li>•Awareness about General Safety.</li> <li>•Instrumental &amp; Electrical Safety.</li> <li>•Use of PPEs.</li> <li>•Advantages of Safety.</li> <li>•Do's &amp; Don'ts.</li> </ul>	Power point Presentations	2:0
Introduction of Instrument Mechanic trade	<ul style="list-style-type: none"> <li>•Brief about Instrument Mechanic Trade.</li> <li>•Introduction of Instrument Mechanic.</li> <li>•Common symbols used in electrical and electronic circuit diagrams.</li> <li>•Knowledge about Resistance, Inductance, capacitance &amp; Diodes.</li> </ul>	Power point Presentations	2:0
Effective Communication	<ul style="list-style-type: none"> <li>•Subordinates.</li> <li>•Peers.</li> <li>•Superiors.</li> <li>•Customers.</li> </ul>	Audio-Video	5:0
Introduction to electrical measuring instruments	<ul style="list-style-type: none"> <li>• Introduction to electrical measuring instruments, classification of meters, working principles and operation of different types of meters such as ammeters, voltmeters, ohmmeters, multi-meter and its effective use.</li> <li>• Working and operation of different types instrument used for measurement of Frequency, power, power factor, energy and its effective use.</li> <li>• Basic working of various electrical system parts like battery &amp; other instruments.</li> <li>• Working of Digital Multimeter, Cable Insulation Tester, Hydrometer, Clamp Meter.</li> <li>• Standards, calibration, record keeping and periodicity.</li> </ul>	Power point Presentations	6:0
Registration of participants	Self-declaration of Covid-19: measures & guidelines Participants' Profile. Describe the role of an Instrument Mechanic	White Board, Pen	2:0
Semiconductor	<ul style="list-style-type: none"> <li>•Basic idea of Diodes</li> <li>•Forward and reverse bias of Diodes.</li> <li>•Basic idea of Transistors.</li> </ul>	Power point Presentations	6:0
Fundamentals of Net working	<ul style="list-style-type: none"> <li>•Types of networks used in digital Instrument systems. LAN, WAN, Ethernet.</li> <li>•Types of Cable categories (CAT) and their descriptions. Various types of Cable connectors various tools used in networking.</li> </ul>	Power point Presentations	6:0
Financial Management	<ul style="list-style-type: none"> <li>• Financial Management</li> <li>• Resources / Fund availability by Bank</li> <li>• Loan Scheme like Mudra Loan</li> </ul>	Power point Presentations White Board, Demonstration Kit	2:0
Doubt Clearing	<ul style="list-style-type: none"> <li>•Feed Back.</li> <li>•Group discussion</li> </ul>	Power point Presentations, White Board	2:0
First Aid	<ul style="list-style-type: none"> <li>•Electrocution.</li> <li>•Cut.</li> <li>•Bleeding.</li> <li>•Faint.</li> <li>•Bandage.</li> <li>•Resuscitation.</li> <li>•Ambulance.</li> </ul>	Audio-Video	4:0
Material Handling	<ul style="list-style-type: none"> <li>•Movement of Raw Material.</li> <li>•Movement of Finished Material.</li> <li>•Waste Segregation.</li> <li>•Cleanliness.</li> <li>•Stacking.</li> </ul>	Audio-Video	3:0
Valedictory	<ul style="list-style-type: none"> <li>•Work Ethics.</li> <li>•Personal Financial Planning.</li> <li>•Health.</li> </ul>	Power point Presentations, White Board	2:0

### Practical (Instrument Mechanic (Electrical & Electronic))

Topic	Keylearning Outcomes	Equipment Required	Duration
Testing of Diodes & Transistors	<ul style="list-style-type: none"> <li>•Identification, rating, testing of Diodes</li> <li>•Demonstration of Diodes,</li> <li>•Rectifiers such as Bridge Types</li> <li>•Identification, rating, testing of transistors.</li> <li>•Demonstration of Simple PCB</li> </ul>	Multi-meter, Diode, Transistors, Lead, Wires & personal protective equipment	12:0

Measurement of Passive & Active Components	<ul style="list-style-type: none"> <li>•Use &amp; Measurement of Resistance, capacitance and Inductance.</li> <li>•Use &amp; Measurement of Diodes</li> <li>•Series- Parallel Combination of Passive components such as Resistance.</li> <li>•Resistor-definition, types of resistors, their construction &amp; specific use, color coding, Power rating.</li> <li>•Equivalent Resistance of series &amp; parallel circuits.</li> <li>•Calculation of inductance, inductive reactance, Capacitance and Capacitive Reactance.</li> <li>•Types of capacitor, specifications and its applications.</li> <li>•Series - parallel connection of capacitors.</li> </ul>	Resistor, Inductor, capacitor, Ammeter, Voltmeter, Wattmeter, Multi-meter, Lead, Wires & personal protective equipment	10:0
Measurement of various electrical parameters	<ul style="list-style-type: none"> <li>•Connection of Various meters in Series &amp; parallel</li> <li>•Measurement of Current, Voltage, Power etc. with connections of Ammeter, Voltmeter, Wattmeter etc.</li> <li>•Calibration, record keeping &amp; sticker.</li> <li>•Measurement of Current by Clamp meter/ Multimeter, measurement of specific Gravity of Electrolyte by Hydrometer and Insulation Resistance measurement by Megger/Cable Insulation Tester. Earth/Ground resistance by Earth value tester.</li> </ul>	Ammeter, Voltmeter, Wattmeter, Multi-meter, Lead, Wires, Hydrometer, Clamp meter, Cable Insulation Tester Megger, Earth Resistance tester & personal protective equipment	10:0
Checking of components / Instruments & their Calibration	<ul style="list-style-type: none"> <li>•Familiarization with the instruments construction, Overhauling.</li> <li>•Testing &amp; calibration of instrument use for measuring voltage, current, frequency, power, power factor and energy.</li> </ul>	Ammeter, Voltmeter, Wattmeter, Multi-meter, Lead, Wires & personal protective equipment.	12:0
Network cables and Connectors	<ul style="list-style-type: none"> <li>•Preparation of network cables and connectors</li> <li>•Testing network cables</li> </ul>	CAT-6 cable, Casing capping, PVC Pipe, RJ 45 connector, Personal Protective Equipment (PPE*).	12:0