

## Trades Details Summary

Trade Name	Description	Duration (Days)
<b>Refrigeration &amp; AC</b>	<b>To give technical training in Refrigeration &amp; Air Conditioning trade</b>	<b>18</b>

### Theory (Refrigeration & AC)

Topic	Keylearning Outcomes	Equipment Required	Duration
First Aid	• Electrocutation • Cut • Bleeding • Faint • Bandage • Resuscitation • Ambulance	Audio-Video	2:0
Financial Management	• Financial Management • Resources / Fund availability by Bank • Loan Scheme like Mudra Loan	Presentations, Trainer's Guide	2:0
R & AC safety & Knowledge about PPEs	• Causes of Accidents • Awareness about General Safety & Various Safety Signs • R&AC Safety • Use of PPEs: Hand Gloves, Safety Goggles, Helmets, Apron, Ear plugs •First Aid	Presentations, Trainer Guide, personal protective equipment (PPE).	2:0
Registration of participants	•COVID Declaration • Participants Profile • Describe the role of a R&AC technician	White Board	2:0
Introduction to R&AC Trade	• Definition of R&AC • History of Refrigeration of Air-conditioning • Purpose of refrigeration • Importance of R&AC • Unit of Refrigeration • Fire fighting Equipments	Presentations, Trainer Guide	2:0
Refrigeration tools	• Tube Cutter • Flaring Tools • Tube Bender • Gas Manifold • Swaging Tool • Punch set • Pinching Tool • Pressure and Compound Gauge	Presentations, Trainer Guide	2:0
Fitting tools	• Cutting Tools • Marking Tools • Striking Tools • Holding Tools • Drilling Tools	Presentations, Trainer Guide	2:0
Measuring Instrument	• Measuring Tape • Steel Rule • Vernier Calipers • (a) Parts and purpose • (b) Least Count • (c) How to read and take measurement • Micrometer (a) Parts and purpose (b) Least Count (c) How to read and take measurement	Presentations, Trainer Guide, personal	2:0
Basic Electrical Concepts	• Voltage • Electric current • Resistance • Electric Power • Electrical Safety	Presentations, Trainer Guide,	2:0
Welding Techniques	•Definition of Welding •Different types of welding processes and associated equipment. • Importance of Welding • Uses of Welding • Gas Cutting & Welding •Soldering •Brazing	Presentations, Trainer Guide, personal protective equipment (PPE).	2:0
Refrigeration system	• Vapour Compression Refrigeration system. • Vapour absorption Refrigeration system	Presentations, Trainer Guide, personal protective equipment (PPE).	3:0
Refrigerators	• Components of Domestic Refrigerators • Hermetically Sealed Compressor • Condenser • Drier & Filter • Capillary Tube • Accumulator	Training Kit (Presentations, Trainer Guide), personal protective equipment (PPE).	2:0
Air-conditioner	•Window air- conditioner •Spilt Air-Conditioner	Training Kit (Presentations, Trainer Guide), personal protective equipment (PPE).	2:0
Refrigerants	• Desirable property • Classifications of Refrigerants • Environment Impacts of Refrigerants • Globe Warming • Ozone Depletion	Training Kit (Presentations, Trainer Guide), personal protective equipment (PPE).	2:0
Doubt Clearing	• Feed Back • Group discussion	Presentations, White Board	2:0
Valedictory	• Work Ethics • Personal Financial Planning • Health	Presentations, White Board	2:0
Material Handling	• Movement of Raw Material • Movement of Finished Material • Waste Segregation • Cleanliness • Stacking	Audio-Video	3:0
Effective Communication	• Subordinates • Peers • Superiors • Customers	Audio-Video	5:0

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>	Presentations, Trainer's Guide	2:0
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### Practical (Refrigeration & AC)

Topic	Keylearning Outcomes	Equipment Required	Duration
R&AC Practical	Use of simple marking and measuring tools to file and squaring of a given Job as per Drawing.	MS plate, flat files, calipers, steel rule and try square	5:0
R & AC Practical	Cutting, Swaging and Flaring of Copper/ aluminum tubes & Brazing of tube joints.	Copper & aluminum tubes, Tube cutter, swaging tool, Pinching tool, Butane Gas cylinder, Filler Rod, Flux, Vernier Caliper & steel rule	5:0
R & AC Practical	<ul style="list-style-type: none"> <li>• Measurement of Current.</li> <li>• Measurement of Voltage.</li> <li>• Measurement of Power.</li> </ul>	Ammeter, Voltmeter, Wattmeter, Multi-meter, Digital Clamp Meter, Lead, Wires & personal protective equipment	5:0
R & AC Practical	Practical Exposure to a Simple Vapour compression system in Ice Candy Plant Working Model.	Ice Candy Plant Model working model, Compound Gauge & Refrigerant.	8:0
R & AC Practical	Dismantling, Servicing and testing of reciprocating / Rotary compressor.	Reciprocating / Rotary compressor, Set of Sockets, Allen keys & Spanners, set of screw drivers, pliers, compressor oil & pressure gauge.	8:0
R & AC Practical	Servicing of condenser & evaporator of an Air-Conditioning system.	Window & Split AC Tube cutter, Swaging tools, Flaring tools, Butane gas cylinder, socket & spanners, Cleaning agent.	8:0
R & AC Practical	Servicing of a Refrigerated Cabinet, Checking of inside liner & Door liner.	Model of a Refrigerated Cabinet, Digital clamp meter, Compound gauge, Tube cutter, Swaging and Flaring tools, Refrigerant.	8:0
R & AC Practical	Checking Window & Split type Air-conditioner, Fault finding, Servicing & Testing.	Window & Split Air-conditioner, Tube cutter, Swaging tools, Flaring tools, Butane gas cylinder, Filler rod, Flux, socket & spanner set, Soap solution, Compressor, Vacuum pump, Compound gauge & charging lines.	10:0