

**SYLLABUS
FOR
SHORT-TERM COURSE**

IN

BASIC REFRIGERATION AND AIR CONDITIONER

UNDER

**STATE COUNCIL FOR VOCATIONAL TRAINING (SCVT)
DEPARTMENT OF TECHNICAL EDUCATION VOCATIONAL
& INDUSTRIAL TRAINING HIMACHAL PRADESH,
SUNDERNAGAR.**

BASIC REFRIGERATION AND AIR CONDITIONER

This program is aimed at training candidates for the job of a "BASIC REFRIGERATION AND AIR CONDITIONER" in the "CONSTRUCTION" Sector/Industry and aims at building the following key competencies amongst the learner.

1. Pre-requisites to Training : 8th Class Pass or above from Recognized Board.
2. Batch Size/ Intake : 10 to 20 Trainees per Batch.
3. Course Duration : 150 Hours.

4. Introduction

R&AC worker has a significant role in repair & Installation of refrigerators, air conditioners & Water coolers System in homes, hospitals, hotels, industries & offices etc.

5. Objectives

At the end of the course the trainee shall be,

- a. able to do Assist in Mech. R&AC works for any structure,
- b. able to fix all sorts of Refrigerators fitting, AC Installation & Water Cooler Installation and their Repair /Servicing works,
- c. able to know the operation of tools.

6. Skills to be provided

- a. Handling and use of Mech. R&AC tools,
- b. Finding Defects/ problems and their remedies in Refrigerators, A.C. & Water Coolers and repairs.

7. Employment Opportunities

After completing the short term course the student can join with any Mechanic of R&AC, private hotels, hospitals and in industries as a Assistant Mech. R&AC to take care of all cooling cabinets system.

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Group Instructor
Govt. I. T. I. Ghumarwin (HP)



SYLLABUS FOR BASIC COURSE IN REFRIGERATION AND AIR CONDITIONER (DURATION 150 HOURS)

Practical	Theory	Hrs
<ul style="list-style-type: none"> * Familiarization With Workshop & Machineries Safety precautions. 	<ul style="list-style-type: none"> * Introduction to trade, General Safety Precautions & first aids. History of Refrigeration. 	5 Hrs
<p>Use of General fitting hand tools:</p> <ul style="list-style-type: none"> * Use of basic Measuring & Marking tools. * Practice of Cutting, Filing. * Practice of Drilling & Taping. 	<p>General fitting hand tools:</p> <p>Study of General fitting & Refrigeration & air Conditioning tools And Equipments, Specifications, Cutting, Filing, and Drilling & Taping.</p>	15 Hrs
<p>Basic Electrical:</p> <ul style="list-style-type: none"> * Use of basic Electrical tools and equipments. * Understanding AC & DC Supply. * Understanding Voltage, Current, Resistance. * Soldering & Brazing practice. 	<p>Basic Electrical:</p> <p>Study of basic Electrical tools and equipments, Electrical term such as AC & DC Supply, Voltage, Current, Resistance, Voltmeter, ammeter, Watt meter, Insulation & Electrical circuits.</p>	25 Hrs
<p>Basic Refrigeration & Air Conditioning:</p> <ul style="list-style-type: none"> * Use of basic Refrigeration tools and Equipments. * Practice of copper tube measuring, Marking. * Cutting, Reaming, flaring, Swaging. * Practice of copper to Copper, Copper to iron. Soldering & Brazing. * Working Demonstration of mechanical Refrigeration cycle. * Compressor Dismantling, Servicing, Gasket cutting, Lapping, assembling of Compressor. * condenser * Expansion device * Evaporator * Servicing of split & window air Conditioner. * Practice of Leak testing, evacuation & Gas Charging in Domestic Refrigerator. * Practice of Leak testing, evacuation & Gas Charging in Domestic Air Conditioner * Retrofitting of CFC filled Domestic Refrigerator With Hydrocarbons (HC) 	<p>Basic Refrigeration & Air Conditioning:</p> <ul style="list-style-type: none"> * Study of Basic Refrigeration & air Conditioning tools and equipments & Specifications. * Introduction to refrigeration Pipes, Soldering & Brazing copper to Copper, Copper to iron & Flare joints * Type of Refrigeration System, * Study Working mechanical Refrigeration cycle. * Working Principal of Refrigeration & Ton of Refrigeration. * Function, Construction, working, application of compressor & Types of compressor. * Function, Construction, working, application of condenser & Types of condenser. And its Servicing. * Study of Expansion valve used in refrigeration & A.C Systems, * Study of Evaporators valve used in Refrigeration & A.C Systems, * Study the construction & working of Domestic Refrigerator & Air Conditioner * Retrofitting: Study of retrofitting CFC to HC 	75 Hrs
<p>Centralised Air Conditioning/Package A.C</p> <ul style="list-style-type: none"> * Identifying various components of Centralised Air Conditioning/Package A.C * Trace the electrical circuits of Centralised Air Conditioning. 	<p>Centralised Air Conditioning/Package A.C</p> <p>Study of Centralised Air Conditioning/Package A.C system, types, working principal & construction.</p>	15 Hrs
<p>Automobile A.C.</p> <ul style="list-style-type: none"> * Repair and maintenance of car air conditioning system, Leak testing evacuation, & charge a new refrigerant. 	<p>Automobile A.C.</p> <ul style="list-style-type: none"> * Study of Automobile AC System its construction & Working, Magnetic clutch Operation. 	15 Hrs