

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/3
Branch	Refrigeration and Air-Conditioning			Semester	IV
Course Code	403	Course Name	Basics of Refrigeration and Air Conditioning		
Course Outcome 1	Calculate the COP of air refrigeration cycles			Teach Hrs	Marks
Learning Outcome 1	Explain the basic of air refrigeration cycles			8	10
Contents	Definition of Refrigeration, method of refrigeration, Law's of refrigeration, principles of refrigeration, unit of refrigeration, coefficient of performance, rating of refrigeration machines , difference between COP and efficiency, Comparison Of Heat Engine , Refrigerator And Heat Pump , solve simple numerical problem				
Method of assessment	Part of progressive 1 (Internal)				
Learning Outcome 2	Calculate the COP of Reversed Carnot Cycle and Bell Coleman Cycle for given conditions			8	10
Contents	Working of Reversed Carnot Cycle and Bell- Coleman Cycle for Refrigeration and their representation on PV-TS Diagram, Limitations, Major Application areas, Simple numerical problems				
Method of assessment	Theory exam (External)				
Learning Outcome 3	Draw Various Air Refrigeration Systems used in Aircraft			8	10
Contents	Simple Cooling, Bootstrap cooling, Reduced Ambient and Regenerative Air Refrigeration Systems. Their Schematic Arrangement and T-S Diagram.				
Method of assessment	Term Work (Internal)				
Course Outcome 2	Analyze Given Vapor Compression Refrigeration System			Teach Hrs	Marks
Learning Outcome 1	Explain Working of Vapor Compression Refrigeration System			6	10
Contents	Components of Vapour Compression Refrigeration Cycle, Working of simple Vapour Compression Refrigeration Cycle With P-h & T-S diagram, Applications of Vapour Compression Refrigeration System, Merit and Demerits of Air refrigeration and Vapour Compression Refrigeration System				
Method of assessment	Theory exam (External)				
Learning Outcome 2	Calculate Cooling Capacity And Coefficient Of Performance for Given Situations			8	10
Contents	Dry, Wet, Superheated Compression , Effect Of Sub Cooling and Super Heating on the Cycle Performance, Effect of suction and discharge Pressure , Simple Problems With The Use Of Refrigeration Charts And Tables				
Method of assessment	Theory exam (External)				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 2/3
Branch	Refrigeration and Air-Conditioning			Semester	IV
Course Code	403	Course Name	Basics of Refrigeration and Air Conditioning		
Learning Outcome 3	Select Suitable Method for Performance Improvements of Simple Saturated Vapour Compression Refrigeration Cycle			7	15
Content	Types of improvement in Vapour compression cycle -Improvement by adding Flash Chamber, adding Accumulator, Sub cooling of liquid refrigerant by using Vapour of refrigerant, Sub cooling of liquid refrigerant by using Liquid refrigerant				
Method of assessment	Laboratory test by observation (External)				
Course Outcome 3	Explain Various Vapour Absorption Refrigeration Systems			Teach Hrs	Marks
Learning Outcome 1	Explain Working Principle of Vapor Absorption Refrigeration System			7	10
Contents	Explain Construction and Working of Simple Vapor Absorption Refrigeration System, Domestic Electrolux, Practical H ₂ O -NH ₃ Vapor Absorption Refrigeration System, Li-Br Absorption Refrigeration System, Solar Power Refrigeration System				
Method of assessment	Theory exam (External)				
Learning Outcome 2	Select Appropriate Refrigeration System From Vapour Compression Refrigeration, Vapor Absorption Refrigeration System And Solar Power Refrigeration System			5	10
Contents	Advantage and disadvantage also comparison of vapour absorption refrigeration system over vapour compression refrigeration system advantages and disadvantages of solar power refrigeration system over vapour compression system				
Method of assessment	Laboratory work (Internal)				
Course Outcome 4	Select Appropriate Refrigerant for Particular Application			Teach Hrs	Marks
Learning Outcome 1	Explain Various Refrigerants, Its Properties and Applications			7	10
Contents	Functions, Classification of Refrigerants, Nomenclature of Refrigerants, Desirable Properties of Ideal Refrigerant, Selection of Refrigerant, Properties and Applications of Commonly Used Refrigerants in Vapor Compression Refrigeration system.				
Method of assessment	Theory exam (External)				

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 3/3
Branch	Refrigeration and Air-Conditioning			Semester	IV
Course Code	403	Course Name	Basics of Refrigeration and Air Conditioning		
Learning Outcome 2	Suggest the Suitable Refrigerant in Current Scenario Regarding Environmental Contemporary Issues.			8	10
Contents	Refrigerants and Environmental issues, Ozone Depletion Potential (ODP) and Global Warming (GW), Montreal and Kyoto protocols, Total Equivalent Warming Index (TEWI), Alternative to existing CFC and HCFC Refrigerants. Future Industrial Refrigerants.				
Method of assessment	Theory exam (External)				
Course Outcome 5	Explain Basics of Air Conditioning			Teach Hrs	Marks
Learning Outcome 1	Define Basic Terms of Psychrometry			7	10
Content	Dry air ,moist air, Saturated air, Degree of saturation, humidity absolute humidity , relative humidity, dry bulb temperature, wet bulb temperature, dew point temperature, wet bulb depression ,dew point depression , psychometric chart and its uses.				
Method of assessment	Part of progressive 2 (Internal)				
Learning Outcome 2	Determine Various Air Properties Using Psychrometer And Psychrometric Chart			12	15
Contents	properties of moist air, Daltons law of partial pressure, Gibbs theorem psychometric relations, psychometry properties, specific humidity or humidity ratio degree of saturation, relative humidity pressure of water vapour vapour density, enthalpy of moist air, humid specific heat Sling psychrometere and its uses, Representation of Psychometric properties on chart (simple numerical using chart)				
Method of assessment	Laboratory test by observation (External)				
Learning Outcome 3	Plot and Interpret Various Air Conditioning Processes on Psychrometric Chart			8	10
Contents	Sensible Cooling ,Sensible Heating ,Humidification's , Dehumidification's, Cooling And Humidification's ,Cooling And dehumidification, Heating And Humidification's , Heating and dehumidification , By pass Factor, ADP				
Method of assessment	Theory exam (External)				
Learning Outcome 4	List & Identify Different Air Conditioning Systems with Relevant Auxiliary Components for Given Air Conditioning System			6	10
Contents	summer , winter and year round air conditioning ,industrial air conditioning Components used for air conditioning humidifier, dehumidifier ,cooling and heating coil, filters , air washer, Evaporative Cooler				
Method of assessment	Laboratory work (internal)				