

RGPV (DIPLOMA WING) BHOPAL		OBE CURRICULUM FOR THE COURSE		FORMAT-3	Sheet No. 1/3
Branch				Semester	4th Sem.
Course Code			Course Name	REFINERY AND PETROCHEMICAL ENGG. Refinery maintenance and safety	
Course Outcome 1	Use appropriate maintenance technique Refinery and petrochemical plants.			Teach Hrs	Marks
Learning Outcome 1	To understand importance of plant maintenance in Refinery and petrochemical industry			10	10
Contents	Maintenance - Introduction, concept of maintenance Need and Objective of plant maintenance, Functions and responsibility of maintenance department advantage and economic aspect of maintenance department, recent development in maintenance.				
Method of Assessment	External theory exam				
Learning Outcome 2	To understand different types of maintenance used in industry.			10	10
Contents	Types of maintenance . Online, breakdown, schedule, preventive and predictive maintenance and their advantages and disadvantages some important proforma related to maintenance.				
Method of Assessment	External theory exam				
CO-2	To understand organization structure of maintenance department and identify fault in and trouble short various refinery equipments.				

Learning Outcome -3	To coordinate among different departments of the organization.	10	10
Contents	Organization structure of maintenance department, control and coordination of various related functions, planning and schedule of maintenance activity, functional and types of store department.		
Method of Assessment	Internal Mid Sem Test-1		
Learning Outcome-4	To select suitable method to remove faults in various refinery equipments.	9	10
Content	Maintenance problems and remedy associated with piping systems, pumps, valves, heat exchangers, compressor, distillation column, boiler, blowers, evaporators and condenser.		
Method of assessment	External theory exam		
Course Outcome 3	To understand the concept of wear and lubrication and select appropriate lubrication system in industry.		
Learning Outcome 5	To minimise problems due to wear in petrochemical plants.	07	05
Content	Wear- Introduction, main symptoms of wear, problems due to wear, rate of wear, type and causes of wear, detection of wear.		
Method of assessment	External theory exam		
Learning Outcome 6	To select suitable lubricant exam used in industry.	10	10
Content	Lubrication - introduction, purposes of lubrication, classification & properties of lubricants, fluid, semi solid and		

	solid lubricants, selection of a suitable lubricant, general purpose lubricants and their applications.		
Method of assessment	External theory exam		
CO-4	To identify fire explosion and chemical hazards in refinery industry.		
Learning Outcome-7	To classify fire and understand terms related to fire in refinery industry.	08	05
Contents	Fire- Introduction to fire, fire triangle and fire tetrahedron, reasons of catching fire, classification of fire: class A,B,C,D and E. Terms related to fire. Flash and fire point, auto ignition temperature, lower and upper flammable limit.		
Method of assessment	External theory exam		
Learning Outcome 8	To select the appropriate method to prevent fire in refinery.	08	10
Contents	Fire extinguishers - carbondioxide and soda acid type, dry chemical foam type, carbon tetra chloride type, fire hydrant, sprinkler system, fire and gas detection system and their up keeping.		
Method of assessment	Internal Mid Sem Test-2		
Learning Outcome 9	To understand explosion and its prevention in refinery.	07	05
Content	Explosion - Introduction, classification of explosion, unconfined vapour cloud explosion, boiling liquid expanding vapour explosion (BLEVE) and its identification, on side and off side emergency plan. Prevention of explosion.		
Method of assessment	External theory exam.		

Learning Outcome 10	To identify and to prevent chemical hazards, in industry.	08	10
Content	Chemical hazards - identification and causes hazards control, first aid, safety factor applied to pressure vessels and storage tanks, handling of dangerous chemical substances.		
Method of assessment	Internal sessional/Quiz (Term work)		
CO-5	To utilize the basic concept of industrial safety in refinery.		
Learning of Outcome 11	To identify the causes of plant accidents and use appropriate technique to prevent accidents.	10	5
Content	Safety - Introduction causes and sources of accidents, general safety rules, personal protective device, colour coding for pipe lines, factory act 1948.		
Method of assessment	External theory exam		
Learning Outcome 12	To understand the role of safety organization in refinery and petrochemical industry.	10	10
Contents	Safety organization - introduction, objective of safety organization, safety committee, plant safety inspection, safety training, economic aspect of accidents, safety activities and general safety awareness.		
Method of assessment	External theory exam		