

Module Name (Chemical Engineering)	Total Hours
Campus to Chemical Plant <i>(Approved by Indian Institute of Chemical Engineers (Vapi Regional Center & Hubar Group India Pvt. Ltd., Vapi)</i>	30

Topic	Sub Topic	Hours	
		Theory	Practical
1. Working in Chemical Plant	1.1 Domains of Chemical Engineering 1.2 Job role & functions of Diploma Chemical Engineer 1.3 Organization Hierarchy & departments in Chemical Plant	01	00
2. Introduction to Plant Operations	2.1 Basic Concepts in Plant Operations	01	00
3. Anatomy of Industrial Pumps	3.1 Detailed parts and connections of a pump in chemical plant	01	00
4. Anatomy of Industrial Valves	4.1 Detailed parts and connections of a valve in chemical plant	01	00
5. Creation & Use of Plant Manuals	5.1 Components of Plant Manual 5.2 Case Study	01	00
6. Plant Operation - I	6.1 Concept of SOP & Plant Start Up & Shut Down 6.2 Case Study	02	00
7. Plant Operation - II	7.1 Concept of SOP & Emergency Response in Plant 7.2 Case Study	02	00
8. Plant Operation - III	8.1 Troubleshooting & Quality Control 8.2 Case Study	02	00
9. Automation in Chemical Plant	9.1 Tags & Calibration for Instrumentation 9.2 Operation of Plant Control Panel (PLC & DCS) 9.3 Auto / Manual modes 9.4 Alarms, Trip & Interlocks	02	00
10. Maintenance in Chemical Plant	10.1 General Maintenance of 10.2 Pump, Motor, Gear Box, Instruments & Sight glass, Gaskets, Plate type HE, Shell & Tube HE 10.3 Arc Welding & Gas Cutting	01	00
11. Inventory management	11.1 Case study 11.2 Working of Purchase & Store 11.3 MSL of inventory & spares	01	00
12. Basic Design Concepts and EPC in Chemical Industry	12.1 Introduction to design 12.2 Overview of Process Design, BEP, Simulation software 12.3 Determine pipe size 12.4 Determine motor rating for a pump 12.5 EPC overview	03	00

Topic	Sub Topic	Hours	
13. Unloading & Dispatch operations	13.1 Working of weigh bridge	01	00
	13.2 Unloading		
	13.3 Dispatch		
	13.4 Precautions		
14. Bulk Storage of Chemicals	14.1 Tankers	01	00
	14.2 Silos		
	14.3 Cylindrical Tanks		
	14.4 Pressure Capsules		
15. Basics of standard data tables and Property estimation using data tables	15.1 Need for standard data tables	01	00
	15.2 Source for standard data tables		
	15.3 Conversion factors, specific gravity, physical properties of substance ,vapor pressure, viscosity		
16. Steam table	16.1 Use of steam tables to predict thermodynamic properties	01	00
17. Operation maintenance and Inspection of heat exchangers and Shell & tube heat exchanger	17.1 Installation	01	00
	17.2 Operation		
	17.3 Maintenance and inspection		
	17.4 Testing		
	17.5 Improving operation performance		
	17.6 Installation, Operation &		
	17.7 Maintenance of shell & tube type heat exchanger		
18. Plate type heat exchanger	18.1 Installation, Operation &	01	00
	18.2 Maintenance of plate type heat exchanger		
19. Industry Expert Sessions	19.1 Technical talk delivered by industry professionals	04	00
Total		30	