	Dr. Vasantraodada Patil Shetkari Shikshan Mandal's Padmabhooshan Vasantraodada Patil Institute of Technology, Budhgaon Department of Chemical Engineering Mapping of Course Outcomes(COs) with Programme Outcomes (POs)														
Class: Fourth Year B.Tech Chemical Sem VII															
Sr. No.	Course Outcomes														
Subjec	t: BTCHC 701 Transport Phenomena Credits: 4	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Interpret Models for non Newtonian fluids and analyze the laminar flow for different systems using shell balance	3	3	3	3									3	3
CO2	Apply equations of change and analyze friction factor. Demonstrate the shell energy balance to determine temperature distribution.	3	3	3	3									3	2
CO3	Apply equations of energy in convection and quantify heat transfer coefficient for different systems.	3	3	3	3									3	2
CO4	Apply shell mass balance to determine concentration distribution and to correlate the analogy between momentum, heat and mass transport.	3	3	3	2								2	3	2
Subjec	t: BTCHC 702 Process Equipment Design and Drawing Credits: 2	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	To identify equipment and instruments based on symbols	2		2							3				2
CO2	To apply mechanical design aspects to process equipment	3		3										3	3
CO3	To apply process design aspects to the major chemical equipment	3		3										3	3
CO4	To design heat exchangers, evaporators, absorbers, distillation columns, reactors and filters.	3		3										3	3

	Class: Fourth Year B.Tech Chem	nical													
Subjec	t: BTCHE 703B Professional Elective IV Membrane Technology Credits: 3	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	To comprehend fundamental concepts and terminology related to membrane separation processes	2	1								1		1	2	1
CO2	To explain the principles and techniques involved in the preparation of various synthetic membranes	2	1	1		1					1		1	2	1
соз	To analyze the different driving forces and mechanisms governing solute transport across various membranes.	3	2	1	2	1					1		1	2	1
CO4	To evaluate and differentiate between various membrane separation processes	3	3	2	3	1					1		1	3	2
Subjec	t: BTCHE 703D Professional Elective IV Modeling and Simulation in Chemical Engineering Credits: 3	P01	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C01	To apply basic laws of mass balance, component balance, energy balance and momentum balance for process model development.	3												3	3
CO2	To develop basic mathematical models of heat transfer equipment, mass transfer equipment and reactors.	3	2	2										3	3
СОЗ	To apply mathematical models for studying processes under steady state and dynamic conditions.	3	3	3	2									3	3
CO4	To use basic features of modern simulation software.	3	2	3	2	3								3	3
Subjec	t: BTCHO 704A Open Elective IV Plant Utilities and Safety Credits: 3	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	To relate the types of water, water treatment methods, storage and distribution techniques	2	2				3	3					3		2
CO2	To apply the properties of Steam, type of refrigeration methods , type of power generation used in industry	2	2				3	3					3		2
CO3	To analyze the effects of release of toxic substance, methods of hazard identification and preventive measures	2	2				3	3	2				3		2
CO4	To prepare safety checklist for chemical plent w.r.t Construction Installation,Startup,Shutdown.	2	2				3	3	2				3		2

Class: Fourth Year B.Tech Chemical															
Subjec	t:BTCHL 705 Process Instrumentation and Control Lab Credits: 2	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	To identify and estimate the characteristics of control valves.	2	3	2	2										
CO2	To determine the time constant for various first order processes for the given step input	3	2	2	2									2	2
CO3	To determine the dynamics of two capacity liquid level process with and without interaction	3	3	3	2									2	2
CO4	To illustrate the performance of controllers for a flow process, pressure process, level process, temperature process	3	3	3	2										
Subjec	t: BTCHL 706 Process Equipment Design, Drawing and Simulation Lab. Credits: 2	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	To design and draw heat exchangers, evaporators, absorbers, distillation columns, reactors, filters etc.			3							2			2	3
CO2	To design and draw the sheets of chemical process vessels.			3							2			2	3
CO3	To develop mathematical models of chemical engineering systems	3	3	2	2									3	3
CO4	To simulate different types of unit operations and processes	3	2	2	2									3	3
Subjec	t: BTCHM 707 Mini Project – III Credits: 2	PO1	PO2	PO3	PO4	PO5	PO6	P07	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	To state the exact title of the project and problem definition	3	3		2			2		2	2			2	
CO2	To identify the motivation, objectives and scope of the project	3	3	3	3	2	2	2					2	3	3
CO3	To review the literature related to the selected topic of the project	3	3	3	3	2				2	3		2	3	
CO4	To design the experiments and prepare a report on project execution plan	3	3	3	3	3	2	2	2	3	3	3	3	3	3

Class: Fourth Year B.Tech Chemical															
Subjec	t: BTCHI 708 Internship3 Audit	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	Acquire knowledge on topics outside the scope of curriculum on summer training	1	2	1	1	1		1					2	1	1
CO2	Communicate with group of people on different topics of summer training									2	3	1	1		
CO3	Collect and consolidate required information on a topic of summer training	1	3	1	2	1				1	1		2	1	1
CO4	Prepare a report on summer training	0	2	1	1	1				1	3	1	2	1	1
	Sem VIII													<u>.</u>	
Sr. No.	Course Outcomes														
Subjec	t: BTCHP/BTCHI 801 Project/Internship Credits: 12	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	To state the aim and objectives for this stage of the project	3	3		2			2		2	2			2	
CO2	To evaluate process either through simulation or experimental work.	3	3	3	3	2	2	2					2	3	3
СОЗ	To perform material and energy balance calculations, cost estimation for a process	3	3	3	3	2				2	3		2	3	
CO4	To prepare and present a comprehensive report with complete analysis of product and process.	3	3	3	3	3	2	2	2	3	3	3	3	3	3