

**Course Structure: M. Tech. Chemical Engineering with Specialization in
Energy and Environmental Engineering
For 2024 onwards admitted students**

Semester I

SN	Course Code	Course Name	L- T- P (Hours)	Credits
1	CL501	Advanced Transport Phenomena (Core – I)	3-0-0	3
2	CL502	Process Modeling and Optimization (Core -II)	3-0-0	3
3		Elective - I	3-0-0	3
4		Elective – II	3-0-0	3
5		Research Methodology and IPR	2-0-0	2
6	CL601	Process Modelling and Simulation Lab (Core Lab – I)	0-0-2	1
7		Elective Lab - I	0-0-2	1
8		Elective Lab - II	0-0-2	1
		TOTAL	20	17

Semester II

SN	Course Code	Course Name	L –T- P (Hours)	Credits
1	CL503	Fluidization Engineering (Core – III)	3-0-0	3
2	CL504	Membrane Separation Processes (Core -IV)	3-0-0	3
3		Elective –III (Based on Specialization)	3-0-0	3
4		Elective – IV (Based on Specialization)	3-0-0	3
5		Elective – V (Based on Specialization)	3-0-0	3
6	CL602	Mass Transfer Operations Lab (Core Lab – II)	0-0-2	1
7		Elective Lab - III	0-0-2	1
8	CL603	Minor Project (Based on Specialization)	0-0-6	3
9		Audit Course - I	2-0-0	Qualifying
		TOTAL	27	20

Semester III

SN	Course Code	Course Name	L- T –P (Hours)	Credits
1		Open Elective	3-0-0	3
2		Elective – VI (Based on Specialization)	3-0-0	3
3	CL604	Seminar and Term Paper	0-0-4	2
4	CL605	Project Based Learning	0-0-8	4
5	CL606	Dissertation - I	0-0-8	4
6		Audit course -II	2-0-0	Qualifying
		TOTAL	28	16

Semester IV

SN	Course Code	Course Name	L -T –P (Hours)	Credits
1	CL607	Dissertation - II/Industrial Project	0-0-30	15
		TOTAL	30	15

Total Credits = 68

LIST OF ELECTIVES

S.No.	Elective No.	Code	Title
1	Elective I	CL701	Process Dynamics and Control
2		CL702	Advanced Heat Transfer and Fluid Dynamics
3	Elective II	CL703	Separation Processes
4		CL704	Chemical Reactor Analysis and Design
5	Elective III	CL705	Wastewater Treatment
6		CL707	Cleaner Technology
7	Elective IV	CL716	Conventional and Non – Conventional Energy Engineering
8		CL717	Energy Management and Circular Economy
9		CL718	Solar Energy

10	Elective V	CL719	Energy Optimization and Process Intensification
11		CL720	Nuclear Energy
12		CL721	Pinch Technology in Process Industry
13	Elective VI	CL722	Fuel Cell and Battery
14		CL723	Membrane Technology in Environmental Pollution Control
15		CL724	Air Pollution Control and Solid Waste Management
16	Elective Lab - I	CL801	Process Dynamics and Control Lab
17		CL802	Heat Transfer Operations Lab
18	Elective Lab - II	CL803	Separation Processes Lab
19		CL804	Chemical Reaction Engineering Lab
20	Elective Lab - III	CL805	Environmental Engineering Lab