Semester-wise Course Structure
(w.e.f. 2025-26)
(Program: B.Tech. in Chemical Engineering Major)
Batch: 2023-2027

Semester 1 (1st Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
PY111	IS	Classical Physics	3	1	0	11
CY111	IS	Organic & Hydrocarbon Chemistry	3	1	0	11
MA123	IS	Applied Mathematics-1	3	1	0	11
CH161	IE	Engineering Thermodynamics	3	1	0	11
PY111L	IS	Physics Lab	0	0	2/2	1
CY111L	IS	Chemistry Lab	0	0	2/2	1
ME131	EP	Workshop Practices	0	0	3	3
		Total Credits				**49**
HU101	HU	Universal Human Values	1	1	0	5

Semester 2 (1st Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
PY121	IS	Modern Physics	2	1	0	8
CY121	IS	Inorganic and Physical Chemistry	3	1	0	11
MA124	IS	Applied Mathematics-2	3	1	0	11
CS101	IE	Computer Programing	3	1	0	11
CH121	IE	Fluid Mechanics	3	1	0	11
PY121L	IS	Physics Lab	0	0	2/2	1
CY121L	IS	Chemistry Lab	0	0	2/2	1
CS101L	IE	Computer Programing Lab	0	0	2	2
CH111	EP	Chemical Engineering Practices	1	0	2	5
ME121	EP	Engineering Graphics	0	0	3	3
		Total Credits				**64**
HU102	HU	Community Internship	1	1	0	5

Semester 3 (2nd Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
MA222	IS	Applied Mathematics-3	3	1	0	11
ECE102	IE	Fundamentals of Electronics Engineering	3	1	0	11
CH262	DC	Chemical Engineering Thermodynamics	3	1	0	11
CH171	DC	Mass & Energy Balances	2	1	0	8
CH222	DC	Fluid Flow Operations	2	1	0	8
CH223	DC	Solid Fluid Mechanics and Mechanical Operations	2	1	0	8
CH223L	DC	Fluid Flow and Mechanical Operations Lab	0	0	2	2
ECE102L	IE	Fundamentals of Electronics Engineering Lab	0	0	2	2
		Total Credits				**61**

Semester 4 (2nd Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH212	DC	Materials Science and Strength of Materials	3	0	0	9
CH274	DC	Mass Transfer Operations-1	3	1	0	11
CH281	DE1	Petroleum Refining Engineering	3	0	0	9
CH394	DC	Chemical Process Technology-01	2	0	0	6
CH231	DC	Heat Transfer Operations	3	1	0	11
CH251	DC	Chemical Reaction Engineering-1	2	1	0	8
PC101	LM	Professional Communication	2	1	0	8
CH251L	DC	Chemical Reaction Engineering Lab	0	0	2	2
CH231L	DC	Heat Transfer Operation Lab	0	0	2	2
		Total Credits				**66**
GD111	EP	Group Discussions	0	0	2	2

Semester 5 (3rd Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH375	DC	Mass Transfer Operations-2	3	1	0	11
CH352	DC	Chemical Reaction Engineering-2	2	1	0	8
CH395	DC	Chemical Process Technology-02	2	0	0	6
CH313	DC	Equipment Design: Mechanical Aspects	2	0	0	6
CH382	DE2	Refinery Process Design	3	0	0	9
CH341	DC	Process Dynamics and Control	3	1	0	11
CH274L	DC	Mass Transfer Operation Lab	0	0	2	2
CH341L	DC	Process Dynamics and Control Lab	0	0	2	2
		Total Credits				**55**

Semester 6 (3rd Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH301	DC	Process Instrumentation	2	0	0	6
CH414	DC	Process Equipment Design	2	0	0	6
CH413	DC	Plant Design and Economics	3	0	0	9
CH202	DC	Corrosion Engineering	2	0	0	6
CH481	DE3	Natural Gas Processing	3	0	0	9
CH414P	DC	Process Equipment Design Project	0	0	2	2
CH413L	DC	Plant Design and Economics Lab	0	0	2	2
CH543	DE4	Fluidization Engineering	3	0	0	9
		Total Credits				**49**

Semester: Summer Term (3rd Year, after 6th Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH417	DP	Summer Internship (6 Weeks)	0	0	12	5
		Total Credits				**5**

Semester 7 (4th Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
	OE	Open Elective-1	3	0	0	9
	OE	Open Elective-2	3	0	0	9
HU331	HU	Organizational Psychology	2	0	0	6
MT5405	LM	Foundations of Management	2	0	0	6
HU313	HU	Sociology of Industry and Work Culture	2	0	0	6
MT5100	LM	Principles of Economics	2	0	0	6
		Total Credits				**42**
	EP	Seminar OR Employability Skills & Industry Readiness	0	0	2	**2**

Semester 8 (4th Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH418	DP	B.Tech. Project	0	0	40	40
		Total Credits				**40**

Department Electives (DE)

Course code	Course Category	Course Title	L	T	P	Credit
CH281	DE1	Petroleum Refining Engineering	3	0	0	9
CH381	DE2	Lube Base Oil & Wax Processing	3	0	0	9
CH481	DE3	Natural Gas Processing	3	0	0	9
CH383	DE3	Thermal and Catalytic Cracking	3	0	0	9
CH471	DE3	Multicomponent Distillation	3	0	0	9
CH201	DE4	Fire, Safety and Hazard Analysis	2	0	0	6
CH443	DE4	Modelling Simulation and Optimization	2	0	2	8
CH401	DE4	Transport Phenomenon	2	0	0	6
CH402	DE4	Industrial Pollution and Control	2	0	2	8

Component Distribution of Credits (B. Tech. Program Chemical Engineering Major)
Batch-2023-2027

Category	Programme component	Existing Credits		Recommended Allocation
		Min	Max	
HU	Humanities & Social Science	22	22	22
IS	Science	70	90	78
IE	Institute Engineering	40	70	48
EP	Engineering Drawing, Workshop, Group Discussion, Engineering Practices, Industrial Internship	18	24	15
LM	Language & Management	18	24	20
DC	Departmental Core	145	190	163
DE	Departmental Elective	30	75	36
OE	Open Elective	15	20	18
DP	Project/Industrial Visit	20	50	45
	TOTAL	**378**	**565**	**445**

Humanities & Social Science (HU)

Humanities & Social Science	L	T	P	Credits
Universal Human Values	1	1	0	5
Community Internship	1	1	0	5
Organizational Psychology	2	0	0	6
Sociology of Industry and Work Culture	2	0	0	6
				22

Institute Science (IS)

Science	L	T	P	Credits
Classical Physics	3	1	0	11
Organic and Hydrocarbon Chemistry	3	1	0	11
Applied Mathematics-1	3	1	0	11
Physics Lab	0	0	2/2	1
Chemistry lab	0	0	2/2	1
Modern Physics	2	1	0	8
Inorganic & Physical Chemistry	3	1	0	11
Applied Mathematics-2	3	1	0	11
Physics Lab	0	0	2/2	1
Chemistry lab	0	0	2/2	1
Applied Mathematics-3	3	1	0	11
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Institute Engineering (IE)

Institute Engineering	L	T	P	Credits
Engineering Thermodynamics	3	1	0	11
Computer Programming	3	1	0	11
Fluid Mechanics	3	1	0	11
Computer Programming Lab	0	0	2	2
Fundamentals of Electronics Engg	3	1	0	11
Fundamentals of Electronics Engg Lab	0	0	2	2
				48

Engineering Drawing, Workshop, Practices, GD, Internship (EP)

Engineering Drawing, Workshop	L	T	P	Credits
Workshop Practices	0	0	3	3
Engineering Graphics	0	0	3	3
Chemical Engineering Practices	1	0	2	5
Seminar OR Employability Skills & Industry Readiness	0	0	2	2
Group Discussions	0	0	2	2
				15

Language & Management (LM)

Language & Management	L	T	P	Credits
Professional Communication	2	1	0	8
Foundations of Management	2	0	0	6
Principles of Economics	2	0	0	6
				20

Departmental Elective (DE)

Departmental Elective	L	T	P	Credits
DE-1: Petroleum Refining Engineering	3	0	0	9
DE2: Refinery Process Design	3	0	0	9
DE3: Natural Gas Processing	3	0	0	9
DE4: Fluidization Engineering	3	0	0	9
				36

Open Elective (OE)

Open Elective	L	T	P	Credits
Open Elective-1 (Digital Technology)	3	0	0	9
Open Elective-2 (Sustainability and Climate change)	3	0	0	9
				18

Project/Industrial Visit (DP)

Project/Industrial Visit	L	T	P	Credits
B.Tech. Project	0	0	40	40
Summer Internship	0	0	12	5
				45

Departmental Core (DC)

Departmental Core	L	T	P	Credits
Chemical Engineering Thermodynamics	3	1	0	11
Mass & Energy Balances	2	1	0	8
Fluid Flow Operations	2	1	0	8
Solid Fluid Mechanics and Mechanical Operations	2	1	0	8
Fluid Flow and Mechanical Operations Lab	0	0	2	2
Mass Transfer Operations-1	3	1	0	11
Chemical Process Technology-01	2	0	0	6
Heat Transfer Operations	3	1	0	11
Chemical Reaction Engineering-1	2	1	0	8
Chemical Reaction Engineering Lab	0	0	2	2
Heat Transfer Operation Lab	0	0	2	2
Mass Transfer Operations-2	3	1	0	11
Chemical Reaction Engineering-2	2	1	0	8
Chemical Process Technology-02	2	0	0	6
Equipment Design: Mechanical Aspects	2	0	0	6
Process Dynamics and Control	3	1	0	11
Mass Transfer Operation Lab	0	0	2	2
Process Dynamics and Control Lab	0	0	2	2
Process Instrumentation	2	0	0	6
Process Equipment Design	2	0	0	6
Plant Design and Economics	3	0	0	9
Corrosion Engineering	2	0	0	6
Process Equipment Design Project	0	0	2	2
Plant Design and Economics Lab	0	0	2	2
Materials Science and Strength of Materials	3	0	0	9
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Semester-wise Course Structure
(w.e.f. 2025-26)
(Program: B.Tech. in Chemical Engineering: Major in Renewable Energy Engineering)
Batch: 2023-2027

Semester 1 (1st Year: Odd Sem)

Course code	Course Category	Course title	L	T	P	Credit
PY111	IS	Classical Physics	3	1	0	11
CY121	IS	Organic and Hydrocarbon Chemistry	3	1	0	11
MA123	IS	Applied Mathematics-1	3	1	0	11
CH161	IE	Engineering Thermodynamics	3	1	0	11
PY111L	IS	Physics Lab	0	0	2/2	1
CY111L	IS	Chemistry Lab	0	0	2/2	1
ME131	EP	Workshop Practices	0	0	3	3
		Total Credits				**49**
HU101	HU	Universal Human Values	1	1	0	5

Semester 2 (1st Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
PY121	IS	Modern Physics	2	1	0	8
CY111	IS	Inorganic & Physical Chemistry	3	1	0	11
MA124	IS	Applied Mathematics-2	3	1	0	11
CS101	IE	Computer Programing	3	1	0	11
CH121	IE	Fluid Mechanics	3	1	0	11
PY121L	IS	Physics Lab	0	0	2/2	1
CY121L	IS	Chemistry Lab	0	0	2/2	1
CS101L	IE	Computer Programing Lab	0	0	2	2
CH112	EP	Renewable Energy Engineering Practices	1	0	2	5
ME121	EP	Engineering Graphics	0	0	3	3
		Total Credits				**64**
HU102	HU	Community Internship	1	1	0	5

Semester 3 (2nd Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
MA222	IS	Applied Mathematics-3	3	1	0	11
ECE102	IE	Fundamentals of Electronics Engineering	3	1	0	11
CH262	DC	Chemical Engineering Thermodynamics	3	1	0	11
CH171	DC	Mass & Energy Balances	2	1	0	8
CH222	DC	Fluid Flow Operations	2	1	0	8
CH223	DC	Solid Fluid Mechanics and Mechanical Operations	2	1	0	8
CH223L	DC	Fluid Flow and Mechanical Operations Lab	0	0	2	2
ECE102L	IE	Fundamentals of Electronics Engineering Lab	0	0	2	2
		Total Credits				**61**

Semester 4 (2nd Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH212	DC	Materials Science and Strength of Materials	3	0	0	9
CH274	DC	Mass Transfer Operations-1	3	1	0	11
	IE	Fundamentals of Electrical Engineering	3	0	0	9
CH281	DE1	Petroleum Refining Engineering	3	0	0	9
CH231	DC	Heat Transfer Operations	3	1	0	11
CH251	DC	Chemical Reaction Engineering-1	2	1	0	8
PC101	LM	Professional Communication	2	1	0	8
CH251L	DC	Chemical Reaction Engineering Lab	0	0	2	2
CH231L	DC	Heat Transfer Operation Lab	0	0	2	2
		Total Credits				**69**
GD111	EP	Group Discussions	0	0	2	2

Semester 5 (3rd Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH375	DC	Mass Transfer Operations-2	3	1	0	11
CH352	DC	Chemical Reaction Engineering-2	2	1	0	8
CH395	DC	Chemical Process Technology 02	2	0	0	6
CH313	DC	Equipment Design: Mechanical Aspects	2	0	0	6
CH203	DE2	Energy Resources & Utilization	2	0	0	6
CH341	DC	Process Dynamics and Control	3	1	0	11
CH274L	DC	Mass Transfer Operation Lab	0	0	2	2
CH341L	DC	Process Dynamics and Control Lab	0	0	2	2
CH203L	DE2	Energy Resources and Utilization Lab	0	0	2	2
		Total Credits				**54**

Semester 6 (3rd Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH301	DC	Process Instrumentation	2	0	0	6
CH414	DC	Process Equipment Design	2	0	0	6
CH413	DC	Plant Design and Economics	3	0	0	9
CH451	DE3	Electrochemical Processes and Energy Systems	3	0	0	9
CH202	DC	Corrosion Engineering	2	0	0	6
CH505/CH555	DE4	Hydrogen Energy/Solar Energy Technology	3	0	0	9
CH414P	DC	Process Equipment Design Project	0	0	2	2
CH508L	DC	Energy Conversion Lab	0	0	2	2
		Total Credits				**49**

Semester: Summer Term (3rd Year, after 6th Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH417	DP	Summer Internship (6 Weeks)	0	0	12	5
		Total Credits				5

Semester 7 (4th Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
	OE	Open Elective-1	3	0	0	9
	OE	Open Elective-2	3	0	0	9
HU331	HU	Organizational Psychology (HU)	2	0	0	6
MT5405	LM	Foundations of Management (LM)	2	0	0	6
HU313	HU	Sociology of Industry and Work Culture	2	0	0	6
MT5100	LM	Principles of Economics	2	0	0	6
		Total Credits				**42**
	EP	Seminar OR Employability Skills & Industry Readiness	0	0	2	**2**

Semester 8 (4th Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH418	DP	B.Tech. Project + Summer Internship	0	0	40	40
		Total Credits				**40**

Department Electives (DE)

Course code	Course Category	Course Title	L	T	P	Credit
CH281	DE 1	Petroleum Refining Engineering	3	0	0	9
CH203	DE 2	Energy Resources & Utilization + Lab	2	0	2	8
CH302	DE 3	Biomass and Biofuels Engineering	3	0	0	9
CH554	DE 3	Fuel Cell Technology	3	0	0	9
CH201	DE 4	Fire, Safety and Hazard Analysis	2	0	0	6
CH443	DE 4	Modelling Simulation and Optimization	2	0	2	8
CH401	DE 4	Transport Phenomenon	2	0	0	6
CH402	DE 4	Industrial Pollution and Control	2	0	2	8
CH555	DE 4	Solar Energy Technology	3	0	0	9
CH504	DE 4	Hydrogen Energy	3	0	0	9
CH405	DE 4	Biochemical Engineering	2	0	0	6
CH556	DE 4	Photovoltaics	3	0	0	9

Component Distribution of Credits (B. Tech. Program Chemical Engineering Major in Renewable Energy Engineering)

Batch-2023-2027

Category	Programme component	Existing Credits		Recommended Allocation
		Min	**Max**	
HU	Humanities & Social Science	22	22	22
IS	Science	70	90	78
IE	Institute Engineering	40	70	57
EP	Engineering Drawing, Workshop, Internship, Group Discussion, Engg Practices	18	24	15
LM	Language & Management	18	24	20
DC	Departmental Core	145	190	157
DE	Departmental Elective	30	75	35
OE	Open Elective	15	20	18
DP	Project/Industrial Visit	20	50	45
	TOTAL	**440**	**490**	**447**

Humanities & Social Science (HU)

Humanities & Social Science	L	T	P	Credits
Universal Human Values	1	1	0	5
Community Internship	1	1	0	5
Organizational Psychology	2	0	0	6
Sociology of Industry and Work Culture	2	0	0	6
				22

Institute Science Course (IS)

Science	L	T	P	Credits
Classical Physics	3	1	0	11
Organic and Hydrocarbon Chemistry	3	1	0	11
Applied Mathematics-1	3	1	0	11
Physics Lab	0	0	2/2	1
Chemistry lab	0	0	2/2	1
Modern Physics	2	1	0	8
Inorganic & Physical Chemistry	3	1	0	11
Applied Mathematics-2	3	1	0	11
Physics Lab	0	0	2/2	1
Chemistry lab	0	0	2/2	1
Applied Mathematics-3	3	1	0	11
				78

Institute Engineering (IE)

Institute Engineering	L	T	P	Credits
Engineering Thermodynamics	3	1	0	11
Computer Programing	3	1	0	11
Fluid Mechanics	3	1	0	11
Computer Programing Lab	0	0	2	2
Fundamentals of Electronics Engg	3	1	0	11
Fundamentals of Electronics Engg Lab	0	0	2	2
Fundamentals of Electrical Engineering	3	0	0	9
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Engineering Drawing, Workshop, Internship, Group Discussion, Engg Practices (EP)

Engineering Drawing etc	L	T	P	Credits
Workshop Practices	0	0	3	3
Engineering Graphics	0	0	3	3
Group Discussion	0	0	2	2
Seminar OR Employability Skills & Industry Readiness	0	0	2	2
Renewable Energy Engineering Practices	1	0	2	5
				15

Language & Management (LM)

Language & Management	L	T	P	Credits
Professional Communication	2	1	0	8
Foundations of Management	2	0	0	6
Principles of Economics	2	0	0	6
				20

Departmental Elective (DE)

Departmental Elective	L	T	P	Credits
DE-1: Petroleum Refining Engineering	3	0	0	9
DE 2: Energy Resources and Utilization	2	0	0	6
Energy Resources and Utilization Lab	0	0	2	2
DE3: Electrochemical Processes and Energy Systems	3	0	0	9
DE4:	3	0	0	9
				35

Open Elective (OE)

Open Elective	L	T	P	Credits
Open Elective-1	3	0	0	9
Open Elective-2	3	0	0	9
				18

Project/Industrial Visit (DP)

Project/Industrial Visit	L	T	P	Credits
B.Tech. Project	0	0	40	40
Summer Internship	0	0	12	5
				45

Departmental Core (DC)

Departmental Core	L	T	P	Credits
Chemical Engineering Thermodynamics	3	1	0	11
Mass & Energy Balances	2	1	0	8
Fluid Flow Operations	2	1	0	8
Solid Fluid Mechanics and Mechanical Operations	2	1	0	8
Fluid Flow and Mechanical Operations Lab	0	0	2	2
Materials Science and Strength of Materials	3	0	0	9
Mass Transfer Operations-1	3	1	0	11
Heat Transfer Operations	3	1	0	11
Chemical Reaction Engineering-1	2	1	0	8
Chemical Reaction Engineering Lab	0	0	2	2
Heat Transfer Operation Lab	0	0	2	2
Mass Transfer Operations-2	3	1	0	11
Chemical Reaction Engineering-2	2	1	0	8
Chemical Process Technology-02	2	0	0	6
Equipment Design: Mechanical Aspects	2	0	0	6
Process Dynamics and Control	3	1	0	11
Process Dynamics and Control Lab	0	0	2	2
Mass Transfer Operation Lab	0	0	2	2
Process Instrumentation	2	0	0	6
Process Equipment Design	2	0	0	6
Plant Design and Economics	3	0	0	9
Corrosion Engineering	2	0	0	6
Process Equipment Design Project	0	0	2	2
Energy Conversion Lab	0	0	2	2
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Semester-wise Course Structure
(w.e.f. 2025-26)
(Program: B.Tech. in Chemical Engineering: Major in Petrochemicals & Polymer Engineering)
Batch: 2023-2027

Semester 1 (1st Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
PY111	IS	Classical Physics	3	1	0	11
CY121	IS	Inorganic & Physical Chemistry	3	1	0	11
MA123	IS	Applied Mathematics-1	3	1	0	11
CH161	IE	Engineering Thermodynamics	3	1	0	11
PY111L	IS	Physics Lab	0	0	2/2	1
CY111L	IS	Chemistry Lab	0	0	2/2	1
ME131	EP	Workshop Practices	0	0	3	3
		Total Credits				**49**
HU101	HU	Universal Human Values	1	1	0	5

Semester 2 (1st Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
PY121	IS	Modern Physics	2	1	0	8
CY111	IS	Organic and Hydrocarbon Chemistry	3	1	0	11
MA124	IS	Applied Mathematics-2	3	1	0	11
CS101	IE	Computer Programing	3	1	0	11
CH121	IE	Fluid Mechanics	3	1	0	11
PY121L	IS	Physics Lab	0	0	2/2	1
CY121L	IS	Chemistry Lab	0	0	2/2	1
CS101L	IE	Computer Programing Lab	0	0	2	2
CH113	EP	Petrochemicals & Polymer Engineering Practices	1	0	2	5
ME121	EP	Engineering Graphics	0	0	3	3
		Total Credits				**64**
HU102	HU	Community Internship	1	1	0	5

Semester 3 (2nd Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
MA222	IS	Applied Mathematics-3	3	1	0	11
ECE102	IE	Fundamentals of Electronics Engineering	3	1	0	11
CH262	DC	Chemical Engineering Thermodynamics	3	1	0	11
CH171	DC	Mass & Energy Balances	2	1	0	8
CH222	DC	Fluid Flow Operations	2	1	0	8
CH223	DC	Solid Fluid Mechanics and Mechanical Operations	2	1	0	8
CH223L	DC	Fluid Flow and Mechanical Operations Lab	0	0	2	2
ECE102L	IE	Fundamentals of Electronics Engineering Lab	0	0	2	2
		Total Credits				**61**

Semester 4 (2nd Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH212	DC	Materials Science and Strength of Materials	3	0	0	9
CH274	DC	Mass Transfer Operations-1	3	1	0	11
CH281	DC	Petroleum Refining Engineering	3	0	0	9
CH191	DE1	Fundamentals of Polymer & Petrochemicals	2	0	0	6
CH231	DC	Heat Transfer Operations	3	1	0	11
CH251	DC	Chemical Reaction Engineering-1	2	1	0	8
PC101	LM	Professional Communication	2	1	0	8
CH251L	DC	Chemical Reaction Engineering Lab	0	0	2	2
CH231L	DC	Heat Transfer Operation Lab	0	0	2	2
		Total Credits				**66**
GD111	EP	Group Discussions	0	0	2	2

Semester 5 (3rd Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH375	DC	Mass Transfer Operations-2	3	1	0	11
CH352	DC	Chemical Reaction Engineering-2	2	1	0	8
CH395	DC	Chemical Process Technology-02	2	0	0	6
CH313	DC	Equipment Design: Mechanical Aspects	2	0	0	6
CH591/ CH491/ CH509	DE2	Petrochemical Process Technology/ Polymer Composites/ Non-conventional Hydrocarbon Sources	2	0	0	6
CH341	DC	Process Dynamics and Control	3	1	0	11
CH274L	DC	Mass Transfer Operation Lab	0	0	2	2
CH341L	DC	Process Dynamics and Control Lab	0	0	2	2
CH591L	DE2	Petrochemicals Process Technology Lab	0	0	2	2
		Total Credits				**54**

Semester 6 (3rd Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH301	DC	Process Instrumentation	2	0	0	6
CH414	DC	Process Equipment Design	2	0	0	6
CH413	DC	Plant Design and Economics	3	0	0	9
CH202	DC	Corrosion Engineering	2	0	0	6
CH391	DE3	Polymer Synthesis & Properties	2	1	0	8
CH414P	DC	Process Equipment Design Project	0	0	2	2
CH413L	DC	Plant Design and Economics Lab	0	0	2	2
CH393	DE4	Polymer Processing	2	0	0	6
CH391L	DC	Polymers Lab	0	0	2	2
		Total Credits				**47**

Semester: Summer Term (3rd Year, after 6th Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH417	DP	Summer Internship	0	0	12	5
		Total Credits				5

Semester 7 (4th Year: Odd Sem)

Course code	Course Category	Course Title	L	T	P	Credit
	OE1		3	0	0	9
	OE2		3	0	0	9
HU331	HU	Organizational Psychology	2	0	0	6
MT5405	LM	Foundations of Management	2	0	0	6
HU313	HU	Sociology of Industry and Work Culture	2	0	0	6
MT5100	LM	Principles of Economics	2	0	0	6
		Total Credits				**42**
	EP	Seminar OR Employability Skills & Industry Readiness	**0**	0	2	**2**

Semester 8 (4th Year: Even Sem)

Course code	Course Category	Course Title	L	T	P	Credit
CH418	DP	B.Tech. Project + Internship	0	0	40	40
		Total Credits				**40**

Department Electives (DE)

Course code	Course Category	Course Title	L	T	P	Credit
CH191	DE1	Fundamentals of Polymer & Petrochemicals	2	0	0	6
CH591	DE2	Petrochemical Process Technology	2	0	0	6
CH491	DE2	Polymer Composites/	2	0	0	6
CH509	DE 2	Non-Conventional Hydrocarbon Sources	2	0	0	6
CH481	DE 3	Natural Gas Processing	3	0	0	9
	DE 3	Polymer Reaction Engineering	3	0	0	9
CH491	DE 4	Polymer Composites	3	0	2	9
CH522	DE 4	Polymer Rheology	3	0	0	9
CH201	DE 4	Fire, Safety and Hazard Analysis	2	0	0	6
CH443	DE 4	Modelling Simulation and Optimization	2	0	2	8
CH401	DE 4	Transport Phenomenon	2	0	0	6
CH402	DE 4	Industrial Pollution and Control	2	0	2	8

Component Distribution of Credits (B. Tech. Program Chemical Engineering Major in Petrochemicals & Polymer Engineering, (Batch-2023-2027)

Category	Programme component	Existing Credits		Proposed Allocation
		Min	Max	
HU	Humanities & Social Science	22	22	22
IS	Science	70	90	78
IE	Institute Engineering	40	70	48
EP	Engineering Drawing, Workshop, Group Discussion, Engineering Practices, Internships	18	24	15
LM	Language & Management	18	24	20
DC	Departmental Core	145	190	168
DE	Departmental Elective	30	75	28
OE	Open Elective	15	20	18
DP	Project/Industrial Visit	20	50	45
	TOTAL	**378**	**565**	**442**

Humanities & Social Science (HU)

Humanities & Social Science	L	T	P	Credits
Universal Human Values	1	1	0	5
Community Internship	1	1	0	5
Organizational Psychology	2	0	0	6
Sociology of Industry and Work Culture	2	0	0	6
				22

Institute Science (IS)

Science	L	T	P	Credits
Classical Physics	3	1	0	11
Organic and Hydrocarbon Chemistry	3	1	0	11
Applied Mathematics-1	3	1	0	11
Physics Lab	0	0	2/2	1
Chemistry lab	0	0	2/2	1
Modern Physics	2	1	0	8
Inorganic & Physical Chemistry	3	1	0	11
Applied Mathematics-2	3	1	0	11
Physics Lab	0	0	2/2	1
Chemistry lab	0	0	2/2	1
Applied Mathematics-3	3	1	0	11
				78

Institute Engineering (IE)

Institute Engineering	L	T	P	Credits
Engineering Thermodynamics	3	1	0	11
Computer Programing	3	1	0	11
Fluid Mechanics	3	1	0	11
Computer Programing Lab	0	0	2	2
Fundamentals of Electronics Engg	3	1	0	11
Fundamentals of Electronics Engg Lab	0	0	2	2
				48

Engineering Drawing, Group Discussion, Internship, Engg Practices, Workshop (EP)

Engineering Drawing etc	L	T	P	Credits
Workshop Practices	0	0	3	3
Engineering Graphics	0	0	3	3
Petrochemicals and Polymers Engineering Practices	1	0	2	5
Seminar OR Employability Skills & Industry Readiness	0	0	2	2
Group Discussion	0	0	2	2
				15

Language & Management

Language & Management	L	T	P	Credits
Professional Communication	2	1	0	8
Foundations of Management	2	0	0	6
Principles of Economics	2	0	0	6
				20

Departmental Elective (DE)

Departmental Elective	L	T	P	Credits
DE-1: Fundamental of Polymer and Petrochemicals	2	0	0	6
DE2: Petrochemical Process Technology	2	0	0	6
Petrochemicals Lab	0	0	2	2
DE3: Polymer Synthesis and Properties	2	1	0	8
DE4: Polymer Processing	2	0	0	6
				28

Open Elective (OE)

Open Elective	L	T	P	Credits
Open Elective-1	3	0	0	9
Open Elective-2	3	0	0	9
				18

Project/Industrial Visit (DP)

Project/Industrial Visit	L	T	P	Credits
B.Tech. Project	0	0	40	40
Summer Internship	0	0	12	5
				45

Departmental Core (DC)

Departmental Core	L	T	P	Credits
Chemical Engineering Thermodynamics	3	1	0	11
Mass & Energy Balances	2	1	0	8
Fluid Flow Operations	2	1	0	8
Solid Fluid Mechanics and Mechanical Operations	2	1	0	8
Fluid Flow and Mechanical Operations Lab	0	0	2	2
Materials Science and Strength of Materials	3	0	0	9
Mass Transfer Operations-1	3	1	0	11
Petroleum Refining Engineering	3	0	0	9
Heat Transfer Operations	3	1	0	11
Chemical Reaction Engineering-1	2	1	0	8
Chemical Reaction Engineering Lab	0	0	2	2
Heat Transfer Operation Lab	0	0	2	2
Mass Transfer Operations-2	3	1	0	11
Chemical Reaction Engineering-2	2	1	0	8
Chemical Process Technology-02	2	0	0	6
Equipment Design: Mechanical Aspects	2	0	0	6
Process Dynamics and Control	3	1	0	11
Process Dynamics and Control Lab	0	0	2	2
Mass Transfer Operation Lab	0	0	2	2
Process Instrumentation	2	0	0	6
Process Equipment Design	2	0	0	6
Plant Design and Economics	3	0	0	9
Corrosion Engineering	2	0	0	6
Plant Design and Economics Lab	0	0	2	2
Process Equipment Design Project	0	0	2	2
Polymers Lab	0	0	2	2
				168