

Semester-wise Course Structure
(w.e.f. 2025-26)

(Program: B. Tech. in Chemical Engineering: Major in Renewable Energy Engineering)

Batch: 2023-27

Semester 1 (1st Year: Odd Sem)

Course/Subject	L	T	P	Cr
Classical Physics (IS) (PY111)	3	1	0	11
Organic and Hydrocarbon Chemistry (IS) (CY111)	3	1	0	11
Applied Mathematics-1 (IS) (MA123)	3	1	0	11
Engineering Thermodynamics (IE) (CH161)	3	1	0	11
Physics Lab (IS) (PY111L)	0	0	2/2	1
Chemistry Lab (IS) (CY111L)	0	0	2/2	1
Workshop Practices (EP) (ME131)	0	0	3	3
Total Credits				49
Universal Human Values (HU) (HU101)	1	1	0	5

Semester 2 (1st Year: Even Sem)

Course/Subject	L	T	P	Cr
Modern Physics (IS) (PY121)	2	1	0	8
Inorganic & Physical Chemistry (IS) (CY121)	3	1	0	11
Applied Mathematics-2 (IS) (MA124)	3	1	0	11
Computer Programing (IE) (CS101)	3	1	0	11
Fluid Mechanics (IE) (CH121)	3	1	0	11
Physics Lab (IS) (PY121L)	0	0	2/2	1
Chemistry Lab (IS) (CY121L)	0	0	2/2	1
Computer Programing Lab (IE) (CS101L)	0	0	2	2
Renewable Energy Engineering Practices (DC) (CH112)	1	0	2	5
Engineering Graphics (EP) (ME121)	0	0	3	3
Total Credits				64
Community Internship (HU) (HU102)	1	1	0	5

Semester 3 (2nd Year: Odd Sem)

Course/Subject	L	T	P	Cr
Applied Mathematics-3 (IS) (ME222)	3	1	0	11
Fundamentals of Electronics Engineering (IE) (ECE102)	3	1	0	11
Chemical Engineering Thermodynamics (DC) (CH262)	3	1	0	11
Mass & Energy Balances (DC) (CH171)	2	1	0	8
Fluid Flow Operations (DC) (CH222)	2	1	0	8
Solid Fluid Mechanics and Mechanical Operations (DC) (CH223)	2	1	0	8
Fluid Flow and Mechanical Operations Lab (DC) (CH223L)	0	0	2	2
Fundamentals of Electronics Engineering Lab (IE) (ECE102L)	0	0	2	2
Total Credits				61

Semester 4 (2nd Year: Even Sem)

Course/Subject	L	T	P	Cr
Materials Science and Strength of Materials (DC) (CH212)	3	0	0	9
Mass Transfer Operations-1 (DC) (CH274)	3	1	0	11
Fundamentals of Electrical Engineering	3	0	0	9
DE 1: Petroleum Refining Engineering (DE) (CH281)	3	0	0	9
Heat Transfer Operations (DC) (CH251)	3	1	0	11
Chemical Reaction Engineering-1 (DC) (CH251)	2	1	0	8
Professional Communication (LM) (PC101)	2	1	0	8
Chemical Reaction Engineering Lab (DC) (CH251L)	0	0	2	2
Heat Transfer Operation Lab (DC) (CH231)	0	0	2	2
Total Credits				69
Group Discussions (LM) (GD111)	0	0	2	2

Semester 5 (3rd Year: Odd Sem)

Course/Subject	L	T	P	Cr
Mass Transfer Operations-2 (DC) (CH375)	3	0	0	9
Chemical Reaction Engineering-2 (DC) (CH352)	2	1	0	8
Chemical Process Technology-02 (DC) (CH395)	2	0	0	6
Equipment Design: Mechanical Aspects (DC) (CH313)	3	0	0	9
DE 2: Energy Resources & Utilization (DE) (CH203)	2	0	0	6
Process Dynamics and Control (DC) (CH341)	3	1	0	11
Mass Transfer Operation Lab (DC) (CH274L)	0	0	2	2
Process Dynamics and Control Lab (DC) (CH341L)	0	0	2	2
DE 2: Energy Resources and Utilization Lab (DE) (CH203L)	0	0	2	2
Total Credits				55

Semester 6 (3rd Year: Even Sem)

Course/Subject	L	T	P	Cr
Process Instrumentation (DC) (CH301)	2	0	0	6
Process Equipment Design (DC) (CH414)	2	0	0	6
Plant Design and Economics (DC) (CH413)	3	0	0	9
DE 3: Electrochemical Processes and Energy Systems (DE) (CH451)	3	0	0	9
Corrosion Engineering (DC) (CH202)	2	0	0	6
DE 4: Nuclear Energy Engineering (DE) (CH305)	3	0	0	9
Process Equipment Design Project (DC) (CH414P)	0	0	2	2
Energy Conversion Lab (DC) (CH508L)	0	0	2	2
Total Credits				49

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

Course/Subject	L	T	P	Cr
Summer Internship Project (DP) (CH417)	0	0	10	10
Total Credits				10

Semester 7 (4th Year: Odd Sem)

Course/Subject	L	T	P	Cr
Open Elective-1 (Digital Technology) (OE) (CS443)	3	0	0	9
Open Elective-2 (Sustainability and Climate Change) (OE) (MT5213)	3	0	0	9
Organizational Psychology (HU) (HU331)	2	0	0	6
Foundations of Management (LM) (MT5405)	2	0	0	6
Sociology of Industry and Work Culture (HU) (HU313)	2	0	0	6
Principles of Economics (LM) (MT5100)	2	0	0	6
Total Credits				42

Semester 8 (4th Year: Even Sem)

Course/Subject	L	T	P	Cr
B.Tech. Project (DP) (CH418)	0	0	50	50
Total Credits				50

Department Electives (DE)

Course/Subject	L	T	P	Cr
DE 3: Biomass and Biofuels Engineering (CH302)	3	0	0	9
DE 3; Fuel Cell Technology (CH554)	3	0	0	9
DE 4: Fire, Safety and Hazard Analysis (CH201)	2	0	0	6
DE 4: Modelling Simulation and Optimization (CH443)	2	0	2	8
DE 4: Transport Phenomenon (CH401)	2	0	0	6
DE 4: Industrial Pollution and Control (CH402)	2	0	2	8
DE 4: Solar Energy Technology (CH555)	3	0	0	9
DE 4: Hydrogen Energy (CH504)	3	0	0	9
DE 4: Biochemical Engineering (CH405)	2	0	0	6
DE 4: Photovoltaics (CH556)	3	0	0	9