

Semester-wise Course Structure

(w.e.f. 2025-26)

(Program: B. Tech. in Chemical Engineering: Major in Petrochemicals & Polymer Engineering)

Batch: 2023-27

Semester 1 (1st Year: Odd Sem)

| Course/Subject | L | T | P | Cr |
|---|----------|----------|----------|-----------|
| Classical Physics (IS) (PY111) | 3 | 1 | 0 | 11 |
| Inorganic & Physical Chemistry (IS) (CY121) | 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 |
| Organic and Hydrocarbon Chemistry (IS) (CY111) | 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 |
| Petrochemicals & Polymer Engineering Practices (DC) (CH113) | 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) (MA222) | 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 |
| Petroleum Refining Engineering (DC) (CH281) | 3 | 0 | 0 | 9 |
| DE-1: Fundamentals of Polymer & Petrochemicals (DE) (CH191) | 2 | 0 | 0 | 6 |
| Heat Transfer Operations (DC) (CH231) | 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) (CH231L) | 0 | 0 | 2 | 2 |
| Total Credits | | | | 66 |
| 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) (395) | 2 | 0 | 0 | 6 |
| Equipment Design: Mechanical Aspects (DC) (CH313) | 3 | 0 | 0 | 9 |
| DE2: Petrochemical Process Technology (CH591)/ Polymer Composites (CH491)/ Non-conventional Hydrocarbon Sources (CH509) | 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 |
| Petrochemicals Process Technology Lab (CH591L) | 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 |
| Corrosion Engineering (DC) (CH202) | 2 | 0 | 0 | 6 |
| DE3: Polymer Synthesis & Properties (CH391) | 2 | 1 | 0 | 8 |
| Process Equipment Design Project (DC) (CH414P) | 0 | 0 | 2 | 2 |
| Plant Design and Economics Lab (DC) (CH413L) | 0 | 0 | 2 | 2 |
| DE4: Polymer Processing (CH393) | 2 | 0 | 0 | 6 |
| Polymers Lab (DC) (CH391L) | 0 | 0 | 2 | 2 |
| Total Credits | | | | 47 |

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 2: Non-Conventional Hydrocarbon Sources (CH509) | 2 | 0 | 0 | 6 |
| DE 3; Natural Gas Processing (CH481) | 3 | 0 | 0 | 9 |
| DE 3: Polymer Reaction Engineering | 3 | 0 | 0 | 9 |
| DE 4: Polymer Composites (CH491) | 3 | 0 | 0 | 9 |
| DE 4: Polymer Rheology (CH522) | 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 |