

## **Semester-wise Course Structure**

**(w.e.f. 2025-26)**

**(Program: B.Tech. in Chemical Engineering Major)**

**Batch: 2024-2028**

### **Semester 1 (1 Year: Odd Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>            | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|--------------------------------|----------|----------|----------|---------------|
| 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             |
|                    |                        | <b>Total Credits</b>           |          |          |          | <b>49</b>     |
| HU101              | HU                     | Universal Human Values         | 1        | 1        | 0        | 5             |

### **Semester 2 (1 Year: Even Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>               | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|-----------------------------------|----------|----------|----------|---------------|
| 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             |
| CH111              | EP                     | Chemical Engineering Practices    | 1        | 0        | 2        | 5             |
| ME121              | EP                     | Engineering Graphics              | 0        | 0        | 3        | 3             |
|                    |                        | <b>Total Credits</b>              |          |          |          | <b>64</b>     |
| HU102              | HU                     | Community Internship              | 1        | 1        | 0        | 5             |

**Semester 3 (2 Year: Odd Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|---------------------------------------------|----------|----------|----------|---------------|
| 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             |
| CH224              | DC                     | Fluid Flow and Mechanical Operations        | 3        | 1        | 0        | 11            |
| CH223L             | DC                     | Fluid Flow and Mechanical Operations Lab    | 0        | 0        | 2        | 2             |
| ECE102L            | IE                     | Fundamentals of Electronics Engineering Lab | 0        | 0        | 2        | 2             |
|                    |                        | <b>Total Credits</b>                        |          |          |          | <b>56</b>     |

**Semester 4 (2 Year: Even sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|---------------------------------------------|----------|----------|----------|---------------|
| CH212              | DC                     | Materials Science and Strength of Materials | 3        | 1        | 0        | 11            |
| CH274              | DC                     | Mass Transfer Operations-1                  | 3        | 1        | 0        | 11            |
| CH281              | DE 1                   | 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             |
|                    |                        | <b>Total Credits</b>                        |          |          |          | <b>62</b>     |

**Semester: Summer Term (2<sup>nd</sup> Year, after 4<sup>th</sup> sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|-----------------------------|----------|----------|----------|---------------|
| CH415              | DP                     | Summer Internship (4 Weeks) | 0        | 0        | 11       | 3             |
|                    |                        | <b>Total Credits</b>        |          |          |          | <b>3</b>      |

**Semester 5 (3 Year: Odd Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>              | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|----------------------------------|----------|----------|----------|---------------|
| CH375              | DC                     | Mass Transfer Operations-2       | 3        | 1        | 0        | 11            |
| CH352              | DC                     | Chemical Reaction Engineering-2  | 2        | 1        | 0        | 8             |
| CH392              | DC                     | Chemical Process Technology      | 3        | 0        | 0        | 9             |
| CH414              | DC                     | Process Equipment Design         | 2        | 0        | 0        | 6             |
| CH382              | DE 2                   | 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             |
| CH414P             | DC                     | Process Equipment Design Project | 0        | 0        | 2        | 2             |
|                    |                        | <b>Total Credits</b>             |          |          |          | <b>60</b>     |

**Semester 6 (3 Year: Even sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                  | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|--------------------------------------|----------|----------|----------|---------------|
| CH301              | DC                     | Process Instrumentation              | 2        | 0        | 0        | 6             |
| CH313              | DC                     | Equipment Design: Mechanical Aspects | 2        | 0        | 0        | 6             |
| CH413              | DC                     | Plant Design and Economics           | 3        | 0        | 0        | 9             |
| CH202              | DC                     | Corrosion Engineering                | 2        | 0        | 0        | 6             |
| CH481              | DE 3                   | Natural Gas Processing               | 3        | 0        | 0        | 9             |
| CH413              | DC                     | Plant Design and Economics Lab       | 0        | 0        | 2        | 2             |
| CH543              | DE 4                   | Fluidization Engineering             | 3        | 0        | 0        | 9             |
|                    |                        |                                      |          |          |          | <b>47</b>     |

**Semester: Summer Term (3<sup>rd</sup> Year, after 6<sup>th</sup> sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|-----------------------------|----------|----------|----------|---------------|
| CH417              | DP                     | Summer Internship (6 Weeks) | 0        | 0        | 12       | 5             |
|                    |                        | <b>Total Credits</b>        |          |          |          | <b>5</b>      |

**Semester 7 (4 Year: Odd Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                    | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|----------------------------------------|----------|----------|----------|---------------|
|                    | OE 1                   | Open Elective 1                        | 3        | 0        | 0        | 9             |
|                    | OE 2                   | 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             |
|                    |                        | <b>Total Credits</b>                   |          |          |          | <b>42</b>     |
|                    | EP                     | Seminar / CDC Course1                  | 0        | 0        | 2        | 2             |
|                    | EP                     | Group Discussion                       | 0        | 0        | 2        | 2             |

**Semester 8 (4 Year: Even sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>  | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|----------------------|----------|----------|----------|---------------|
| CH418              | DP                     | B.Tech. Project      | 0        | 0        | 40       | 40            |
|                    |                        | <b>Total Credits</b> |          |          |          | <b>40</b>     |

**Department Electives (DE)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                   | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|---------------------------------------|----------|----------|----------|---------------|
| CH281              | DE 1                   | Petroleum Refining Engineering        | 3        | 0        | 0        | 9             |
| CH382              | DE 2                   | Refinery Process Design               | 3        | 0        | 0        | 9             |
| CH381              | DE 2                   | Lube Base Oil & Wax Processing        | 3        | 0        | 0        | 9             |
| CH471              | DE 3                   | Multicomponent Distillation           | 3        | 0        | 0        | 9             |
| CH383              | DE 3                   | Thermal and Catalytic Cracking        | 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. in Chemical Engineering Major)

**Batch: 2024-2028**

| 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, Internship, Engg Practices | 18               | 24         | 15                     |
| LM       | Language & Management                                     | 18               | 24         | 20                     |
| DC       | Departmental Core                                         | 145              | 190        | 157                    |
| DE       | Departmental Elective                                     | 30               | 75         | 36                     |
| OE       | Open Elective                                             | 15               | 20         | 18                     |
| DP       | Project/Industrial Visit                                  | 20               | 50         | 48                     |
|          | <b>TOTAL</b>                                              | <b>378</b>       | <b>565</b> | <b>442</b>             |

### **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         |
|                                        |   |   |   | <b>22</b> |

### **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        |
|                                   |   |   |     | <b>78</b> |

**Institute Engineering (IE)**

| <b>Institute Engineering</b>         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|--------------------------------------|----------|----------|----------|----------------|
| 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              |
|                                      |          |          |          | <b>48</b>      |

**Engineering Drawing, Workshop, Internship, Engg Practices (EP)**

| <b>Engineering Drawing etc</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|--------------------------------|----------|----------|----------|----------------|
| Workshop Practices             | 0        | 0        | 3        | 3              |
| Engineering Graphics           | 0        | 0        | 3        | 3              |
| Group Discussion               | 0        | 0        | 2        | 2              |
| Seminar                        | 0        | 0        | 2        | 2              |
| Chemical Engineering Practices | 1        | 0        | 2        | 5              |
|                                |          |          |          | <b>15</b>      |

**Language & Management (LM)**

| <b>Language &amp; Management</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|----------------------------------|----------|----------|----------|----------------|
| Professional Communication       | 2        | 1        | 0        | 8              |
| Foundations of Management        | 2        | 0        | 0        | 6              |
| Principles of Economics          | 2        | 0        | 0        | 6              |
|                                  |          |          |          | <b>20</b>      |

**Departmental Elective (DE)**

| <b>Departmental Elective</b>         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|--------------------------------------|----------|----------|----------|----------------|
| 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              |
|                                      |          |          |          | <b>36</b>      |

**Open Elective (OE)**

| <b>Open Elective</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|----------------------|----------|----------|----------|----------------|
| Open Elective-1      | 3        | 0        | 0        | 9              |
| Open Elective-2      | 3        | 0        | 0        | 9              |
|                      |          |          |          | <b>18</b>      |

**Project/Industrial Visit (DP)**

| <b>Project/Industrial Visit</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|---------------------------------|----------|----------|----------|----------------|
| B.Tech. Project                 | 0        | 0        | 40       | 40             |
| Internship                      | 0        | 0        | 8        | 8              |
|                                 |          |          |          | <b>48</b>      |

**Departmental Core (DC)**

| <b>Departmental Core</b>                    | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|---------------------------------------------|----------|----------|----------|----------------|
| Chemical Engineering Thermodynamics         | 3        | 1        | 0        | 11             |
| Mass & Energy Balances                      | 2        | 1        | 0        | 8              |
| Fluid Flow and Mechanical Operations        | 3        | 1        | 0        | 11             |
| 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                 | 2        | 0        | 0        | 9              |
| 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              |
| Plant Design and Economics Lab              | 0        | 0        | 2        | 2              |
|                                             |          |          |          | <b>157</b>     |

## **Semester-wise Course Structure**

**(w.e.f. 2025-26)**

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

**Batch: 2024-2028**

### **Semester 1 (1 Year: Odd Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>            | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|--------------------------------|----------|----------|----------|---------------|
| 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             |
|                    |                        | <b>Total Credits</b>           |          |          |          | <b>49</b>     |
| HU101              | HU                     | Universal Human Values         | 1        | 1        | 0        | 5             |

### **Semester 2 (1 Year: Even sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                    | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|----------------------------------------|----------|----------|----------|---------------|
| 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 Programming                   | 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 Programming Lab               | 0        | 0        | 2        | 2             |
| CH112              | EP                     | Renewable Energy Engineering Practices | 1        | 0        | 2        | 5             |
| ME121              | EP                     | Engineering Graphics                   | 0        | 0        | 3        | 3             |
|                    |                        | <b>Total Credits</b>                   |          |          |          | <b>64</b>     |
| HU102              | HU                     | Community Internship                   | 1        | 1        | 0        | 5             |

**Semester 3 (2 Year: Odd Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|---------------------------------------------|----------|----------|----------|---------------|
| 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             |
| CH224              | DC                     | Fluid Flow and Mechanical Operations        | 3        | 1        | 0        | 11            |
| CH224L             | DC                     | Fluid Flow and Mechanical Operations Lab    | 0        | 0        | 2        | 2             |
| ECE102L            | IE                     | Fundamentals of Electronics Engineering Lab | 0        | 0        | 2        | 2             |
|                    |                        | <b>Total Credits</b>                        |          |          |          | <b>56</b>     |

**Semester 4 (2 Year: Even sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|---------------------------------------------|----------|----------|----------|---------------|
| CH212              | DC                     | Materials Science and Strength of Materials | 3        | 1        | 0        | 11            |
| CH274              | DC                     | Mass Transfer Operations-1                  | 3        | 1        | 0        | 11            |
|                    | IE                     | Fundamental of Electrical Engineering       | 3        | 0        | 0        | 9             |
| CH281              | DE 1                   | 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             |
| CH231              | DC                     | Heat Transfer Operation Lab                 | 0        | 0        | 2        | 2             |
|                    |                        | <b>Total Credits</b>                        |          |          |          | <b>71</b>     |

**Semester: Summer Term (2<sup>nd</sup> Year, after 4<sup>th</sup> sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|-----------------------------|----------|----------|----------|---------------|
| CH415              | DP                     | Summer Internship (4 Weeks) | 0        | 0        | 11       | 3             |
|                    |                        | <b>Total Credits</b>        |          |          |          | <b>3</b>      |

**Semester 5 (3 Year: Odd Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|------------------------------------|----------|----------|----------|---------------|
| CH375              | DC                     | Mass Transfer Operations-2         | 3        | 1        | 0        | 11            |
| CH352              | DC                     | Chemical Reaction Engineering-2    | 2        | 1        | 0        | 8             |
| CH392              | DC                     | Chemical Process Technology        | 3        | 0        | 0        | 9             |
| CH414              | DC                     | Process Equipment Design           | 2        | 0        | 0        | 6             |
| CH203              | DE 2                   | Energy Resources & Utilization     | 2        | 0        | 0        | 6             |
| CH341              | DC                     | Process Dynamics and Control       | 3        | 1        | 0        | 11            |
| CH274L             | DC                     | Mass Transfer Operation Lab        | 3        | 0        | 2        | 2             |
| CH203L             | DE 2                   | Energy Resources & Utilization Lab | 0        | 0        | 2        | 2             |
| CH341L             | DC                     | Process Dynamics and Control Lab   | 0        | 0        | 2        | 2             |
| CH414P             | DC                     | Process Equipment Design Project   | 0        | 0        | 2        | 2             |
|                    |                        | <b>Total Credits</b>               |          |          |          | <b>59</b>     |

**Semester 6 (3 Year: Even sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>                          | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|----------------------------------------------|----------|----------|----------|---------------|
| CH301              | DC                     | Process Instrumentation                      | 2        | 0        | 0        | 6             |
| CH313              | DC                     | Equipment Design: Mechanical Aspects         | 2        | 0        | 0        | 6             |
| CH413              | DC                     | Plant Design and Economics                   | 3        | 0        | 0        | 9             |
| CH451              | DE 3                   | Electrochemical Processes and Energy Systems | 3        | 0        | 0        | 9             |
| CH202              | DC                     | Corrosion Engineering                        | 2        | 0        | 0        | 6             |
| CH504              | DE 4                   | Hydrogen Energy                              | 3        | 0        | 0        | 9             |
| CH508L             | DC                     | Energy Conversion Lab                        | 0        | 0        | 2        | 2             |
|                    |                        |                                              |          |          |          | <b>47</b>     |

**Semester: Summer Term (3<sup>rd</sup> Year, after 6<sup>th</sup> sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|-----------------------------|----------|----------|----------|---------------|
| CH417              | DP                     | Summer Internship (6 Weeks) | 0        | 0        | 12       | 5             |
|                    |                        | <b>Total Credits</b>        |          |          |          | <b>5</b>      |

**Semester 7 (4 Year: Odd Sem)**

| Course Code | Course Category | Course Title                           | L | T | P | Credit    |
|-------------|-----------------|----------------------------------------|---|---|---|-----------|
|             | OE 1            | Open Elective 1                        | 3 | 0 | 0 | 9         |
|             | OE 2            | Open Elective 2                        | 3 | 0 | 0 | 9         |
| HU331       | HU              | Organizational Psychology              | 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         |
|             |                 | <b>Total Credits</b>                   |   |   |   | <b>42</b> |
|             | EP              | Seminar / CDC Course                   | 0 | 0 | 2 | 2         |
|             | EP              | Group Discussion                       | 0 | 0 | 2 | 2         |

**Semester 8 (4 Year: Even sem)**

| Course Code | Course Category | Course Title         | L | T | P  | Credit    |
|-------------|-----------------|----------------------|---|---|----|-----------|
| CH418       | DP              | B.Tech. Project      | 0 | 0 | 40 | 40        |
|             |                 | <b>Total Credits</b> |   |   |    | <b>40</b> |

**Department Electives (DE)**

| Course Code | Course Category | Course Title                          | L | T | P | Credit |
|-------------|-----------------|---------------------------------------|---|---|---|--------|
| CH281       | DE 1            | Petroleum Refining Engineering        | 3 | 0 | 0 | 9      |
| CH203 (+L)  | 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. in Chemical Engineering: Major in Renewable Energy Engineering)**  
**Batch: 2024-2028**

| 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, 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         | 48                     |
|          | <b>TOTAL</b>                                              | <b>378</b>       | <b>565</b> | <b>449</b>             |

**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         |
|                                        |   |   |   | <b>22</b> |

**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        |
|                                   |   |   |     | <b>78</b> |

**Institute Engineering (IE)**

| <b>Institute Engineering</b>          | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|---------------------------------------|----------|----------|----------|----------------|
| 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              |
| Fundamental of Electrical Engineering | 3        | 0        | 0        | 9              |
|                                       |          |          |          | <b>57</b>      |

**Engineering Drawing, Workshop, Internship, Engg Practices (EP)**

| <b>Engineering Drawing etc</b>         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|----------------------------------------|----------|----------|----------|----------------|
| Workshop Practices                     | 0        | 0        | 3        | 3              |
| Engineering Graphics                   | 0        | 0        | 3        | 3              |
| Renewable Energy Engineering Practices | 1        | 0        | 2        | 5              |
| Seminar                                | 0        | 0        | 2        | 2              |
| Group discussion                       | 0        | 0        | 2        | 3              |
|                                        |          |          |          | <b>15</b>      |

**Language & Management (LM)**

| <b>Language &amp; Management</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|----------------------------------|----------|----------|----------|----------------|
| Professional Communication       | 2        | 1        | 0        | 8              |
| Foundations of Management        | 2        | 0        | 0        | 6              |
| Principles of Economics          | 2        | 0        | 0        | 6              |
|                                  |          |          |          | <b>20</b>      |

**Departmental Elective (DE)**

| <b>Departmental Elective</b>                       | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|----------------------------------------------------|----------|----------|----------|----------------|
| 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              |
| DE 3: Electrochemical Processes and Energy Systems | 3        | 0        | 0        | 9              |
| DE 4: Hydrogen Energy                              | 3        | 0        | 0        | 9              |
|                                                    |          |          |          | <b>35</b>      |

**Open Elective (OE)**

| <b>Open Elective</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|----------------------|----------|----------|----------|----------------|
| Open Elective-1      | 3        | 0        | 0        | 9              |
| Open Elective-2      | 3        | 0        | 0        | 9              |
|                      |          |          |          | <b>18</b>      |

**Project/Industrial Visit (DP)**

| <b>Project/Industrial Visit</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|---------------------------------|----------|----------|----------|----------------|
| B.Tech. Project                 | 0        | 0        | 40       | 40             |
| Internship                      |          |          |          | 8              |
|                                 |          |          |          | <b>48</b>      |

**Departmental Core (DC)**

| <b>Departmental Core</b>                    | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|---------------------------------------------|----------|----------|----------|----------------|
| Chemical Engineering Thermodynamics         | 3        | 1        | 0        | 11             |
| Mass & Energy Balances                      | 2        | 1        | 0        | 8              |
| Fluid Flow and Mechanical Operations        | 3        | 1        | 0        | 11             |
| 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                 | 3        | 0        | 0        | 9              |
| 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              |
|                                             |          |          |          | <b>157</b>     |

## **Semester-wise Course Structure**

**(w.e.f. 2025-26)**

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

**Batch: 2024-2028**

### **Semester 1 (1 Year: Odd Sem)**

| <b>Course Code</b> | <b>Course Category</b> | <b>Course Title</b>            | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credit</b> |
|--------------------|------------------------|--------------------------------|----------|----------|----------|---------------|
| 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             |
|                    |                        | <b>Total Credits</b>           |          |          |          | <b>49</b>     |
| HU101              | HU                     | Universal Human Values         | 1        | 1        | 0        | 5             |

### **Semester 2 (1 Year: Even sem)**

|        |    |                                                |   |   |     |           |
|--------|----|------------------------------------------------|---|---|-----|-----------|
| 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         |
|        |    | <b>Total Credits</b>                           |   |   |     | <b>64</b> |
| HU102  | HU | Community Internship                           | 1 | 1 | 0   | 5         |

**Semester 3 (2 Year: Odd Sem)**

|         |    |                                             |   |   |   |           |
|---------|----|---------------------------------------------|---|---|---|-----------|
| 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         |
| CH224   | DC | Fluid Flow and Mechanical Operations        | 3 | 1 | 0 | 11        |
| CH224L  | DC | Fluid Flow and Mechanical Operations Lab    | 0 | 0 | 2 | 2         |
| ECE102L | IE | Fundamentals of Electronics Engineering Lab | 0 | 0 | 2 | 2         |
|         |    | <b>Total Credits</b>                        |   |   |   | <b>56</b> |

**Semester 4 (2 Year: Even sem)**

|        |     |                                             |   |   |   |           |
|--------|-----|---------------------------------------------|---|---|---|-----------|
| 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         |
|        |     | <b>Total Credits</b>                        |   |   |   | <b>68</b> |

**Semester: Summer Term (2<sup>nd</sup> Year, after 4<sup>th</sup> sem)**

|       |    |                             |   |   |    |          |
|-------|----|-----------------------------|---|---|----|----------|
| CH415 | DP | Summer Internship (4 Weeks) | 0 | 0 | 11 | 3        |
|       |    | <b>Total Credits</b>        |   |   |    | <b>3</b> |

**Semester 5 (3 Year: Odd Sem)**

|        |     |                                  |   |   |   |           |
|--------|-----|----------------------------------|---|---|---|-----------|
| 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      | 3 | 0 | 0 | 9         |
| CH414  | DC  | Process Equipment Design         | 2 | 0 | 0 | 6         |
| CH591  | DE2 | Petrochemical Process Technology | 2 | 0 | 0 | 6         |
| CH341  | DC  | Process Dynamics and Control     | 3 | 1 | 0 | 11        |
| CH274L | DC  | Mass Transfer Operation Lab      | 3 | 0 | 2 | 2         |
| CH341L | DE  | Process Dynamics and Control Lab | 0 | 0 | 2 | 2         |
| CH591L | DE  | Petrochemicals Lab               | 0 | 0 | 2 | 2         |
| CH414P | DC  | Process Equipment Design Project | 0 | 0 | 2 | 2         |
|        |     | <b>Total Credits</b>             |   |   |   | <b>59</b> |

**Semester 6 (3 Year: Even sem)**

|        |     |                                      |   |   |   |           |
|--------|-----|--------------------------------------|---|---|---|-----------|
| CH301  | DC  | Process Instrumentation              | 2 | 0 | 0 | 6         |
| CH313  | DC  | Equipment Design: Mechanical Aspects | 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         |
| CH393  | DE4 | Polymer Processing                   | 2 | 0 | 0 | 6         |
| CH391L | DC  | Polymers Lab                         | 0 | 0 | 2 | 2         |
| CH413L | DC  | Plant Design and Economics Lab       | 0 | 0 | 2 | 2         |
|        |     | <b>Total Credits</b>                 |   |   |   | <b>43</b> |

**Semester: Summer Term (3<sup>rd</sup> Year, after 6<sup>th</sup> sem)**

|       |    |                             |   |   |    |          |
|-------|----|-----------------------------|---|---|----|----------|
| CH417 | DP | Summer Internship (6 Weeks) | 0 | 0 | 12 | 5        |
|       |    | <b>Total Credits</b>        |   |   |    | <b>5</b> |

**Semester 7 (4 Year: Odd Sem)**

|        |    |                                        |   |   |   |           |
|--------|----|----------------------------------------|---|---|---|-----------|
|        | 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         |
|        |    | <b>Total Credits</b>                   |   |   |   | <b>42</b> |
|        | EP | Seminar / CDC Course                   | 0 | 0 | 2 | 2         |
|        | EP | Group Discussion                       | 0 | 0 | 2 | 2         |

**Semester 8 (4 Year: Even sem)**

|       |    |                      |   |   |    |           |
|-------|----|----------------------|---|---|----|-----------|
| CH418 | DP | B.Tech. Project      | 0 | 0 | 40 | 40        |
|       |    | <b>Total Credits</b> |   |   |    | <b>40</b> |

**Department Electives (DE)**

|       |      |                                          |   |   |   |   |
|-------|------|------------------------------------------|---|---|---|---|
| CH191 | DE1  | Fundamentals of Polymer & Petrochemicals | 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. in Chemical Engineering: Major  
in Petrochemicals & Polymer Engineering)**  
**Batch: 2024-2028**

| 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, Internship, Engg Practices | 18               | 24         | 15                     |
| LM       | Language & Management                                     | 18               | 24         | 20                     |
| DC       | Departmental Core                                         | 145              | 190        | 156                    |
| DE       | Departmental Elective                                     | 30               | 75         | 30                     |
| OE       | Open Elective                                             | 15               | 20         | 18                     |
| DP       | Project/Industrial Visit                                  | 20               | 50         | 48                     |
|          | <b>TOTAL</b>                                              | <b>378</b>       | <b>565</b> | <b>443</b>             |

**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         |
|                                        |   |   |   | <b>22</b> |

**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        |
|                                   |   |   |     | <b>78</b> |

**Institute Engineering (IE)**

| <b>Institute Engineering</b>         | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|--------------------------------------|----------|----------|----------|----------------|
| 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              |
|                                      |          |          |          | <b>48</b>      |

**Engineering Drawing, Workshop, Internship, Engg Practices (EP)**

| <b>Engineering Drawing etc</b>                    | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|---------------------------------------------------|----------|----------|----------|----------------|
| Workshop Practices                                | 0        | 0        | 3        | 3              |
| Engineering Graphics                              | 0        | 0        | 3        | 3              |
| Petrochemicals and Polymers Engineering Practices | 1        | 0        | 2        | 5              |
| Seminar                                           | 0        | 0        | 2        | 2              |
| Group Discussion                                  | 0        | 0        | 2        | 2              |
|                                                   |          |          |          | <b>15</b>      |

**Language & Management (LM)\***

| <b>Language &amp; Management</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|----------------------------------|----------|----------|----------|----------------|
| Professional Communication       | 2        | 1        | 0        | 8              |
| Foundations of Management        | 2        | 0        | 0        | 6              |
| Principles of Economics          | 2        | 0        | 0        | 6              |
|                                  |          |          |          | <b>20</b>      |

**Departmental Elective (DE)**

| <b>Departmental Elective</b>                    | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|-------------------------------------------------|----------|----------|----------|----------------|
| DE-1: Fundamental of Polymer and Petrochemicals | 2        | 0        | 0        | 6              |
| DE 2: Petrochemical Process Technology          | 2        | 0        | 0        | 6              |
| Petrochemicals Lab                              | 0        | 0        | 2        | 2              |
| DE 3: Polymer Synthesis and Properties          | 2        | 1        | 0        | 8              |
| DE 4: Polymer Processing                        | 2        | 0        | 0        | 6              |
| Polymers Lab                                    | 0        | 0        | 2        | 2              |
|                                                 |          |          |          | <b>30</b>      |

**Open Elective (OE)**

| <b>Open Elective</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|----------------------|----------|----------|----------|----------------|
| Open Elective-1      | 3        | 0        | 0        | 9              |
| Open Elective-2      | 3        | 0        | 0        | 9              |
|                      |          |          |          | <b>18</b>      |

**Project/Industrial Visit (DP)**

| <b>Project/Industrial Visit</b> | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|---------------------------------|----------|----------|----------|----------------|
| B.Tech. Project                 | 0        | 0        | 40       | 40             |
| Internship                      |          |          |          | 8              |
|                                 |          |          |          | <b>48</b>      |

**Departmental Core (DC)**

| <b>Departmental Core</b>                    | <b>L</b> | <b>T</b> | <b>P</b> | <b>Credits</b> |
|---------------------------------------------|----------|----------|----------|----------------|
| Chemical Engineering Thermodynamics         | 3        | 1        | 0        | 11             |
| Mass & Energy Balances                      | 2        | 1        | 0        | 8              |
| Fluid Flow and Mechanical Operations        | 3        | 1        | 0        | 11             |
| 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                 | 3        | 0        | 0        | 9              |
| 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              |
|                                             |          |          |          | <b>164</b>     |