

Branch Code: CH21
Dual Degree (B.Tech. & M.Tech.) in Chemical Engineering
2016 Batch

Semester 1

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|--------------------------------|---|---|---|---|---|-----------|-----|
| 1 | CY1001 | Chemistry I | 3 | 1 | 0 | 0 | 6 | 10 | S |
| 2 | CY1002 | Chemistry Laboratory I | 0 | 0 | 0 | 3 | 0 | 3 | S |
| 3 | MA1101 | Functions of Several Variables | 3 | 1 | 0 | 0 | 6 | 10 | S |
| 4 | ME1100 | Thermodynamics | 3 | 1 | 0 | 0 | 6 | 10 | E |
| 5 | PH1010 | Physics I | 3 | 1 | 0 | 0 | 6 | 10 | S |
| 6 | PH1030 | Physics Lab I | 0 | 0 | 0 | 3 | 1 | 4 | S |
| 7 | ID1200 | Ecology and Environment | 0 | 0 | 0 | 0 | 2 | 0 | |
| 8 | GN1101 | Life Skills I | 0 | 0 | 0 | 0 | 2 | 0 | |
| | | NCC/ NSS/ NSO | 0 | 0 | 0 | 0 | 2 | 0 | |
| | | Total Credits : | | | | | | 47 | |

Winter

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|-------------|---|---|---|---|---|---|-----|
| 1 | WS1010 | Workshop I | 0 | 0 | 0 | 3 | 0 | 3 | E |

Semester 2

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|---------------------------------------|---|---|---|---|---|-----------|-----|
| 1 | AM1100 | Engineering Mechanics | 3 | 1 | 0 | 0 | 6 | 10 | E |
| 2 | MA1102 | Series and Matrices | 3 | 1 | 0 | 0 | 6 | 10 | S |
| 3 | PH1020 | Physics II | 3 | 1 | 0 | 0 | 6 | 10 | S |
| 4 | CS1100 | Introduction to Programming | 3 | 0 | 0 | 3 | 6 | 12 | E |
| 5 | CH1020 | Principles & Calculations in Chemical | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 6 | GN1102 | Life Skills II | 0 | 0 | 0 | 0 | 1 | 0 | |
| 7 | | NCC/ NSS/ NSO | 0 | 0 | 0 | 0 | 3 | 0 | |
| | | Total Credits : | | | | | | 52 | |

Summer

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|-------------|---|---|---|---|---|---|-----|
| 1 | WS1020 | Workshop I | 0 | 0 | 0 | 3 | 0 | 3 | E |

Semester 3

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|--|---|---|---|---|---|-----------|-----|
| 1 | CH2010 | Chemical Engineering Thermodynamics | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 2 | CH2012 | Continuum Mechanics & Transport Phenomena | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 3 | CH2013 | Computational Programming & Process Simulation Lab | 1 | 0 | 0 | 2 | 2 | 5 | P |
| 4 | CH2061 | Computational Techniques | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 5 | MAE1 | Maths Elective 1 | 3 | 0 | 0 | 0 | 6 | 9 | S |
| 6 | HSE1 | Humanities I | 3 | 0 | 0 | 0 | 6 | 9 | H |
| | | Total Credits : | | | | | | 53 | |

Semester 4

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|--------------------------------------|---|---|---|---|---|-----------|-----|
| 1 | CH2014 | Fundamentals of Heat & Mass Transfer | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 2 | CH2015 | Fluid and Particle Mechanics | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 3 | CH2016 | Thermodynamics Lab | 0 | 0 | 0 | 3 | 2 | 5 | P |
| 4 | CY2010 | Kinetics and Catalysis | 3 | 0 | 0 | 0 | 6 | 9 | S |
| 5 | EE1100 | Basic Electrical Engineering | 3 | 1 | 0 | 0 | 6 | 10 | E |
| 6 | HSE2 | Humanities 2 | 3 | 0 | 0 | 0 | 6 | 9 | H |
| | | Total | | | | | | 53 | |

Semester 5

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|-------------------------------|---|---|---|---|---|-----------|-----|
| 1 | BT1010 | Life Sciences | 3 | 0 | 0 | 0 | 6 | 9 | S |
| 2 | CH3030 | Applications of Mass Transfer | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 3 | CH3010 | Chemical Reaction Engineering | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 4 | CH3510 | Momentum Transfer & MO Lab | 0 | 0 | 0 | 3 | 2 | 5 | P |
| 5 | CH3520 | Heat and Mass Transfer Lab | 0 | 0 | 0 | 3 | 2 | 5 | P |
| 6 | | Dept. Elective 1 | 3 | 0 | 0 | 0 | 6 | 9 | P |
| | | Total | | | | | | 48 | |

Semester 6

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|------------------------------|---|---|---|---|---|-----------|-----|
| 1 | | Materials Science | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 2 | | Process Control | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 3 | | Dept. Elective 2 | 3 | 0 | 0 | 0 | 6 | 9 | P |
| 4 | | Dept. Elective 3 | 3 | 0 | 0 | 0 | 6 | 9 | P |
| 5 | | Heat and Mass Transfer Lab 2 | 0 | 0 | 0 | 3 | 2 | 5 | P |
| 6 | | CRE Lab | 0 | 0 | 0 | 3 | 2 | 5 | P |
| | | Total | | | | | | 48 | |

Semester 7

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|-------------------------------------|---|---|---|---|---|-----------|-----|
| 1 | | Plant, Process & Product Design | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 2 | | Chemical Technology | 3 | 1 | 0 | 0 | 6 | 10 | P |
| 3 | | Plant, Process & Product Design Lab | 0 | 0 | 0 | 3 | 2 | 5 | P |
| 4 | | Humanities 3 | 3 | 0 | 0 | 0 | 6 | 9 | H |
| 5 | | Dept. Elective 4 | 3 | 0 | 0 | 0 | 6 | 9 | P |
| | | Total | | | | | | 43 | |

Semester 8

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|---------------------------------|---|---|---|---|---|-----------|-----|
| 1 | | Dept. Elective 5 | 3 | 0 | 0 | 0 | 6 | 9 | P |
| 2 | | Dept. Elective 6 | 3 | 0 | 0 | 0 | 6 | 9 | P |
| 3 | CH5100 | Multiphase systems | 3 | 0 | 0 | 0 | 6 | 9 | P |
| 4 | CH5140 | Process Analysis and Simulation | 3 | 0 | 0 | 0 | 6 | 9 | P |
| 5 | HS3050 | Professional Ethics | 2 | 0 | 0 | 0 | 0 | 0 | |
| | | Total | | | | | | 36 | |

Summer

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|------|-----------|--------------|---|---|---|---|----|-----------|-----|
| 1 | CH5680* | Project 1 | 0 | 0 | 0 | 0 | 25 | 25 | P |
| | | Total | | | | | | 25 | |

Semester 9

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|--------------|-----------|------------------|---|---|---|---|----|-----------|-----|
| 1 | | Dept. Elective 7 | 3 | 0 | 0 | 0 | 6 | 9 | P |
| 2 | CH5680 | Project 2 | 0 | 0 | 0 | 0 | 25 | 25 | |
| Total | | | | | | | | 34 | |

Semester 10

| S.No | Course No | Course Name | L | T | E | P | O | C | Cat |
|--------------|-----------|-------------|---|---|---|---|----|-----------|-----|
| 1 | CH5680+ | Project 3 | 0 | 0 | 0 | 0 | 40 | 40 | P |
| Total | | | | | | | | 40 | |

| Semester | I | II | III | IV | V | VI | VII | VIII | Summer | IX | X | Total |
|----------------|-----------|-------------|-----------|-----------|------------|------------|------------|------------|-----------|-----------|-----------|------------|
| Credits | 47 | 52+6 | 53 | 53 | 48* | 48* | 43* | 36* | 25 | 34 | 40 | 557 |

* Indicated credits are only for core program including Department Electives 7. In addition, students are required to take 72 elective credits (13%) during semesters V-VIII from any dept. including Chemical Engineering, subject to maximum of 60 credits per semester.

Suggested elective credits: 9cr. in V, 18cr. each in VI & VII sem; 27 cr. in VIII sem.

| Category | Engineering (E) | Professional (P) | Humanities (H) | Sciences (S) | Others | Total |
|----------------|-----------------|------------------|----------------|--------------|-----------|------------|
| Credits | 48 | 173+63+90 | 27 | 84 | 72 | 557 |

B.Tech (Honours) + M.Tech.: (Total credit requirement: 557 + 27 = 584)

- **Eligibility:** minimum CGPA of 8.5 at the end of 5th sem without U or W grade in any course.
- **Extra credit requirement:** 13 credits in VII semester + 14 credits in VIII sem over and above the regular BTech requirement.