

Chemical and Biochemical Engineering

SEMESTER - I (Common for all B.Tech Courses)

| S.No | C. Code | Course | L | T | P | C |
|------|------------|--------------------------------------------------|---|-----|---|-----------|
| 1 | MA108T | Calculus | 3 | 1.5 | 0 | 9 |
| 2 | PH101T | Quantum Physics and Applications | 2 | 1 | 0 | 6 |
| 3 | PH101L | Hands on Science Laboratory – I | 0 | 0 | 3 | 3 |
| 4 | CS101C | Computer Programming | 3 | 0 | 3 | 9 |
| 5 | HS101T | Design Thinking and Creativity | 1 | 0 | 0 | PP/NP |
| 6 | CH101T | Fundamental Concepts & Applications of Chemistry | 3 | 0 | 0 | 6 |
| 7 | BB101T | Introduction to Modern Biology | 3 | 0 | 0 | 6 |
| 8 | NO 105/107 | NSO/NSS | 0 | 0 | 2 | 2 |
| | | Total Credits | | | | 41 |

Semester II

| S.No | Course Code | Course Name | L | T | P | C |
|------|---------------|-------------------------------------------|---|-----|---|-----------|
| 1 | MA109T | Linear Algebra and Differential Equations | 3 | 1.5 | 0 | 9 |
| 2 | ME101C | Engineering Graphics | 1 | 0 | 3 | 6 |
| 3 | ME101L | Hands on Engineering Lab | 0 | 0 | 3 | 3 |
| 4 | CL101T | Introduction to Chemical Engineering | 3 | 0 | 0 | 6 |
| 5 | BB201T | Biomolecules | 2 | 1 | 0 | 6 |
| 6 | | Organic Chemistry | 3 | 0 | 0 | 3 |
| 7 | NO 105/NO 107 | NSO/NSS | 0 | 0 | 2 | 2 |
| | | Total Credits | | | | 35 |

Semester III

| S.No | Course Code | Course Name | L | T | P | C |
|------|-------------|-----------------------------------------------------|---|---|---|-----------|
| 1 | EE205T | Introduction to Probability | 3 | 0 | 0 | 6 |
| 2 | EE207T | Data analysis | 3 | 0 | 0 | 3 |
| 3 | CL204T | Fluid Mechanics and Mechanical Operations | 3 | 0 | 0 | 6 |
| 4 | CL205T | Heat Transfer for Chemical Engineers | 3 | 0 | 0 | 6 |
| 5 | CL203T | Introduction to Chemical Engineering Thermodynamics | 3 | 0 | 0 | 6 |
| 6 | ME201T | Engineering Mechanics | 2 | 1 | 0 | 6 |
| 7 | BB401T | Basic of Cell Biology and Genetics | 3 | 0 | 0 | 6 |
| | | Total Credits | | | | 36 |

Semester IV

| S.No | Course Code | Course Name | L | T | P | C |
|------|-------------|------------------------------------------|---|---|---|---|
| 1 | CS204T | Artificial Intelligence | 3 | 0 | 0 | 6 |
| 2 | CS201L | Artificial Intelligence lab | 0 | 0 | 3 | 3 |
| 3 | CL206T | Materials Science for Chemical Engineers | 3 | 0 | 0 | 6 |

| | | | | | | |
|---|--------|----------------------------|---|---|---|-----------|
| 4 | BB403T | Biophysics | 3 | 0 | 0 | 3 |
| 5 | BB201L | Biology Lab I | 0 | 0 | 3 | 3 |
| 6 | CL301L | Chemical Engineering Lab I | 0 | 0 | 3 | 3 |
| 7 | CL201T | Reaction Engineering | 3 | 0 | 0 | 6 |
| 8 | CL202T | Mass Transfer | 3 | 0 | 0 | 6 |
| | | Total Credits | | | | 36 |

Semester V

| S.No | Course Code | Course Name | L | T | P | C |
|-------------|--------------------|----------------------------------------|----------|----------|----------|-----------|
| 1 | CL304T | Applications of Mass Transfer | 3 | 0 | 0 | 6 |
| 2 | CL308T | Advanced Chemical Reaction Engineering | 3 | 0 | 0 | 6 |
| 3 | CL307T | Process Dynamics and Control | 3 | 0 | 0 | 6 |
| 4 | CL302T | Process Equipment Design and Economics | 3 | 0 | 0 | 6 |
| 5 | CL301L | Chemical Engineering Lab II | 0 | 0 | 3 | 3 |
| 6 | HS201T | Economics | 3 | 0 | 0 | 6 |
| | | Total Credits | | | | 33 |

Semester VI

| S.No | Course Code | Course Name | L | T | P | C |
|-------------|--------------------|------------------------------------------|----------|----------|----------|-----------|
| 1 | CL301T | Transport Phenomena | 3 | 0 | 0 | 6 |
| 2 | CL301C | Numerical Method in Chemical Engineering | 3 | 0 | 0 | 6 |
| 3 | CL302L | Chemical Engineering Lab III | 0 | 0 | 3 | 3 |
| 4 | | Program Elective-I | 3 | 0 | 0 | 6 |
| 5 | CL306T | AI in Chemical Engineering | 3 | 0 | 0 | 6 |
| 6 | CL303L | Chemical Engineering Lab IV | 0 | 0 | 3 | 3 |
| 7 | CE301T | Environmental Studies | 3 | 0 | 0 | 6 |
| | | Total Credits | | | | 36 |

Semester VII

| S.No | Course Code | Course Name | L | T | P | C |
|-------------|--------------------|----------------------------|----------|----------|----------|-----------|
| 1 | CL405T | Bio Process Engineering | 3 | 0 | 0 | 6 |
| 2 | CL401S | Scientific presentation | 0 | 0 | 3 | 3 |
| 3 | | Program Elective-II | 3 | 0 | 0 | 6 |
| 4 | | Program Elective-III/BTP-I | 3 | 0 | 0 | 6 |
| 5 | | HSS Elective-I | 3 | 0 | 0 | 6 |
| | | Total Credits | | | | 27 |

Semester VIII

| S.No | Course Code | Course Name | L | T | P | C |
|-------------|--------------------|---------------------------|----------|----------|----------|----------|
| 1 | | Program Elective-IV | 3 | 0 | 0 | 6 |
| 2 | | Program Elective-V/BTP-II | 3 | 0 | 0 | 6 |
| 3 | | Institute Elective-I | 3 | 0 | 0 | 6 |
| 4 | | HSS Elective-II | 3 | 0 | 0 | 6 |

| | | |
|---------------------|------------------------------------|------------|
| | Total Credits | 24 |
| | | |
| | Overall Credits Required (Minimum) | 268 |
| | | |
| Program Electives | 5 | |
| Institute Electives | 1 | |
| HSS Electives | 2 | 268 |