

## 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    | CY101T     | 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         |
|      |            | <b>Total Credits</b>                             |   |     |   | <b>41</b> |

### 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 Lab                  | 1 | 0   | 3 | 6         |
| 3    | ME101L        | Hands on Engineering Lab                  | 0 | 0   | 3 | 3         |
| 4    | CH101T        | Introduction to Chemical Engineering      | 3 | 0   | 0 | 6         |
| 5    | BB201T        | Biomolecules                              | 2 | 1   | 0 | 6         |
| 6    | CY201T        | Organic Chemistry                         | 3 | 0   | 0 | 3         |
| 7    | NO 105/NO 107 | NSO/NSS                                   | 0 | 0   | 2 | 2         |
|      |               | <b>Total Credits</b>                      |   |     |   | <b>35</b> |

### 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    | CH205T      | Heat Transfer for Chemical Engineers                | 3 | 0 | 0 | 6         |
| 5    | CH203T      | Introduction to Chemical Engineering Thermodynamics | 3 | 0 | 0 | 6         |
| 6    | ME201T      | Engineering Mechanics                               | 2 | 1 | 0 | 6         |
| 7    | BB401T      | Basics of Cell Biology and Genetics                 | 3 | 0 | 0 | 6         |
|      |             | <b>Total Credits</b>                                |   |   |   | <b>36</b> |

### 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 | CH206T | Materials Science fir Chemical Engineers           | 3 | 0 | 0 | 6         |
| 4 | BB403T | Biophysics                                         | 3 | 0 | 0 | 3         |
| 5 | BB201L | Biology Lab I                                      | 0 | 0 | 3 | 3         |
| 6 | CH201L | Chemical Engineering lab 1 (Thermodynamics and flu | 0 | 0 | 3 | 3         |
| 7 | CL201T | Reaction Engineering                               | 3 | 0 | 0 | 6         |
| 8 | CH202T | Mass Transfer                                      | 3 | 0 | 0 | 6         |
|   |        | Total Credits                                      |   |   |   | <b>36</b> |

### Semester V

| S.No | Course Code | Course Name                            | L | T | P | C         |
|------|-------------|----------------------------------------|---|---|---|-----------|
| 1    | CH304T      | Applications of Mass Transfer          | 3 | 0 | 0 | 6         |
| 2    | CH308T      | Advanced Chemical Reaction Engineering | 3 | 0 | 0 | 6         |
| 3    | CH307T      | Process Dynamics and Control           | 3 | 0 | 0 | 6         |
| 4    | CH302T      | Process Equipment Design and Economics | 3 | 0 | 0 | 6         |
| 5    | CH301L      | Chemical Engineering Lab II            | 0 | 0 | 3 | 3         |
| 6    | HS201T      | Economics                              | 3 | 0 | 0 | 6         |
|      |             | Total Credits                          |   |   |   | <b>33</b> |

### Semester VI

| S.No | Course Code | Course Name                              | L | T | P | C         |
|------|-------------|------------------------------------------|---|---|---|-----------|
| 1    |             | Transport Phenomena                      | 3 | 0 | 0 | 6         |
| 2    | CH301C      | Numerical Method in Chemical Engineering | 3 | 0 | 0 | 6         |
| 3    | CH302L      | Chemical Engineering Lab III             | 0 | 0 | 3 | 3         |
| 4    |             | Program Elective-I                       | 3 | 0 | 0 | 6         |
| 5    | CH306T      | AI in Chemical Engineering               | 3 | 0 | 0 | 6         |
| 6    | CH303L      | Chemical Engineering Lab IV              | 0 | 0 | 3 | 3         |
| 7    | CE301T      | Environmental Studies                    | 3 | 0 | 0 | 6         |
|      |             | Total Credits                            |   |   |   | <b>36</b> |

### Semester VII

| S.No | Course Code | Course Name                | L | T | P | C         |
|------|-------------|----------------------------|---|---|---|-----------|
| 1    | CL405T      | Bio Process Engineering    | 3 | 0 | 0 | 6         |
| 2    | CL401S      | Sciemtific 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              |   |   |   | <b>27</b> |

### 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                      |            |   |   | <b>24</b>  |
|   |                     |                                    |            |   |   |            |
|   |                     | Overall Credits Required (Minimum) |            |   |   | <b>268</b> |
|   |                     |                                    |            |   |   |            |
|   | Program Electives   | 5                                  | <b>268</b> |   |   |            |
|   | Institute Electives | 1                                  |            |   |   |            |
|   | HSS Electives       | 2                                  |            |   |   |            |