

## Chemical Engineering

### Semester III

| Subject code | Subject name                         | Teaching Scheme (Hours) |          |           | Credits | Theory Marks |        | Practical Marks |       | Total Marks | Branch Code |
|--------------|--------------------------------------|-------------------------|----------|-----------|---------|--------------|--------|-----------------|-------|-------------|-------------|
|              |                                      | Theory                  | Tutorial | Practical |         | ESE(E)       | PA (M) | Viva (V)        | PA(I) |             |             |
|              | Advanced Engineering Mathematics     | 3                       | 2        | 0         | 5       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Organic Chemistry and Unit Processes | 3                       | 0        | 2         | 5       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Fluid Flow Operation                 | 3                       | 0        | 2         | 5       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Mechanics of Solids                  | 4                       | 0        | 2         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Process Calculation                  | 3                       | 1        | 0         | 4       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Chemical Process Industries-1        | 3                       | 0        | 2         | 5       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | <b>Total</b>                         | 19                      | 3        | 8         | 30      |              |        |                 |       |             |             |

### Semester IV

| Subject code | Subject name                            | Teaching Scheme (Hours) |          |           | Credits | Theory Marks |        | Practical Marks |       | Total Marks | Branch Code |
|--------------|-----------------------------------------|-------------------------|----------|-----------|---------|--------------|--------|-----------------|-------|-------------|-------------|
|              |                                         | Theory                  | Tutorial | Practical |         | ESE(E)       | PA (M) | Viva (V)        | PA(I) |             |             |
|              | Chemical Engineering Maths              | 3                       | 2        | 0         | 5       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Engineering Economics and Management    | 3                       | 0        | 0         | 3       | 70           | 30     | 0               | 0     | 100         | 5           |
|              | Physical And Inorganic Chemistry        | 3                       | 0        | 4         | 7       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Chemical Engineering Thermodynamics - I | 3                       | 1        | 0         | 4       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Process Heat Transfer                   | 3                       | 0        | 3         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Chemical Process Industries -II         | 3                       | 0        | 2         | 5       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | <b>Total</b>                            | 18                      | 3        | 9         | 30      |              |        |                 |       |             |             |

**Semester V**

| Subject code | Subject name                             | Teaching Scheme (Hours) |          |           | Credits | Theory Marks |        | Practical Marks |       | Total Marks | Branch Code |
|--------------|------------------------------------------|-------------------------|----------|-----------|---------|--------------|--------|-----------------|-------|-------------|-------------|
|              |                                          | Theory                  | Tutorial | Practical |         | ESE(E)       | PA (M) | Viva (V)        | PA(I) |             |             |
|              | Computer Oriented Numerical Techniques   | 0                       | 0        | 2         | 2       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Mass Transfer Operation - I              | 3                       | 0        | 3         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Mechanical Operation                     | 3                       | 0        | 3         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Chemical Engineering Thermodynamics - II | 3                       | 1        | 0         | 4       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Instrumentation & Process Control        | 3                       | 0        | 3         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Institute Elective -I                    | 4                       | 0        | 2         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | <b>Total</b>                             | 16                      | 1        | 13        | 30      |              |        |                 |       |             |             |

**Semester VI**

| Subject code | Subject name                                  | Teaching Scheme (Hours) |          |           | Credits | Theory Marks |        | Practical Marks |       | Total Marks | Branch Code |
|--------------|-----------------------------------------------|-------------------------|----------|-----------|---------|--------------|--------|-----------------|-------|-------------|-------------|
|              |                                               | Theory                  | Tutorial | Practical |         | ESE(E)       | PA (M) | Viva (V)        | PA(I) |             |             |
|              | Mass Transfer Operation - II                  | 3                       | 0        | 3         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Chemical Reaction Engineering - I             | 3                       | 0        | 3         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Process Equipment Design -I                   | 4                       | 0        | 3         | 7       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Pollution Control, Safety & Health Management | 3                       | 0        | 2         | 5       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Department Elective - I                       | 4                       | 0        | 2         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | <b>Total</b>                                  | 17                      | 0        | 13        | 30      |              |        |                 |       |             |             |

**Semester VII**

| Subject code | Subject name                       | Teaching Scheme (Hours) |          |           | Credits | Theory Marks |        | Practical Marks |       | Total Marks | Branch Code |
|--------------|------------------------------------|-------------------------|----------|-----------|---------|--------------|--------|-----------------|-------|-------------|-------------|
|              |                                    | Theory                  | Tutorial | Practical |         | ESE(E)       | PA (M) | Viva (V)        | PA(I) |             |             |
|              | Chemical Reaction Engineering - II | 3                       | 0        | 3         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Process Equipment Design -II       | 3                       | 0        | 3         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Plant Design & Project Engineering | 3                       | 0        | 0         | 3       | 70           | 30     | 0               | 0     | 100         | 5           |
|              | Department Elective - II           | 4                       | 0        | 0         | 4       | 70           | 30     | 0               | 0     | 100         | 5           |
|              | Computer Aided Process Synthesis   | 4                       | 0        | 3         | 7       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Project - I                        | 0                       | 0        | 4         | 4       | 0            | 0      | 100             | 50    | 150         | 5           |
|              | <b>Total</b>                       | 17                      | 0        | 13        | 30      |              |        |                 |       |             |             |

**Semester VIII**

| Subject code | Subject name                                | Teaching Scheme (Hours) |          |           | Credits | Theory Marks |        | Practical Marks |       | Total Marks | Branch Code |
|--------------|---------------------------------------------|-------------------------|----------|-----------|---------|--------------|--------|-----------------|-------|-------------|-------------|
|              |                                             | Theory                  | Tutorial | Practical |         | ESE(E)       | PA (M) | Viva (V)        | PA(I) |             |             |
|              | Transport Phenomena                         | 3                       | 0        | 0         | 3       | 70           | 30     | 0               | 0     | 100         | 5           |
|              | Petroleum Refining & Petrochemicals         | 4                       | 0        | 2         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Process Modeling, Simulation & Optimization | 4                       | 0        | 3         | 7       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | Project -II                                 | 0                       | 0        | 8         | 8       | 0            | 0      | 100             | 50    | 150         | 5           |
|              | Department Elective - III                   | 4                       | 2        | 0         | 6       | 70           | 30     | 30              | 20    | 150         | 5           |
|              | <b>Total</b>                                | 15                      | 2        | 13        | 30      |              |        |                 |       |             |             |

**Departmental Elective I:**

Advance Separation Techniques  
 Biochemical Engineering  
 Biotechnology

**Institute Elective -I**

Fundamental Chemical Engineering Calculations & Stoichiometry

**Departmental Elective II:**

Energy Technology  
 Nano Technology

**Departmental Elective III:**

Multi Component Distillation  
 Solid-fluid operations  
 Fertilizer Technology

**Note: ALA Component, OEP Component and Design Module I, II and III ( to be offered in 2nd Year , 3rd year and 4th year respectively ) shall be displayed in the final teaching scheme**