

**DEPARTMENT OF CHEMICAL ENGINEERING**

**SCHEME FOR B. Tech. Third Semester (Chemical Engineering)**  
**(Revised December 2020)**

**Third Semester:**

| Course Number                     | Subject                                | Scheme of Studies<br>Periods per week |          |          | Total Credits |
|-----------------------------------|----------------------------------------|---------------------------------------|----------|----------|---------------|
|                                   |                                        | L                                     | T        | P        |               |
| MTH 7301                          | Mathematics-3                          | 3                                     | 1        | -        | 4             |
| HUM 7302                          | Fundamental of Entrepreneurship        | 3                                     | -        | -        | 3             |
| CHE 7303                          | Chemical Process Calculations          | 3                                     | 1        | -        | 4             |
| CHE 7304                          | Fluid Mechanics                        | 3                                     | -        | -        | 3             |
| CHE 7305                          | Chemical Engineering Thermodynamics    | 3                                     | 1        | -        | 4             |
| CHE 7306                          | Chemical Process Design & Technology-1 | -                                     | 2        | -        | 2             |
| CHE 7307                          | Chemical Technology Lab                | -                                     | -        | 2        | 1             |
| CHE 7308                          | Fluid Mechanics Lab                    | -                                     | -        | 2        | 1             |
| CHE 7309                          | Professional Practice-1                | -                                     | 1        | -        | 1             |
| <b>Total Hours = 25</b>           |                                        | <b>15</b>                             | <b>6</b> | <b>4</b> | <b>23</b>     |
| <b>Total Credits (Cumulative)</b> |                                        |                                       |          |          | <b>68</b>     |

**Fourth Semester:**

| Course Number                     | Subject                                  | Scheme of Studies<br>Periods per week |          |          | Total Credits |
|-----------------------------------|------------------------------------------|---------------------------------------|----------|----------|---------------|
|                                   |                                          | L                                     | T        | P        |               |
| MTH 7401                          | Mathematics-4                            | 3                                     | 1        | -        | 4             |
| CHE 7402                          | Fundamentals of Process Equipment Design | 3                                     | 1        | -        | 4             |
| CHE 7403                          | Chemical Reaction Engineering-1          | 3                                     | 1        | -        | 4             |
| CHE 7404                          | Heat Transfer                            | 3                                     | 1        | -        | 4             |
| CHE 7405                          | Mass Transfer-1                          | 3                                     | -        | -        | 3             |
| CHE 7406                          | Chemical Process Design & Technology-2   | -                                     | 2        | -        | 2             |
| CHE 7407                          | Heat Transfer Lab                        | -                                     | -        | 2        | 1             |
| CHE 7408                          | Mass Transfer Lab                        | -                                     | -        | 2        | 1             |
| CHE 7409                          | Professional Practice-2                  | -                                     | 1        | -        | 1             |
| <b>Total Hours = 27</b>           |                                          | <b>15</b>                             | <b>8</b> | <b>4</b> | <b>24</b>     |
| <b>Total Credits (Cumulative)</b> |                                          |                                       |          |          | <b>92</b>     |

**Fifth Semester:**

| Course Number                     | Subject                               | Scheme of Studies<br>Periods per week |          |          | Total Credits |
|-----------------------------------|---------------------------------------|---------------------------------------|----------|----------|---------------|
|                                   |                                       | L                                     | T        | P        |               |
| CHE 7501                          | Fuel, furnace and Refractory          | 3                                     | 1        | -        | 4             |
| ME 7501                           | Engineering Management                | 3                                     | 1        | -        | 4             |
| CHE 7502                          | Mechanical Operations                 | 3                                     | -        |          | 3             |
| CHE 7503                          | Mass Transfer-2                       | 3                                     | 1        | -        | 4             |
| CHE 7504                          | Chemical Reaction Engineering-2       | 3                                     | -        | -        | 3             |
| CHE 7505                          | Mechanical Operation Lab              | -                                     | -        | 2        | 1             |
| CHE 7506                          | Chemical Reaction Engineering Lab     | -                                     | -        | 2        | 1             |
| CHE 7507                          | Fuel Process & Technology Project Lab | -                                     | 2        | -        | 2             |
| CHE 7508                          | Internship/Training/ Tours            | -                                     | -        | -        | 1             |
| <b>Total Hours = 24</b>           |                                       | <b>15</b>                             | <b>5</b> | <b>4</b> | <b>23</b>     |
| <b>Total Credits (Cumulative)</b> |                                       |                                       |          |          | <b>115</b>    |

**Sixth Semester:**

| Course Number                     | Subject                                   | Scheme of Studies<br>Periods per week |          |          | Total Credits |
|-----------------------------------|-------------------------------------------|---------------------------------------|----------|----------|---------------|
|                                   |                                           | L                                     | T        | P        |               |
| CSE 7601                          | Data Structure                            | 3                                     | 1        | -        | 4             |
| CHE 7602                          | Project-1                                 | -                                     | -        | 4        | 2             |
| CHE 7603                          | Process Modeling and Simulation           | 3                                     | 1        | -        | 4             |
| CHE 7604                          | Transport Phenomena                       | 3                                     | 1        | -        | 4             |
| CHE 7605                          | Instrumentation & Process Dynamic Control | 3                                     | 1        | -        | 4             |
|                                   | Department Elective-1 (A)                 | 3                                     | -        | -        | 3             |
| CHE 7606                          | Process Control Lab                       | -                                     | -        | 2        | 1             |
| CHE 7607                          | Process Modeling and Simulation Lab       | -                                     | -        | 2        | 1             |
| <b>Total Hours = 27</b>           |                                           | <b>15</b>                             | <b>4</b> | <b>8</b> | <b>23</b>     |
| <b>Total Credits (Cumulative)</b> |                                           |                                       |          |          | <b>138</b>    |

**MAULANA AZAD NATIONAL INSTITUTE OF TECHNOLOGY  
BHOPAL – 462003**

**REVISED SCHEME FOR BATCH ADMITTED IN 2020**

**(49<sup>th</sup> Senate, Item S-49.2022-I-2.7)**

**Department of Chemical Engineering**

**B. Tech. (Chemical Engineering)**

**SEVENTH SEMESTER**

| Course Code            | Course Name                                | Scheme of Studies<br>Periods per week |          |          | Credits   |
|------------------------|--------------------------------------------|---------------------------------------|----------|----------|-----------|
|                        |                                            | L                                     | T        | P        |           |
| HUM 7701               | Engineering Economics & IPR                | 3                                     | -        |          | 3         |
| CHE 7702               | Process Engineering and Costing            | 3                                     | -        | -        | 3         |
| CHE 7703               | Process Plant Design                       | 3                                     | -        | -        | 3         |
|                        | Department Elective-2(A)                   | 3                                     | -        | -        | 3         |
|                        | Department Elective-3(A)                   | 3                                     | -        | -        | 3         |
|                        | Open Elective-1(C)                         | 3                                     | -        | -        | 3         |
| CHE 7704               | Advanced Characterization of Materials Lab | -                                     | -        | 2        | 1         |
| CHE 7705               | Project 2 Phase 1                          | -                                     | 1        | 2        | 2         |
| CHE 7706               | Educational Tour & Training                | -                                     | -        | 2        | 1         |
| <b>Total Hours =25</b> |                                            | <b>18</b>                             | <b>1</b> | <b>6</b> | <b>22</b> |

**EIGHTH SEMESTER**

| Course Code            | Course Name                       | Scheme of Studies<br>Periods per week |          |           | Credits   |
|------------------------|-----------------------------------|---------------------------------------|----------|-----------|-----------|
|                        |                                   | L                                     | T        | P         |           |
|                        | Department Elective-4(A)          | 3                                     | -        | -         | 3         |
|                        | Department Elective-5(A)          | 3                                     | -        | -         | 3         |
|                        | Department Elective-6(A)          | 3                                     | -        | -         | 3         |
| CHE 7801 /<br>CHE 7802 | Project 2 Phase 2 /<br>Internship | -                                     | -        | 12        | 6         |
| CHE 7803               | General Proficiency               | -                                     | -        | -         | 1         |
| <b>Total Hours =21</b> |                                   | <b>9</b>                              | <b>-</b> | <b>12</b> | <b>16</b> |

**List of Electives**

**Group A - Department Electives**

CHE 501 Bio Chemical Engineering  
CHE 502 Oil and Paint Technology  
CHE 503 Sustainable Engineering  
CHE 504 Paper and pulp technology  
CHE 505 Petroleum Refinery Engineering  
CHE 506 Fertilizer Technology  
CHE 507 Novel Separation Techniques  
CHE 508 Industrial Pollution Control  
CHE 509 Process Piping Design  
CHE 510 Packaging Technology  
CHE 511 Transport in Porous media  
CHE 512 Computer Aided Process Control & Design  
CHE 513 Fluidization Engineering  
CHE 514 Fuels and Combustion  
CHE 515 Air Pollution and control  
CHE 516 Oil and Gas well testing and enhanced Oil recovery  
CHE 517 Membrane Science and Technology  
CHE 518 Industrial Catalysis  
CHE 519 Introduction to Multi Phase Flow  
CHE 520 Trends in Healthcare and Technology  
CHE 521 Wastewater Treatment  
CHE 522 Plant Utility  
CHE 523 Numerical and Statistical Methods in Chemical Engineering  
CHE 524 Cleaner Technologies in Chemical Process Industries  
CHE 525 Computational Fluid Dynamics  
CHE 526 Sustainability and Green Chemistry  
CHE 527 Nanotechnology in Catalysis  
CHE 528 Hazardous Waste Treatment and Management  
CHE 529 Advanced Material Characterization  
CHE 530 Bio Energy Technology  
CHE 531 Solid Waste Management  
CHE 532 Economics and Managements of Chemical Industries  
CHE 533 Advanced Analytical Techniques  
CHE 534 Material Synthesis Processes  
CHE 535 Ceramic Technology  
CHE 536 Advanced Process Optimization  
CHE 537 Safety & Hazard Management in Chemical Industries  
CHE 538 Introduction to Nano-Science and Technology  
CHE 539 Rubber Technology  
CHE 540 Polymer Science & Technology  
CHE 541 Textile Technology