

**B.S. in Chemical Engineering (CHE)**  
**Four Year Academic Plan**  
**Digital/Business Foundation**

| Freshman Year   |      |  |           |          |           |          |      |  |           |           |           |
|-----------------|------|--|-----------|----------|-----------|----------|------|--|-----------|-----------|-----------|
| Course          | Type | Title  | LT        | LB       | Cr        | Course   | Type | Title  | LT        | LB        | Cr        |
| CHEM 101        | MS   | Principles of Chemical Science I                 | 3         | 3        | 4         | CHEM 102 | MS   | Principles of Chemical Science II                      | 3         | 4         | 4         |
| ENGL 101        | GS   | Introd. to Academic Discourse                    | 3         | 0        | 3         | ENGL 102 | GS   | Introduction to Report Writing                         | 3         | 0         | 3         |
| IAS 121         | GS   | Language Foundation                              | 2         | 0        | 2         | ICS 104  | DF   | Introd. to Programming in Python and C                 | 2         | 3         | 3         |
| MATH 101        | MS   | Calculus I                                       | 4         | 0        | 4         | MATH 102 | MS   | Calculus II  | 4         | 0         | 4         |
| PE 101          | GS   | Health and Physical Education I                  | 0         | 2        | 1         | PHYS 102 | MS   | General Physics II                                     | 3         | 3         | 4         |
| PHYS 101        | MS   | General Physics I                                | 3         | 3        | 4         |          |      |  |           |           |           |
|                 |      | <b>Total</b>                                     | <b>15</b> | <b>8</b> | <b>18</b> |          |      | <b>Total</b>   | <b>15</b> | <b>10</b> | <b>18</b> |
| Sophomore Year  |      |  |           |          |           |          |      |  |           |           |           |
| Course          | Type | Title  | LT        | LB       | Cr        | Course   | Type | Title  | LT        | LB        | Cr        |
| CHE 200         | CR   | Principles of Chemical Engineering               | 3         | 2        | 3         | CHE 204  | CR   | Fluid Mechanics  | 3         | 0         | 3         |
| CHEM 201        | MS   | Organic Chemistry I                              | 3         | 0        | 3         | CHE 212  | CR   | Introduction to Chemical Engineering Computing         | 1         | 3         | 2         |
| CHEM 202        | MS   | Organic Chemistry Laboratory                     | 0         | 4        | 1         | COE 292  | DF   | Introduction to Artificial Intelligence                | 3         | 0         | 3         |
| IAS 111         | GS   | Belief and its Consequences                      | 2         | 0        | 2         | ENGL 214 | GS   | Academic & Professional Communication                  | 3         | 0         | 3         |
| ISE 291         | DF   | Introduction to Data Science                     | 3         | 0        | 3         | MATH 208 | MS   | Intro to Diff Equations & Linear Algebra               | 3         | 0         | 3         |
| MATH 201        | MS   | Calculus III                                     | 3         | 0        | 3         | MSE 207  | MS   | Materials Science for CHE                              | 2         | 0         | 2         |
|                 |      | <b>Total</b>                                     | <b>14</b> | <b>6</b> | <b>15</b> |          |      | <b>Total</b>   | <b>15</b> | <b>3</b>  | <b>16</b> |
| Junior Year     |      |  |           |          |           |          |      |  |           |           |           |
| Course          | Type | Title  | LT        | LB       | Cr        | Course   | Type | Title  | LT        | LB        | Cr        |
| CHE 300         | CR   | Heat Transfer                                    | 3         | 0        | 3         | BUS 200  | DF   | Business & Entrepreneurship                            | 3         | 0         | 3         |
| CHE 303         | CR   | Chemical Engineering Thermodynamics              | 3         | 0        | 3         | CHE 306  | CR   | Separation Processes                                   | 3         | 0         | 3         |
| CHE 304         | CR   | Mass Transfer                                    | 3         | 0        | 3         | CHE 309  | CR   | Chemical Engineering Laboratory I                      | 0         | 6         | 2         |
| CHEM 311        | MS   | Physical Chemistry II: Kinetics and Spectroscopy | 3         | 0        | 3         | CHE 360  | CR   | Numerical Methods in Chemical Engineering              | 3         | 0         | 3         |
| CHEM 312        | MS   | Kinetics and Spectroscopy Laboratory             | 0         | 4        | 1         | STAT 201 | MS   | Probability and Statistics for Engineers and Scientist | 3         | 1         | 3         |
| IAS 212         | GS   | Ethics and Governance                            | 2         | 0        | 2         | CGS 392  | GS   | Career Essentials                                      | 0         | 2         | 1         |
|                 |      | <b>Total</b>                                     | <b>14</b> | <b>4</b> | <b>15</b> |          |      | <b>Total</b>   | <b>12</b> | <b>09</b> | <b>15</b> |
| Summer Training |      |  |           |          |           | CHE 399  | CR   | Summer Training  | 0         | 0         | 1         |

| Senior Year  |      |                              |           |          |           |              |      |                          |           |           |           |
|--------------|------|------------------------------|-----------|----------|-----------|--------------|------|--------------------------|-----------|-----------|-----------|
| Course       | Type | Title                        | LT        | LB       | Cr        | Course       | Type | Title                    | LT        | LB        | Cr        |
| CHE 401      | CR   | Process Dynamics and Control | 3         | 0        | 3         | CHE 409      | CR   | Chemical Engg Lab II     | 0         | 6         | 2         |
| CHE 402      | CR   | Kinetics & Reactor Design    | 3         | 0        | 3         | CHE 412      | CR   | Senior Design Project II | 0         | 6         | 3         |
| CHE405       | CR   | Process Design & Economics   | 3         | 0        | 3         | CHE 4XX      | CE   | Chem. Engg Elective II   | 3         | 0         | 3         |
| CHE 4XX      | CE   | Chem. Engg Elective I        | 3         | 0        | 3         | GS XXX       | GS   | GS Elective              | 3         | 0         | 3         |
| XXX xxx      | EN   | Engineering Elective         | 3         | 0        | 3         | IAS XXX      | GS   | Islamic/Arabic Elective  | 2         | 0         | 2         |
| CHE 411      | CR   | Senior Design Project I      | 0         | 1        | 0         | XXX xxx      | FE   | General Elective         | 3         | 0         | 3         |
| <b>Total</b> |      |                              | <b>15</b> | <b>1</b> | <b>15</b> | <b>Total</b> |      |                          | <b>11</b> | <b>12</b> | <b>16</b> |

|                           |            |
|---------------------------|------------|
| <b>Total Credit Hours</b> | <b>129</b> |
|---------------------------|------------|

|  |                             |            |
|--|-----------------------------|------------|
| MS   | Math and Science            | 43         |
| GS   | General Studies             | 22         |
| CR   | Core Subjects               | 40         |
| CE   | Core Electives              | 6          |
| EN   | Engineering Electives       | 3          |
| TE   | Technical Electives         | 0          |
| FE   | Free Electives              | 3          |
| DF   | Digital/Business Foundation | 12         |
| <b>Total</b>                               |                             | <b>129</b> |
| <b>Total Core (CR+CE)</b>                  |                             | <b>46</b>  |
| <b>Total Engineering (Total Core + EN)</b> |                             | <b>49</b>  |