**FIRST TERM**

|  |  |
| --- | --- |
| **Credit** | **Class** |
| **4** | **MATH 0221** Calculus I |
| **3** | **CHEM 0150** (prev. Chem 0111) General Chem Eng 1 |
| **4** | **PHYS 0150** Phys for Eng 1 |
| **3** | **ENGR 0017**Intro to Eng Analysis |
| **3** | **ENGCMP 0005** Comp. *1 (or a 650 or better on reading writing portion of SAT)* |
| **0** | **ENGR 0081** Freshman Seminar 1 |
| **17** | **TOTAL** |

**THIRD TERM**

|  |  |  |
| --- | --- | --- |
| **Credit** | **Class** | **Pre/*Co* Req** |
| **4** | **MATH 241** Calculus III | MATH 0231 (C- or better) |
| **3** | **CHEM 0236** Organic Chem 1 | (CHEM 0112 and 0114) or 0120 or 0115 or 0151 |
| **3** | **CHE 0103** Foundations ChE 1 | CHEM 0120 or 0420 or 0770 or 0970 or 0102 or 0112 or 0115 or 0151 and MATH 0230 or 0235 or 0150 or 0231 and PHYS 0174 or 0475 or 0150 or 0201, ***CHE 0104*** |
| **1** | **CHE 0104** Foundations Lab | ***CHE 0103*** |
| **3** | **CHE 0220** Che Thermo 1 | CHEM 0120 or 0420 or 0770 or 0970 or 0102 or 0112 or 0115 or 0151 and MATH 0230 or 0235 or 0150 or 0231 and PHYS 0174 or 0475 or 0150 or 0201 |
| **0** | **CHE 1085** Dept Seminar |  |
| **14**  | **TOTAL** |  |

**FIFTH TERM**

|  |  |  |
| --- | --- | --- |
| **Credit** | **Class** | **Pre/*Co* Req** |
| **4** | **ENGR 0020** Prob & Stats | MATH 0231 (C- or better) |
| **3** | **CHE 0302** Transport Phenomena I | CHE 0105 and (PHYS 0175 or PHYS 0152) and (MATH 0290 or MATH 0250 or MATH 1271 or MATH 1035); **CHE 0304** |
| **3** | **CHE 0402** Reactive Processes I | CHE 0105, CHE 0221, PHYS 0152, CHEM 0231) and (MATH 0290 or MATH 1271 or MATH 1035) |
| **1** | **CHE 0404** Reactive Lab | ***CHE 0402***  |
| **3** | **CHE 0315**Product Design 2 | CHE 0105 and CHE 0214 and (PHYS 0175 or PHYS 0152) and (MATH 0290 or MATH 0250 or MATH 1271 or MATH 1035); ***CHE 0302*** |
| **3** | **CHEM 1341** Physical Chem | PHYS 0152, MATH 0231 |
| **0** | **CHE 1085**Dept Seminar |  |
| **17** | **TOTAL** |  |

**SEVENTH TERM**

|  |  |  |
| --- | --- | --- |
| **Credit** | **Class** | **Pre/*Co* Req** |
| **3** | **CHEM 1324** Fundamentals of Biochemistry | CHEM 0232, ***CHEM 1323 or JCHE-BSE Plan*** |
| **3** | Advanced Science |  |
| **1** | Advanced Science Lab |  |
| **5** | **CHE 0503** Sys Dyn & modeling | CHE 0303, CHE 0403 ***CHE 0504*** |
| **1** | **CHE 0504** Sys Engr Lab | ***CHE 0503*** |
| **2** | **CHE 1114** **Sys Process Design 1** | CHE 0403 or 0405 |
| **0** | **CHE 1085** Dept Seminar |  |
| **15**  | **TOTAL** |  |

 **SECOND TERM**

|  |  |  |
| --- | --- | --- |
| **Credit** | **Class** | **Pre/*Co* Req** |
| **4** | **MATH 0231** Calculus II | MATH 0221 (C- or better) |
| **3** | **CHEM 0151 with Lab** (prev. Chem 0115) Gen. Chem Eng 2  | CHEM 0150 |
| **4** | **PHYS 0152** Phys for Eng 2 | PHYS 0150, ***MATH 0231*** |
| **3** | **ENGR 0018** Intro Eng Computing | ENGR 0017, ***MATH 0221*** |
| **3** | **WOK** (S&C, GH&C, A&CE) |  |
| **0** | **ENGR 0082** Fresh. Seminar 2 |  |
| **17** | **TOTAL** |  |

**FOURTH TERM**

|  |  |  |
| --- | --- | --- |
| **Credit** | **Class** | **Pre/*Co* Req** |
| **3** | **MATH 1271** Diff Eqs | MATH 0241 |
| **3** | **CHEM 0237** Organic Chem 2 | CHEM 0236, ***CHEM 0238*** |
| **1** | **CHEM 0238** Organic Lab | ***CHEM 0237*** |
| **3** | **CHE 0221** Che Thermo 2 | CHE 0220, ***CHE 0222*** |
| **1** | **CHE 0222** Che Thermo Lab | ***CHE 0221***  |
| **3** | **CHE 0105** Foundations ChE 2 | CHE 0103 |
| **3** | **CHE 0214**  Intro Che Product Design | CHEM 0112 or CHEM 0970 or CHEM 0115 or CHEM 0151) and (MATH 0230 or MATH 0231) and (PHYS 0150 or PHYS 0174) |
| **0** | **CHE 1085** Dept Seminar |  |
| **16** | **TOTAL** |  |

**SIXTH TERM**

|  |  |  |
| --- | --- | --- |
| **Credit** | **Class** | **Pre/*Co* Req** |
| **3** | **WOK** (S&C, GH&C, A&CE) |  |
| **3** | **WOK** (S&C, GH&C, A&CE) |  |
| **3** | **COMMRC 0052** Public Speaking |  |
| **2** | **CHE 0405** Reactive Processes | CHE 0402  |
| **3** | **CHE 0303** Transport Phenomena II | CHE 0303 |
| **1** | **CHE 0304** Transport Phenomena Lab | CHE 0302 |
| **3** | Engr Elective |  |
| **0** | **CHE 1085** Dept Seminar |  |
| **18** | **TOTAL** |  |

**EIGHTH TERM**

|  |  |  |
| --- | --- | --- |
| **Credit** | **Class** | **Pre/*Co* Req** |
| **2** | **CHE 1115** Sys Process Design 2 | CHE 1114 |
| **2** | **CHE 0603** Safety and Ethics |  |
| **3** | Advance Chemical/Petroleum Elective |  |
| **3** | Professional Elective |  |
| **3** | **WO**K (S&C, GH&C, A&CE) |  |
| **3** | **WOK** (S&C,GH&C, A&CE) |  |
| **0** | **CHE 1085** Dept Seminar |  |
| **16** | **TOTAL** |  |

**ENGINEERING ELECTIVES**

|  |  |  |
| --- | --- | --- |
| **Course** | **Pre/*Co* Req** | **Typical Term** |
| **ENGR 1103**Engineering Economics | Sophomore or beyond | Fall, Spring, Summer |
| **ENGR 1115**Engineering Leadership | Sophomore or beyond | Fall |
| **CE 1105**Materials of Construction |  | Spring |
| **CE 1503**Intro to Environmental Engineering | CHEM 0150 | Fall |
| **CE 1610**Engineering & Sustainable Development |  | Spring |
| **EE0445** Programming & Intro to Data Structures | MATH 0221, ENGR 0018  | Fall |
| **ENGR 0022**Materials | MATH 0231, PHYS 0150  | Fall |
| **ENGR 0132** Statics | MATH 0231, PHYS 0150  | Fall |
| **ME 0024**Intro ME Design | ENGR 0017 | Fall |
| **EE 0031** Linear Circuits | MATH 0231, PHYS 0151 |  |
| **CHE 1096** Special Projects |  | Fall, Spring |

**ADVANCE CHEMICAL/PETROLEUM ELECTIVES**

|  |  |  |
| --- | --- | --- |
| **Credit** | **Class** | **Pre/*Co* Req** |
| 3 | **CHE 0510** Intro. Computational Fluid Dynamics | *CHE 0302* |
| 3 | **CHE 0515** Catalysis  | *CHE 0402* |
| 3 | **CHE 0520**Fuel & Energy Technology | MATH 0241, ME 1053 |

**Advanced Science Elective**

**Advance Chemistry Course w/lab**

|  |  |  |
| --- | --- | --- |
| **Course** | **Pre/*Co* Req** | **Typical Term** |
| **CHEM 0325**Analytical Chemistry | (CHEM 0112 and 0114) or CHEM 0120 or CHEM 0115 or CHEM 0151 and MATH 0004 or MATH 0221 | Fall |
| **CHEM 1327**Instrumental Analysis | CHEM 0232 and 0234 (or CHEM 0230 and 0235 and CHEM 0325) | Spring |
| **CHEM 1131 & LAB CHEM 1133**Inorganic Chemistry | ***CHEM 0234 (Waived)*** | Spring |
| **CHEM 1331 & PHYS 0225**Polymer Chemistry with Optics Lab | *CHEM 0237* *PHYS 0150* | Spring |

**Advance Physics Course w/lab**

|  |  |  |
| --- | --- | --- |
| **Course** | **Pre/*Co* Req** | **Typical Term** |
| **PHYS 0450 + PHYS 1400**Electromagnetism+ Adv Lab | PHYS 0150 and PHYS 0152 | Fall |
| **PHYS 1300 + PHYS 1400**Quantum mechanics + Adv Lab | PHYS 0150 and PHYS 0152 | Fall |

**Professional Electives**

* An additional Engineering Elective
* An additional advanced science
* MATH 1181 Linear Algebra
* ENGWRT 1192 Tech Writing
* ENGWRT 0053 Intro to Pro Writing
* COMMRC 0083 Intercultural Comm
* Other Courses with Permission
* 3 Semester of Co-op along with a paper and presentation

|  |
| --- |
| **Notes:**  *1) italic bold lettering means co-req*  *2) Students have a minimum of 131 credits to graduate.* *3) Students who do not need to take ENGCMP 0005 (SAT-V greater than 650) will need to take another 3 credits to meet this requirement.**4)3 credits of special projects will fulfil engineering elective requirement.*5) *Students need to take 5 WOK courses with MAX 2 from each world of knowledge.* ***The chemical engineering students are not allowed to take WOK courses from world of science and nature.***  |