## General Engineering B.S. with Computational Modeling Minor

For students entering Fall 2023

### First Year - Fall Semester

| Course | Title | Credits |
|---|---|---|
| CHEM121 | General Chemistry I | 4 |
| MATH121 | Calculus I | 3 |
| ENGR101 | Introduction to Engineering I | 1 |
| ECON 101 | Economics (EPPS) | 3 |
| WRIT102 | Research Writing | 3 |
| CORE 113 | Freshman Academic Seminar | 3 |
| CORE103 | Community Enrichment Series | 0 |
| ENGR192 | Freshman Engineering Seminar | 0 |
| | **Total** | **17** |

### First Year - Spring Semester

| Course | Title | |
|---|---|---|
| CHEM122 | General Chemistry II | |
| MATH122 | Calculus II | |
| PHYS122 | General Physics I | |
| ENGR102 | Introduction to Engineering II | |
| LIT104 | LIT103, 201, 202, 207, 270 | |
| RLST105 | Religious Studies | |
| CORE104 | Community Enrichment Series | |
| ENGR193 | Freshman Engineering Seminar | |
| | **Total** | |

### Second Year - Fall Semester

| Course | Title | Credits |
|---|---|---|
| MATH221 | Calculus III | 3 |
| PHYS122/L | General Physics I | 4 |
| ENGR210/L | Programming for Engineers | 2 |
| ENGR201 | Engineering Statics | 3 |
| ENGR250 | Solid Modeling and CAD | 3 |
| HIST1/200 | History Elective | 3 |
| ENGR292 | Sophomore Engineering Seminar | 0 |
| | **Total** | **18** |

### Second Year - Spring Semester

| Course | Title | |
|---|---|---|
| MATH306 | Differential Equations I | |
| ENGR202 | Engineering Dynamics | |
| ENGR315/L | Mechanics of Materials | |
| ENGR325/L | Fundamentals of Electrical Engineering | |
| ENGR279 | Sophmore Engr. Design for Service | |
| PHIL 205 | Philosophy and Reasoning | |
| ENGR293 | Sophomore Engineering Seminar | |
| | **Total** | |

### Third Year - Fall Semester

| Course | Title | Credits |
|---|---|---|
| MATH322 | Linear Algebra | 3 |
| ENGR301/L | Fluid Mechanics | 4 |
| ENGR321 | Applied Engr. Thermodynamics | 3 |
| ENGR350 | Materials Science | 3 |
| EPPS | Social science elective (1/2) | 3 |
| EXAM301 | Writing Compentency Exam | 0 |
| ENGR392 | Junior Engineering Seminar | 0 |
| | **Total** | **16** |

### Third Year - Spring Semester

| Course | Title | |
|---|---|---|
| ENGR335 | Engineering Instrumentation | |
| ENGR375 | Heat Transfer | |
| ENGR379 | Junior Engr. Design for Service | |
| MATH309 | Mathematical Modeling | |
| ENGR410 | Applied Finite Element and Volume Modeling | |
| MATH212 | Approximation Methods I | |
| ENGR393 | Junior Engineering Seminar | |
| | **Total** | |

### Senior Year - Fall Semester

| Course | Title | Credits |
|---|---|---|
| ENGR427 | Power/Thermal Systems Lab | 1 |
| ENGR415 | Senior Lab | 3 |
| ENGR497 | Capstone Design Proposal | 1 |
| MATH312 | Approximation Methods II | 3 |
| CPSC28x* | Algorithmic Programming | 2 |
| DIVER | Diversity requirement | 3 |
| PHIL/RLST | Philosophy/Religious Studies Elect. | 3 |
| ENGR492 | Senior Engineering Seminar | 0 |
| | **Total** | **16** |

*Two from CPSC 280, 281, and 282 must be taken. Each are 1-credit courses and can be taken throughout the paradigm.

### Senior Year - Spring Semester

| Course | Title | |
|---|---|---|
| ENGR498 | Capstone Design | |
| CORE407 | Keystone Seminar | |
| EPPS | Social science elective (2/2) | |
| EPPS | Language requirement | |
| FNAR | Fine Arts | |
| ENGR493 | Senior Engineering Seminar | |
| | **Total** | |

| | |
|---|---|
| 39 | Courses for CORE curriculum |
| 15 | Courses for the minor |

Total credits

| Credits |
|---|
| 4 |
| 3 |
| 4 |
| 1 |
| 3 |
| 3 |
| 0 |
| 0 |
| **18** |

## Computational Modeling Minor (15)

The Computational Modeling Minor should appeal to General Engineers with a desire to develop computational or numerical design programs that may be used by other engineering disciplines or concentrations (especially robotics and mechanical). Students gain adeptness in computational modeling skills, mathematical solution methodologies and specialized computer programming.

- ENGR 410 - Applied Finite Element and Volume Modeling, 4
- MATH 309 - Mathematical Modeling, 3
- MATH 212 - Approximation Methods I, 3
- MATH 312 - Approximation Methods II, 3
- CPSC 280-282 – Algorithmic Programming, 2 credits required

| | |
|---|---|
| Credits in the General engineering central requirements = | 82 |
| Credits in the CORE curriculum | 39 |
| Credits in the Minor = 15 | |
| Total credits = | 136 |

| Credits |
|---|
| 3 |
| 3 |
| 3 |
| 4 |
| 2 |
| 3 |
| 0 |
| **18** |

| Credits |
|---|
| 1 |
| 3 |
| 3 |
| 3 |
| 4 |
| 3 |
| 1 |
| **18** |

| Credits |
|---|
| 3 |
| 3 |
| 3 |
| 3 |
| 3 |
| 0 |
| **15** |

| 136 |
|---|