# Bachelor of Science in Civil Engineering (130 Credit Hours)

## FRESHMAN YEAR

### Fall Semester
- **MATH 157** Calculus & Analytical Geometry I 4
- **CHEM 101** General Chemistry I (& Lab) 4
- **CORE** CORE # 3
- **ENSC 191** Engineering Seminar I 3
- **PHIL 101** Reasoning 3

### Spring Semester
- **MATH 258** Calculus & Analytical Geometry II 4
- **PHYS 103** Scientific Physics I (& Lab) 5
- **ENSC 205** Statics 3
- **ENSC 192** Engineering Seminar II 3
- **PHIL 201** Philosophy of Human Nature 3

17 credits | 18 credits

## SOPHOMORE YEAR

### Fall Semester
- **CENG 225** Geology 3
- **CENG 261** Introduction to Geomatics 3
- **CENG 252** Fluid Mechanics 3
- **MATH 259** Calculus & Analytical Geometry III 4
- **RELI XXX** Christian / Catholic Traditions 3

### Spring Semester
- **ENSC 301** Mechanics of Materials I 3
- **ENSC 306** Dynamics 3
- **MATH 260** Ordinary Differential Equations 3
- **MATH 321** Statistics for Experimentalists 3
- **RELI XXX** World / Comparative Religion 3

16 credits | 15 credits

## JUNIOR YEAR

### Fall Semester
- **CENG 301** Structural Analysis I 3
- **CENG 302L** Construction Materials Lab 2
- **CENG 404** Sustainable Systems 3
- **CENG 331** Soil Mechanics & Lab 4
- **CENG 351** Hydrology 3
- **PHIL 301** Ethics 3

### Spring Semester
- **CENG 303** Environmental Engineering & Lab 4
- **CENG 318** Transportation Engineering 3
- **CENG 352** Hydraulic Engineering & Lab 4
- **CENG 391** Civil Engineering Design/Practice 3
- **CENG 412** Concrete Design 3

18 credits | 17 credits

## SENIOR YEAR

### Fall Semester
- **ENSC 491** Senior Design Project I 2
- **ENSC 492** Senior Design Project II 3
- **Technical Elective * 3**
- **Technical Elective * 3**
- **Technical Elective * 3**
- **CORE 432** Integration Seminar 3

### Spring Semester
- **ENSC 492** Senior Design Project II 3
- **Technical Elective * 3**
- **Technical Elective * 3**
- **CORE # 3**
- **ENSC 400** FE Examination 0

14 credits | 15 credits

* Electives / Program Objectives (on back)

**CORE # Social Science, History & Literature (one of each)

Also need core designators: [1] 3 cr. social justice, [2] 6 cr. writing enriched; and, [3] 3 cr. global studies

**Technical Electives**

Courses from the following list satisfy the technical elective requirements. To aid in course selection, the discipline(s) covered in each course are identified as follows: environmental engineering (E), geotechnical engineering (G), structural engineering (S), transportation engineering (T), and water resources engineering (W). Other courses may be used with approval from the Civil Engineering Chair.
<table>
<thead>
<tr>
<th>Typically Offered in Fall</th>
<th>Only Occasionally Offered</th>
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<tbody>
<tr>
<td>CENG 411 Steel Design (S)</td>
<td>CENG 413 Groundwater (E, G, W)</td>
</tr>
<tr>
<td>CENG 418 Transportation Systems Design (T)</td>
<td>CENG 416 Hydrogeology (E, G, W)</td>
</tr>
<tr>
<td>CENG 420 Structural Dynamics (S)</td>
<td>CENG 427 Infrastructure Design (E, G, T, W)</td>
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<tr>
<td>CENG 421 Stormwater Management (W)</td>
<td>CENG 428 Urban Design and Development (E)</td>
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<tr>
<td>CENG 424 Water Treatment Processes (E)</td>
<td>CENG 432 Hazard Mitigation (E, W, T)</td>
</tr>
<tr>
<td>CENG 426 Stream Restoration (W, E)</td>
<td>CENG 444 Air Pollution (E)</td>
</tr>
<tr>
<td>CENG 473 Foundation Design (G, S)</td>
<td>CENG 454 Biological Treatment Processes (E)</td>
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<tr>
<td></td>
<td>CENG 463 Pavement Design (G, S, T)</td>
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<td></td>
<td>MENG 465 Introduction to Finite Elements (G, S)</td>
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<table>
<thead>
<tr>
<th>Typically Offered in Spring</th>
<th>Typically Offered Every Other Summer</th>
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<tbody>
<tr>
<td>CENG 422 Structural Analysis II (S)</td>
<td>CENG 440 Gonzaga in Delft: Sustainable Cities (E,S,T,W)</td>
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<td>CENG 414 Waste Management (E)</td>
<td>(3 week study abroad course in the Netherlands)</td>
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<td>CENG 415 Masonry and Timber Design (S)</td>
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<td>CENG 417 Traffic Engineering (T)</td>
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<tr>
<td>CENG 450 Watershed Modeling (W, E)</td>
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<tr>
<td>CENG 464 Ground Behavior for Structures (G, S)</td>
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**Engineering Program Objectives**

Civil Engineers educated at Gonzaga University will:

1. Develop engineered solutions that are well-conceived and carefully implemented to meet public and private sector needs.
2. Contribute effectively to organizations as leaders and/or team members,
3. Foster personal and organizational success in a dynamic, globalized professional environment,
4. Improve society by applying Catholic, Jesuit, humanistic values to their professional and civic responsibilities.

These four Objectives identify the actions which we believe our graduates will be trained to participate in as they contribute to society in their careers and professions.