### Civil Engineering

#### Freshman Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Fall</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>ECIV 101</td>
<td>Intro To Civil Engineering</td>
<td>1</td>
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<tr>
<td>CHMY 141</td>
<td>College Chemistry I</td>
<td>4</td>
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<tr>
<td>&amp; CHMY 142</td>
<td>College Chemistry I Lab</td>
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<tr>
<td>M 171Q</td>
<td>Calculus I</td>
<td>4</td>
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</tr>
<tr>
<td>or M 181Q</td>
<td>Honors Calculus I</td>
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<tr>
<td>WRIT 101W</td>
<td>College Writing I</td>
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University Seminar - Choose one of the following:

- CLS 101US - Knowledge and Community
- COMX 111US - Introduction to Public Speaking (formerly COM 110US)
- HONR 201US - Texts and Critics: Knowledge & Imagination I
- US 101US - First Year Seminar
- BGEN 104US - Business & Entrepreneurship Fundamentals Seminar
- LS 101US - Interdisciplinary Ways of Knowing
- CLS 201US - Knowledge and Community

Take CLS 201US if > 30 earned credits.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Fall</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>CHMY 143</td>
<td>College Chemistry II</td>
<td>4</td>
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<tr>
<td>&amp; CHMY 144</td>
<td>College Chemistry II Lab</td>
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</tr>
<tr>
<td>M 172</td>
<td>Calculus II</td>
<td>4</td>
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<tr>
<td>or M 182</td>
<td>Honors Calculus II</td>
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<tr>
<td>PHSX 220</td>
<td>Physics I with Calculus</td>
<td>4</td>
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</tr>
<tr>
<td>or PHSX 240</td>
<td>Honors Gen &amp; Mod Phys I</td>
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</table>

Choose one of the following:

- BMGT 205 - Prof Business Communication
- WRIT 201 - College Writing II
- WRIT 221 - Intermediate Tech Writing
- HONR 202IH - Texts and Critics: Knowledge & Imagination II
- ECIV 202 - Applied Analysis

Year Total: 15

#### Sophomore Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Fall</th>
<th>Spring</th>
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<tbody>
<tr>
<td>SRVY 230</td>
<td>Intro to Surveying for Engineers</td>
<td>3</td>
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<tr>
<td>EGEN 201</td>
<td>Engineering Mechanics-Statics*</td>
<td>3</td>
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<tr>
<td>M 273</td>
<td>Multivariable Calculus</td>
<td>4</td>
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<tr>
<td>or M 283</td>
<td>Honors Multivariable Calculus</td>
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</tr>
<tr>
<td>PHSX 222</td>
<td>Physics II with Calculus</td>
<td>4</td>
<td></td>
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<tr>
<td>or PHSX 242</td>
<td>Honors Gen &amp; Mod Phys II</td>
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<tr>
<td>DSN 131</td>
<td>Introduction to Drafting and Design</td>
<td>3</td>
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</tr>
<tr>
<td>EGEN 202</td>
<td>Engineering Mechanics -- Dynamics**</td>
<td>3</td>
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<tr>
<td>EGEN 205</td>
<td>Mechanics of Materials**</td>
<td>3</td>
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<tr>
<td>EGEN 350</td>
<td>Applied Engineering Data Analysis</td>
<td>2</td>
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<tr>
<td>or STAT 332</td>
<td>Statistics for Scientists and Engineers</td>
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<tr>
<td>M 274</td>
<td>Introduction to Differential Equation</td>
<td>4</td>
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<tr>
<td>or M 284</td>
<td>Honors Introduction to Differential Equations</td>
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<tr>
<td>ECIV 337</td>
<td>Civil Engineering Fluid Mechanics**</td>
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University Core (IS, IH, IA/RA or D) | 3

Year Total: 17

#### Junior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Fall</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>ECIV 312</td>
<td>Structures I**</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>ECIV 333</td>
<td>Water Resources Engineering**</td>
<td>4</td>
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<tr>
<td>EGEN 310R</td>
<td>Multidisciplinary Engineering Design**</td>
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</table>

Take one of the following:

- BIOB 160 - Principles of Living Systems
- BIOM 103IN - Unseen Universe: Microbes
- ENSC 245IN - Soils
- ERTH 101IN - Earth System Sciences
- GPHY 284 - Intro to GIS Science & Cartog

University Core (IS, IH, IA/RA or D) | 3

Year Total: 16

#### Senior Year

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Fall</th>
<th>Spring</th>
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</thead>
<tbody>
<tr>
<td>ECIV 489R</td>
<td>Civil Engineering Design I**</td>
<td>2</td>
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<tr>
<td>EGEN 330</td>
<td>Business Fundamentals for Technical Professionals</td>
<td></td>
<td>3</td>
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<tr>
<td>Professional Electives**</td>
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<td>University Core (IS, IH, IA/RA or D)</td>
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<tr>
<td>ECIV 499R</td>
<td>Capstone: Civil Eng Design II**</td>
<td>2</td>
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<tr>
<td>EGEN 488</td>
<td>Fundamentals of Engineering Exam**</td>
<td>0</td>
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<tr>
<td>Professional Electives**</td>
<td>9</td>
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<tr>
<td>University Core (IS, IH, IA/RA or D)</td>
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</table>

Year Total: 14

Total Program Credits: 128

* Key courses
** Advanced courses
* Design Intensive Course (Minimum of 2 courses required)

Additional requirements: 15 credits of approved professional electives at the 300 level or above. A minimum of 2 courses in civil engineering (i.e., ECIV, EENV, SRVY, EGEN) and not more than 3 courses in any one civil engineering sub-area are required. A maximum of 4 credits total from Individual Problems, Internships and Undergraduate Research may be counted toward professional electives. The professional electives program must contain a minimum of 2 design intensive courses (+)(see the CE flow chart). Students must successfully complete all key courses (*) prior to taking any advanced courses (**) which includes professional electives. A maximum of 3 credit-hours may be included from a completed MSU minor, a prior or concurrent BS/BA degree in another major, or courses in a completed MSU Honors Program, or Internship (max. 3 credits). A student may petition to include other senior or graduate level courses consistent
A minimum of 128 credits is required for graduation; 42 of these credits must be in courses numbered 300 and above.

### Professional Elective Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DDSN 245</td>
<td>Civil Drafting</td>
<td>3</td>
</tr>
<tr>
<td>ECIV 307</td>
<td>Construction Estimating and Bidding</td>
<td>3</td>
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<tr>
<td>ECIV 309</td>
<td>Building Information Modeling in Construction</td>
<td>3</td>
</tr>
<tr>
<td>ECIV 311</td>
<td>Construction Project Documentation</td>
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<tr>
<td>ECIV 334</td>
<td>Heavy Civil Construction Planning &amp; Estimating</td>
<td>3</td>
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<tr>
<td>ECIV 401</td>
<td>Civil Eng Practice and Ethics</td>
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<tr>
<td>ECIV 404</td>
<td>Heavy Const Equip and Methods</td>
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<tr>
<td>ECIV 405</td>
<td>Construction Project Planning and Scheduling</td>
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<tr>
<td>ECIV 406</td>
<td>Sustainability Issues in Construction</td>
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<tr>
<td>ECIV 414</td>
<td>Steel Design</td>
<td>3</td>
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<tr>
<td>ECIV 415</td>
<td>Design of Masonry Structures</td>
<td>3</td>
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<tr>
<td>ECIV 416</td>
<td>Design of Wood and Timber Structures</td>
<td>3</td>
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<tr>
<td>ECIV 417</td>
<td>Heavy Civil Construction Practices</td>
<td>3</td>
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<tr>
<td>ECIV 420</td>
<td>Earth and Foundation Engr</td>
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<tr>
<td>ECIV 425</td>
<td>Geotechnical Structures</td>
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<tr>
<td>ECIV 431</td>
<td>Open Channel Hydraulics</td>
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<tr>
<td>ECIV 435</td>
<td>Closed-Conduit Hydraulics</td>
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<tr>
<td>ECIV 451</td>
<td>Highway Pavements</td>
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<tr>
<td>ECIV 452</td>
<td>Traffic Engineering and ITS</td>
<td>3</td>
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<tr>
<td>ECIV 454</td>
<td>Transportation Planning</td>
<td>3</td>
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<tr>
<td>ECIV 456</td>
<td>Highway Geometric Design</td>
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<tr>
<td>ECIV 484</td>
<td>Reinforced Concrete Design</td>
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<tr>
<td>ECIV 490R</td>
<td>Undergraduate Research</td>
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<tr>
<td>ECIV 492</td>
<td>Independent Study</td>
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<tr>
<td>ECIV 498</td>
<td>Internship</td>
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<tr>
<td>EENV 432</td>
<td>Advanced Engineering Hydrology</td>
<td>3</td>
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<tr>
<td>EENV 434</td>
<td>Groundwater Supply/Remediation</td>
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<tr>
<td>EENV 436</td>
<td>Stormwater Management &amp; Engineering</td>
<td>3</td>
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<tr>
<td>EENV 440</td>
<td>Water Chemistry for Envr Engr</td>
<td>3</td>
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<tr>
<td>EENV 443</td>
<td>Air Pollution Control</td>
<td>3</td>
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<tr>
<td>EENV 445</td>
<td>Hazardous Waste Treatment</td>
<td>3</td>
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<tr>
<td>EGEN 415</td>
<td>Advanced Mechanics of Solids</td>
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<tr>
<td>EGEN 420</td>
<td>Ice and Snow Mechanics</td>
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<td>EGEN 435</td>
<td>Fluid Dynamics</td>
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<tr>
<td>SRVY 355</td>
<td>Surveying Calculations</td>
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<tr>
<td>SRVY 361</td>
<td>Intro Legal Princ in Surveying</td>
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<tr>
<td>SRVY 362</td>
<td>Public Land Survey System</td>
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<tr>
<td>SRVY 375</td>
<td>Analytic Photogrammetry and Remote Sensing</td>
<td>3</td>
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<tr>
<td>SRVY 474</td>
<td>Project Design in Surveying</td>
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