# BS/MS in CIVIL AND ENVIRONMENTAL ENGINEERING


*Sample Only – Actual Curriculum Sequence May Deviate from Sample*

### FALL | SPRING | SUMMER 1 | SUMMER 2
---|---|---|---
**Year 1**  
MATH1341 | Calculus 1 for Engrs. | 4 | MATH1342 | Calculus 2 for Engrs. | 4 | Vacation | Vacation  
CHEM1151 | General Chem. for Engrs. | 3 | PHYS1513 | Physics 1 for Engrs. | 3 |  |  
CHEM1153 | Recitation for CHEM1151 | 1 | PHYS1512 | Physics 1 Lab | 1 |  |  
GE1110 | Eng’g. Design | 4 | PHYS1513 | ILS for PHYS1511 | 4 |  |  
GEO000 | Intro. to Eng’g. | 4 | GE1111 | Eng’g. Prob. Solv. & Comp. | 4 |  |  
NUR000 | Arts OR Humanities Lvl. 1 | 4 | ENG1111 | College Writing | 4 |  |  
**Year 1 (AA)**  
MATH2421 | Calculus 3 for Engrs. | 4 | MATH2421 | Diff. Eq./Lin. Alg. | 4 |  |  
CIVE2000 | Physics 2 for Engrs. | 3 | CIVE2000 | Intro. to Eng’g., Co-op | 1 |  |  
PHYS1155 | Physics 2 Lab | 1 | CIVE2240 | Materials | 3 |  |  
PHYS1156 | ILS for PHYS1155 | 1 | CIVE2261 | Meas./Matls. Lab | 2 |  |  
CIVE2222 | Statics & Strength | 4 | CIVE2222 | Struct. Analysis | 4 |  |  
CIVE2222 | Recitation for CIVE2222 | 0 | CIVE2321 | Recitation for CIVE2320 | 0 |  |  
CIVE2260 | Materials | 3 | CIVE2341 | Macro or Micro Economics | 4 |  |  
CIVE2261 | Meas./Matls. Lab | 2 | CIVE3000 | (Social Science Lvl. 1) | 4 |  |  
CIVE2348 | Environ. Eng’g. 1 | 4 |  |  |  |  |  
**Year 2 (AA)**  
MATH2421 | Calculus 3 for Engrs. | 4 | MATH2421 | Diff. Eq./Lin. Alg. | 4 |  |  
CIVE2000 | Intro. to Eng’g. Co-op | 1 | CIVE2240 | Materials | 3 |  |  
CIVE2222 | Statics & Strength | 4 | CIVE2261 | Meas./Matls. Lab | 2 |  |  
CIVE2222 | Recitation for CIVE2222 | 0 | CIVE2321 | Recitation for CIVE2320 | 0 |  |  
CIVE2260 | Materials | 3 | CIVE2341 | Macro or Micro Economics | 4 |  |  
CIVE2261 | Meas./Matls. Lab | 2 | CIVE3000 | (Social Science Lvl. 1) | 4 |  |  
CIVE2348 | Environ. Eng’g. 1 | 4 |  |  |  |  |  
**Year 3 (AA)**  
PHYS1155 | Physics 2 for Engrs. | 3 | MATH2464 | Prof. Issues in Eng’g. | 4 | *ENGW3302* | 4 |  
PHYS1156 | Physics 2 Lab | 1 | CIVE2464 | Grad. Civil Tech. Elective 1 | 4 | *ENGW3302* | 4 |  
PHYS1157 | ILS for PHYS1155 | 1 | Elective | Grad. Civil Tech. Elective 2 | 4 |  |  
CIVE2222 | Statics & Strength | 4 | Elective | Grad. Civil Tech. Elective 3 | 4 |  |  
CIVE2222 | Recitation for CIVE2222 | 0 | Elective | Grad. Course 3 | 4 |  |  
CIVE2341 | Macro or Micro Economics | 4 | Elective | Grad. Course 4 | 4 |  |  
CIVE3000 | (Social Science Lvl. 1) | 4 | Elective | Science Elective | 4 |  |  
CIVE3464 | (Social Science Lvl. 1) | 4 |  |  |  |  |  
**Year 4 (YB)**  
CIVE2324 | Concrete Design | 4 | Elective | Grad. Civil Tech. Elective 2 | 4 |  |  
CIVE3000 | Prof. Issues in Eng’g. | 1 | Elective | Grad. Course 3 | 4 |  |  
Elective | Grad. Civil Tech. Elective 1 | 4 | Elective | Grad. Course 4 | 4 |  |  
Elective | Grad. Adv. Writing for Prof. | 4 | Elective | Science Elective | 4 |  |  
**Year 4 (ZC)**  
Elective | Grad. Course 4 | 4 | CIVE476x | Sr. Design Project | 5 |  |  
Elective | Grad. Course 5 | 4 | Elective | Grad. Course 7 | 4 |  |  
Elective | Grad. Course 6 | 4 | Elective | Grad. Course 8 | 4 |  |  
Elective | General Elective 3 | 4 | Elective | General Elective 4 | 4 |  |  
**Year 5 (YB)**  
Elective | Grad. Course 4 | 4 | CIVE476x | Sr. Design Project | 5 |  |  
Elective | Grad. Course 5 | 4 | Elective | Grad. Course 7 | 4 |  |  
Elective | Grad. Course 6 | 4 | Elective | Grad. Course 8 | 4 |  |  
Elective | General Elective 3 | 4 | Elective | General Elective 4 | 4 |  |  
**Year 5 (ZC)**  
Elective | Grad. Course 4 | 4 | CIVE476x | Sr. Design Project | 5 |  |  
Elective | Grad. Course 5 | 4 | Elective | Grad. Course 7 | 4 |  |  
Elective | Grad. Course 6 | 4 | Elective | Grad. Course 8 | 4 |  |  
Elective | General Elective 3 | 4 | Elective | General Elective 4 | 4 |  |  

* ENGW3315 is an acceptable substitution for engineering majors.*

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English course prefixes have changed from ENGL to ENGW. ENG1111 is equivalent to ENGW1111. EngGW3302 is equivalent to ENGL3302. Effective Fall 2014, the ENGW 3301 course number will be retired. Students may take ENGW 3302 or ENGW 3315 to fulfill their Advanced Writing in the Technical Professions requirement. ENGW 3301 will still count towards the Advanced Writing in the Technical Professions requirement if the course was taken prior to Fall 2014. There are five (5) disciplines within the Civil Engineering BS/MS program that will following this curriculum scheme. Notes generic to all disciplines:

**NU Core Elective Requirements: 2 required** - One Arts Lvl. 1 OR Humanities Lvl. 1 and One Social Science Lvl. 1 (Social Science Lvl. 1 fulfilled by either ECON1115 or ECON1116)

**General Elective Requirements: 4 required** - Any 4 SH course that is not remedial or repetitive

**Science Elective: 1 required** - See approved Science elective list.

**UG Civil Engineering Technical Elective: 1 required** - Each discipline has one (1) undergraduate technical elective, specified by discipline, that may not duplicate a Graduate Technical Elective.

**Graduate Technical Electives:** Each discipline has two (2), specified by discipline. They are graduate classes that fulfill the undergraduate technical elective requirement.

**Graduate Courses:** Each discipline has six (6), specified in the M.S. program for that discipline. These are in addition to the two Graduate Technical Electives, and may include substitutions on the next page.

**Capstones (Senior Design Project):**
- CIVE4765 - Environmental capstone
- CIVE4767 - Structural capstone
- CIVE4768 - Transportation capstone

Electives may be interchanged. Please consult with your academic and faculty advisors.

**Program Notes:**
- Coursework must be completed with a minimum GPA of 3.4 to join the program.
- Students will be required to meet with an undergraduate advisor and a graduate advisor to petition to enter the program.
- Students are encouraged to meet with their financial aid counselor and a customer service representative to review any financial questions.
- The registrar’s website provides a listing of degree requirements and the DARS system provides a degree audit utility for students.

Notes for specific disciplines and summary on next page
Construction Management

UG Civil Engineering Technical Elective (TE): Must include one of the Department Project Electives (CIVE 5536, CIVE 4542, CIVE 4554).

Graduate Technical Electives: Must include CIVE 7220 (Construction Mgmt.), CIVE 7221 (Construction Project Control, 2 SH), and CIVE 7231 (Design/Build Proj. Delivery, 2 SH).

Other substitutions:
ACCT 6200 (Financial Rptg. & Man. Decision Making 1), normally required in the graduate program, is replaced with EMGT 6305 (Financial Mgt).
CIVE 3464 is replaced with Graduate Technical Elective No. 2, which may not be CIVE 4575 (Construction Mgt) because its content is covered in required graduate courses.

Environmental Engineering

UG Civil Engineering Technical Elective (TE): May not include CIVE 4534 (Environmental Engineering 2) since its content is covered in required graduate courses.

Graduate Technical Electives: Must include CIVE 5536 (Hydrologic Engineering), which counts as CIVE 7260 (Hydrology), CIVE 7251 (Environ. Biol. Processes) and CIVE 7252 (Water/Wastewater).

Geotechnical Engineering

UG Civil Engineering Technical Elective (TE): CIVE 5536 (Hydrologic Engineering) or CIVE 4554 (Highway Engineering).
Note: CIVE 4542 (Foundation Engineering) should not be taken since content is covered in CIVE 7302.
Graduate Technical Electives: Must include CIVE 5321 (Geoenvironmental Engineering) and CIVE 7312 (Earthquake Engineering).

Structural Engineering

UG Civil Engineering Technical Elective (TE): CIVE 4542 (Foundation Engineering).

Graduate Technical Electives: Must include 2 from the following: CIVE 7350 (Concrete Behavior), CIVE 7351 (Steel Behavior), CIVE 7341 (Seismic Analysis & Design), CIVE 7352 (Bridge Design)/CIVE 7353 (Prestressed Concrete).

Other Substitutions/Requirements:
CIVE 5522 (Structural Analysis 2) is required and counts as a graduate course. CIVE 3425 (Steel Design) is required in place of General Elective No. 4.

Transportation Engineering

UG Civil Engineering Technical Elective (TE): May not include CIVE 4554 (take CIVE 5373 instead) or CIVE 4556 (take CIVE 7376 instead).

Graduate Technical Electives: Must include CIVE 7376 (Traffic Eng.'g) and CIVE 4554 (Highway Engineering), which counts as a graduate course.

Other Substitutions/Requirements:
IE 7280 (Statistical Methods) is required.

Civil and Environmental Engineering Department

Summary of Curriculum Substitutions/Graduate Course Totals

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Graduate Technical Electives</th>
<th>Undergraduate Tech. Elective counts for graduate credit</th>
<th>Graduate classes that count toward undergraduate requirements besides General Elective</th>
<th>Remaining Graduate Electives</th>
<th>Total graduate courses (based on 4 SH = 1 course)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Mgt.</td>
<td>2</td>
<td>CIVE 5536 Hydrologic Eng'g</td>
<td>IE 6200 and EMGT 6305 replace CIVE 3464</td>
<td>4</td>
<td>8</td>
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<tr>
<td>Environmental Eng.'g</td>
<td>2</td>
<td>CIVE 5536 Hydrologic Eng'g</td>
<td></td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Geotechnical Eng.'g</td>
<td>2</td>
<td>CIVE 5522 Structural Analysis 2</td>
<td></td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Structural Eng.'g</td>
<td>2</td>
<td>CIVE 4554 Highway Eng.'g</td>
<td></td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Transportation Eng.'g</td>
<td>2</td>
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<td></td>
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