Northwestern University Masters of Science Program in Structural Engineering

The MS in STR requires 12 course units (6 core courses + 6 electives) in addition to the STR Seminar.

<table>
<thead>
<tr>
<th>Track</th>
<th>1st Quarter/Fall</th>
<th>2nd Quarter/Winter</th>
<th>3rd Quarter/Spring</th>
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<tbody>
<tr>
<td><strong>Recommended:</strong></td>
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<td></td>
<td>Dynamics of Structures (320)</td>
<td>Theory of Structures II (319)</td>
<td>1st Course from approved list †</td>
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<td></td>
<td>Finite Element Methods (327)</td>
<td>Theory of Plates and shells (410)</td>
<td>2nd Course from approved list ‡</td>
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<td></td>
<td>Mechanics of Continua I (417) or elasticity (415)</td>
<td>Pre-stressed Concrete Structures (421)</td>
<td>3rd Course from approved list †</td>
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<td>4th Course from approved list †</td>
<td>4th Course from approved list †</td>
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<td><strong>STR Seminar</strong></td>
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<td>STR Seminar (512) – no tuition zero credit seminar (include the MS Professional Development Seminars)</td>
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**Approved list of electives**

- Uncertainty Analysis (306)
- Architectural Engineering & Design I (385-1)
- High Performance Building Design (386)
- Mechanics of Composite Materials I (414-1)
- Stability of Structures (424)
- Advanced Soil Mechanics I (450-1)
- Method of Applied Math (ES APPM311-1)†
- Independent Project/Study (499)§
- Properties of Concrete (321)
- Structural Steel Design (323)§ (by permission)
- Reinforced Concrete (325)§
- Foundation Design (352)
- Architectural Engineering & Design II (385-2)
- Design of Sustainable Urban Development (387)
- Advanced Finite Element Methods I (426-1)
- Advanced Design of RC Structures (495-27)
- Independent Project/Study (499)§
- Architectural Engineering & Design III (385-3), S Computational Forensics & Failure Anal. (395-24)
- Inelastic Analysis of Structures (422)
- Advance Finite Element Methods 2 (426-2)
- Cohesive Fracture and Scaling (430)
- Advanced Soil Mechanics III (450-3)
- Advanced Design of Steel Structures (495-20)
- Structural System and Optimization (495-26)
- Independent Project/Study (499)§

**Design Practice option**

- Uncertainty Analysis (306)
- Architectural Engineering & Design I (385-1)
- High Performance Building Design (386)
- Mechanics of Composite Materials I (414-1)
- Stability of Structures (424)
- Advanced Soil Mechanics I (450-1)
- Method of Applied Math (ES APPM311-1)†
- Independent Project/Study (499)§
- Properties of Concrete (321)
- Structural Steel Design (323)§ (by permission)
- Reinforced Concrete (325)§
- Foundation Design (352)
- Architectural Engineering & Design II (385-2)
- Design of Sustainable Urban Development (387)
- Advanced Finite Element Methods I (426-1)
- Advanced Design of RC Structures (495-27)
- Independent Project/Study (499)§
- Architectural Engineering & Design III (385-3), S Computational Forensics & Failure Anal. (395-24)
- Inelastic Analysis of Structures (422)
- Advance Finite Element Methods 2 (426-2)
- Cohesive Fracture and Scaling (430)
- Advanced Soil Mechanics III (450-3)
- Advanced Design of Steel Structures (495-20)
- Structural System and Optimization (495-26)
- Independent Project/Study (499)§

**Thesis option**

- Research (590)§ or Independent Study (research) (499)§
- Research (590)§
- Research (590)§

Note: required courses shown in **bold** face and/or shaded cells and are **required** for students who choose post MS plan of Engineering Practice. Failure to satisfactorily meet the required course may delay your graduation. If you want to waive the required course requirement, the instructor of the course must approve the waiver and report the decision in GSTS. For students who choose the thesis option, your curriculum plan may deviate from above and must be approved by your academic and thesis advisor.

1 numbers in parentheses are Civ_Env course numbers unless otherwise stated
2 †either 417 or 415 is required; when both are taken, one will be counted towards electives
3 †additional professional development seminars at 5 or 6 pm on Wednesday are **required** for students who choose post MS plan of Engineering Practice (non-thesis option).
4 †must take these courses in the appropriate quarters if not taken as an undergraduate
5 †maximum of 1 unit of CivEnv 499 may be used in M.S. program; must submit petition form to CEE
6 †A thesis and presentation are required for Civ_Env 590, min. 2 units, or min 1 unit when combined with CivEnv 499, and max 3 units without CivEnv 499. Grading is P/N.
7 †To prepare for 424 and 422