MSCE Structural Program
(Program prior to Fall 2025)

Core Courses

- **CE 507:** Mechanics of Solids (4 units)
- **CE 531:** Quantifying Uncertainty in Civil & Environmental Engineering (2 units)
- **CE 532:** Data Analytics in Civil Engineering (2 units)
- **CE 541:** Dynamics of Structures (4 units)

Electives

Beyond the required courses (above) the rest of your course work should be selected from the per-approved electives to reach the minimum of 28 units to complete this degree.

The program offers a wide range of elective courses. If you are interested in the subfield of mechanics, design, or data science and forensic engineering, it is recommended to choose electives from those areas. If you would prefer a more diverse study, freely select any courses from the lists.

Mechanics Elective Options
CE 525: Engineering Mathematical Analysis (3 units)
CE 526: Engineering Mathematical Methods (4 units)
CE 529: Finite Element Analysis (4 units)
CE 542: Theory of Plates and Shells (2 units)
CE 543: Structural Instability & Failure (4 units)
CE 546: Structural Mechanics of Composite Materials (2 units)
CE 599: Soft Materials and 3D Printing (4 units)
CE 647: Multiscale Methods in Mechanics (3 units)

Design Elective Options
CE 501: Architecture, Engineering and Construction Practices (4 units)
CE 512: Seismic Design of Structures (4 units)
CE 528: Seismic Analysis and Design of Reinforced Concrete Bridges (3 units)
CE 529: Finite Element Analysis (4 units)
CE 533: Geotechnical Earthquake Engineering (4 units)
CE 534: Design of Earth Structure (4 units)
CE 535: Earthquake Engineering: Strong Motion Studies (2 units)
CE 537: Advanced Reinforced Concrete (2 units)
CE 538: Prestressed Concrete (2 units)

CE 539: Advanced Steel Structures (4 units)
CE 540: Tall and Special Structures (2 units)
CE 547: Earthquake Engineering - Response of Structural (4 units)
CE 548: Timber and Masonry Design (4 units)
CE 599: Structural Identification (4 units)

Data Science and Forensic Engineering Elective Options
CE 525: Engineering Mathematical Analysis (3 units)
CE 526: Engineering Mathematical Methods (4 units)
CE 529: Finite Element Analysis (4 units)
CE 540: Tall and Special Structures (2 units)
CE 543: Structural Instability & Failure (4 units)
CE 599: Structural Identification (4 units)
CE 599: Case Studies for Advanced Stoch (2 units)
CE 647: Multiscale Methods in Mechanics (3 units)

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