

M.S. in Civil Engineering

Degree Requirements

The MS in Civil Engineering is designed for students seeking broad technical competence in civil engineering with concentrations in the following areas:

1. Construction Engineering and Management
2. Structural Engineering
3. Geotechnical Engineering
4. Environmental Engineering
5. Transportation Engineering

Concentrations are not noted on the degree nor transcript. Students may elect to enroll in a Graduate Certificate program while enrolled in the MS program for additional credentials. See <https://catalog.njit.edu/graduate/academic-policies-procedures/certificates/>

For students lacking an appropriate background, a customized program of bridge courses will be developed in consultation with the graduate advisor. These courses are in addition to the degree requirements and may have prerequisite courses that must also be completed.

A minimum of 30 degree credits is required (excluding bridge courses). Students must consult with their graduate advisor to develop a suitable program of study. A minimum GPA of 3.0 must be maintained in core courses and overall. Students who receive financial aid as Research Assistants must complete 6 credits of Master's Thesis.

With permission of their research advisor, students intending to do an MS thesis should first register in the CE 700B (Masters Project). Students must receive a satisfactory (S) grade in 700B before registering for CE 701B (Master's Thesis). Students taking CE 701B must register in the immediate following semester with the same advisor. The MS thesis topic should be continuation of the work done in CE 700B.

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Code	Title	Credits
Bridge Program		
CS 101	Computer Programming and Problem Solving	
CHEM 126	General Chemistry II	
MATH 112	Calculus II	
MATH 279	Statistics and Probability for Engineers	
CE 200	Surveying	
CE 200A	Surveying Laboratory	
CE 210	Construction Materials and Procedures	
ECON 265	Microeconomics	
MECH 320	Statics and Strength of Materials	
CE 320	Fluid Mechanics	
CE 321	Water Resources Engineering	
CE 332	Structural Analysis	
CE 333	Reinforced Concrete Design	
CE 341	Geotechnical Engineering	
CE 341A	Geotechnical Engineering Laboratory	
CE 350	Transportation Engineering	
CE 360	Civil Engineering Materials	
CE 432	Steel Design	
CE 443	Foundation Engineering Design	

Code	Title	Credits
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Core Courses

9

Students may elect to take all 9 credits from one concentration area or across concentrations.

• Construction Engineering & Management

CE 610	Construction Management	
CE 611	Project Planning and Control	
CE 616	Construction Cost Estimating	

- **Structural Engineering**

CE 630	Matrix Analysis of Structures
CE 634	Structural Dynamics
CE 636	Mechanics and Stability of Structures

- **Geotechnical Engineering**

CE 641	Engineering Properties of Soils
CE 644	Applied Engineering Geology
CE 645	Rock Mechanics
CE 648	Flow Through Soils

- **Environmental Engineering**

ENE 630	Physical Processes of Env Syst
ENE 661	Environmental Microbiology
ENE 663	Water Chemistry

- **Transportation Engineering**

TRAN 603	Introduction to Urban Transportation Planning
TRAN 610	Transportation Economics
TRAN 615	Traffic Studies and Capacity
TRAN 650	Urban Systems Engineering

Specialty Electives

12-21

Students may select any 600- and 700-level courses in CE, ENE, and TRAN.

Management/Leadership Electives

0-9

Students may select from the courses listed below.

ACCT 615	Management Accounting
FIN 600	Corporate Finance I
EM 632	Legal Aspects in Construction
HRM 601	Managing Organizational Behavior in Technology-Based Organizations

Total Credits

30