MS in Urban Systems Engineering and Management at NYU Engineering

Master of Science in Urban Systems Engineering and Management | 30 credits

**Core Courses**

- **15 credits**

  - Blue: Required
  - Green: Option 1 (Approved list of courses)
  - Orange: Option 2 (Concentration area courses)

**Concentration Area**

- **Choose 3 or 4 courses**
  - 3 credits each

- **Capstone Experience (Choose one)**

**CURRICULUM**

The Master of Science program in Urban Systems Engineering and Management includes 5 core courses. Students may select a concentration area of specialization in a specific urban sector, as indicated in the list of proposed concentrations, or may opt to take 3 or 4 technical electives from the approved list in any specified area. They are also required to complete a 3-credit Capstone Project or 6 credit Master Thesis.

**ADMISSIONS REQUIREMENTS FOR URBAN SYSTEMS ENGINEERING AND MANAGEMENT PROGRAMS**

This multidisciplinary program is open to professionals with both engineering and non-engineering backgrounds. Applicants should hold an undergraduate BS or BA degree or a graduate degree from a credited institution in any engineering or science discipline, public policy, management, economics, social sciences, environmental science or equivalent.

**ANALYTICAL BACKGROUND**

A multidisciplinary background, usually including undergraduate calculus, is required. All applicants for this MS program must show evidence of general quantitative analytic ability, including a minimum of 2 years of college mathematics and a college-level course in statistics.

**ADVISING**

Each graduate student is assigned a faculty academic adviser. Students must maintain frequent contact with their advisers throughout their studies. Students must meet with their academic advisers before each registration and at any other time they need advice or consultation. Check the catalog for other adviser polices.

**GRADUATE REQUIREMENTS**

All applicants should have a GPA of 3.0 or better in their undergraduate studies.

**TRANSFER CREDITS**

Students must take 10 credits to complete the program—which is a minimum of 21 credits at the NYU Polytechnic School of Engineering. All courses must be taken in order to be awarded an MS degree. Students may transfer up to 9 credits of acceptable courses towards a MS degree, subject to the academic adviser’s approval. They can be transferred only if they meet the requirements for an independent project in urban systems engineering and management (60 credits or a master’s thesis) or a topic of independent study (9 credits). Alternatively, they can choose an International Experience through an exchange program (2 credits or 3 credits) or Industrial Experience (2 credits) upon approval from your academic adviser.

**CAPSTONE EXPERIENCE**

Make this a meaningful and unique capstone experience to complete an independent project in urban systems engineering and management (12 credits or a master’s thesis or a topic of independent study (9 credits). Alternatively, you can choose an International Experience through an exchange program (2 credits or 3 credits) or Industrial Experience (2 credits) upon approval from your academic adviser.

**CORE COURSES**

- [Choose 5 courses—3 credits each]
  - CE 7423: Introduction to Urban Systems Engineering and Management
  - CE 7013: Infrastructure Planning, Engineering and Economics
  - CE 7023: Infrastructure Management Systems
  - CE 7523: Urban Environmental Systems Management
  - CE 7813: Infrastructure Planning, Structuring and Cost
d  - BM 8118: Project Finance and Infrastructure Investment (NYU Stern)

**CONCENTRATION AREA**

- [Choose 3 or 4 courses—3 credits each either from a selected concentration area or (Urban Systems: Choose 3 or 4 courses—3 credits each either from the approved list of courses in any specified area, in consultation with your academic adviser]

- Transportation
  - TR 7013: Fundamental Concepts in Transportation
  - TR 7213: Urban Public Transportation Systems
  - TR 8723: Transportation Economics and Finance
  - TR 8733: Transportation System Design and their Applications
  - TR 8723: Transportation Management

- Construction Management
  - CE 7023: Project Management
  - CE 7813: Construction and the Law
  - CORE-GP.1018: Microeconomics for Public Management, Planning and Policy Analysis (NYU Wagner)

- Infrastructure Planning & Management
  - UPUR-SP.1212: Managing the Physical City: Innovations in Energy, Transportation and Public Systems
  - UPUR-SP.2404: Infrastructure Monitoring and Performance Assessment: Planning for Emergencies & Disaster (NYU Wagner)
  - UPUR-SP.4011: Intellectual Cities, Technology, Policy and Planning (NYU Wagner)
  - UPUR-SP.4020: Selected courses from MS in Civil Engineering (DS) MS in Electrical Engineering (6 credits)

- Energy, Water & Environmental Systems
  - CE 7853: Urban Water Resources
  - CE 7623: Environmental Law
  - CE 8610: groundwater: Policy, Markets and Markets and Policy Program (NYU MOS)
  - CE 8612: Water: Policy, Sustainability and Opportunities (NYU MOS)

- Selected courses from MS in Environmental Engineering and Science OR MS in Electrical Engineering (any MS program in consultation with your academic adviser.

- Graduate School of Professional Studies

**Department of Civil & Urban Engineering**

NYU Polytechnic School of Engineering
BENEFITS OF MS IN URBAN SYSTEMS ENGINEERING AND MANAGEMENT

This is your opportunity to learn from the best

As a graduate student of the MS program in Urban Systems Engineering and Management you will benefit from a professional education with faculty experts from government, industry and academia who are at the forefront of their technical fields and who hold professional and decision-making positions in the New York City metropolitan area. The program is designed for professionals, with both engineering and non-engineering backgrounds, who are involved and/or interested in the fast-growing multidisciplinary field of urban systems management which offers career opportunities in government agencies and public and private sector utility services.

Building upon a legacy of government-industry-university partnership for infrastructure research, students will be involved in state-of-the-art research conducted with New York City infrastructure agencies and utility companies on current challenges—using New York City sites as experimental laboratories for innovative technology solutions.

Tailored to meet today’s challenges

It is vital that future urban infrastructure leaders have the expertise to meet the challenges that their companies will face. Our programs will provide you with a solid foundation in urban systems disciplines, as well as a broad base of contemporary topics that are necessary to thrive in the 21st Century.

Schedule and locations

Graduate courses are offered at the main campus at the NYU Engineering MetroTech Center in downtown Brooklyn. To meet the needs of working professionals, graduate courses are offered in the evenings.

The value of continued learning

The MS program provides a basis for continued, lifelong learning in the urban systems professions. Continued learning will reinforce our role as the leaders of urban systems exploration. Graduates may choose to go on to seek doctoral degrees.

FACULTY

Infrastructure

Ilan Juran, Professor, Program Director
Infrastrucure & Geotechnical Engineering
Masoud Ghandehari, Associate Professor
Structural Materials & Infrastructure Monitoring
Magued Iskander, Professor & Department Head
Infrastructure Engineering
Bojidar Yanev, Adjunct Professor
Executive Director of Bridge Inspection and Bridge Management at New York Department of Transportation
John Johnson, Adjunct Professor
President and CEO, CALM Energy INC.
Anthony Townsend, Visiting Scholar
Rudin Center for Transportation Policy & Management
Michael Bobele, Research Professor
MTA Assets Management

Water & Environmental System

Anne Dudek Ronan, Industry Professor
Akin S. Goodman, Emeritus Professor
Rae Zimmerman, Professor at NYU Wagner
Mohsen Hossein, Industry Professor
Theodosis Gatsiachew Mama, PE, PhD Candidate
Energy

Zivan Zabar, Professor
Francisco de Leon, Associate Professor
Danasz Czranowski, Associate Professor
Jonathan McClelland, Professor at NYU MSGA
Arthur Kreusner, Research Professor
Former Director of R&D Consolidated Edison
Transportation

John C. Falcocchio, Professor
Dr. Ray Patel, Adjunct Professor
Elena S. Prassas, Associate Professor
Roger Rosess, Professor
Andrew Bata, Adjunct Professor
Senior Director at MTA New York City Transit
Philip A. Habib, Adjunct Professor
President, Philip A. Habib Associates
Richard Malchow, Adjunct Professor
Former Commissioner of New York City
Department of Transportation

Construction Management

Lawrence Chwierot, Industry Professor
Andrew J. Bates, Industry Associate Professor
Rafael Breglia, Adjunct Professor
Former Chief Engineer, the Port Authority of New York and New Jersey

FOR MORE INFORMATION

NYU Polytechnic School of Engineering
Office of Graduate Enrollment Management and Admissions
Six MetroTech Center
Brooklyn, New York 11201
718-260-3182
gradinfo@poly.edu

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