

INDUSTRIAL ENGINEERING (MS)

NYSED: 08834 HEGIS: 0913.00 CIP: 14.3501

Program Description

The NYU Tandon School of Engineering Master's Degree Program in Industrial Engineering (IE) is a top ranked program focused on preparing students to assume organizational leadership roles after they graduate.

We provide a strong academic foundation and combine it with an emphasis on application. Our courses are taught by professors with significant industry experience. They teach project-based, highly practical courses focused on helping you to apply the principles you learn in class to the situations you will face in helping organizations to grow and improve.

The top reasons for choosing our program include:

- top ranked program that continues to climb in the ranks
- strong foundational core taught by highly experienced professors
- high degree of program flexibility, with the ability to choose electives from across our department and the university
- strong networking and career support with student clubs professionally affiliated with INFORMs and IISE, LinkedIn Group (https://www.linkedin.com/signup/cold-join/?session_redirect=https%3A%2F%2Fwww.linkedin.com%2Fgroups%2F12321411%2F&trk=login_reg_redirect), IE Alumni Advisory board, Resume/Cover letter and professional certification workshops.
- great location, in the heart of the Brooklyn Tech Triangle (<https://engineering.nyu.edu/about/brooklyn/>) and close to Manhattan we are close to many companies across diverse industries which creates outstanding opportunities for internships and job placement

Admissions

Admission to graduate programs in the Tandon School of Engineering requires the following minimum components:

- Résumé/CV
- Statement of Purpose
- Letters of Recommendation
- Transcripts
- Proficiency in English

The NYU Tandon Graduate Admissions website (<https://engineering.nyu.edu/admissions/graduate/apply/requirements/>) has additional information on school-wide admission.

Some programs may require additional components for admissions.

See the program's How to Apply (<https://engineering.nyu.edu/admissions/graduate/how-apply/>) for department-specific admission requirements and instructions.

Requirements

Industrial Engineering Students come from a wide variety of backgrounds and an engineering degree is not required to join our program.

Admission to the Master of Science program requires a bachelor's degree in a related discipline from an accredited institution. Applicants should have a superior undergraduate academic record.

Students who do not meet these requirements are considered individually for admission and may be admitted subject to their completion of courses to remove deficiencies.

Students are encouraged to seek waivers (and have approved substitutes designated) for all required courses in which they can demonstrate competence, thereby using their time effectively.

Program Requirements

The program requires the completion of 30 credits, and students may choose one of the following concentrations:

- **Business Transformation and Continuous Improvement** - for students interested in helping organizations understand where to focus, then help them build and implement the capability to transform their organization. This is of primary interest to those students' considering careers in consulting.
- **Operations and Supply Chain Management** - for students interested in building agile, dynamic teams capable of partnering across the enterprise to continuously define and deliver customer-centric value. This is of primary interest to those students' considering careers in management.
- **Operations Research and Systems Analytics** - for students interested in working with organizational leaders and cross-enterprise teams to frame the discussion on how to best use data to drive the conversation on where to focus improvement efforts. This is of primary interest to those students considering data science and operations analysis.

Course	Title	Credits
Core Courses		
IE-GY 6113	Quality Control and Improvement	3
IE-GY 6213	Facility Planning and Design	3
IE-GY 6823	Factory Simulation	3
MN-GY 7893	Production Science	3
IE Electives		
Select three of the following: ¹		9
MG-GY 6103	MANAGEMENT SCIENCE	
MG-GY 6303	OPERATIONS MANAGEMENT	
MG-GY 6343	HUMAN CAPITAL ENGINEERING & ANALYTICS	
MG-GY 6361	MANAGING BUSINESS PROCESS REENGINEERING	
MG-GY 8203	PROJECT MANAGEMENT	
MG-GY 8643	NEW PRODUCT DEVELOPMENT	
MG-GY 8653	MANAGING TECHNOLOGICAL CHANGE & INNOVATION	
MG-GY 9753	SELECTED TOPICS IN MANAGEMENT	
Free Electives		
Students can also elect to take an additional three courses/nine credits outside of the IE electives with approval from their academic advisor.		9
Total Credits		30

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The following selected topics courses may be counted as IE electives

- Business Analytics *3 Credits*
- Quality Management/Six Sigma *3 Credits*

Sample Plan of Study

Course	Title	Credits
1st Semester/Term		
Core Course		3
Core Course		3
Industrial Engineering Elective		3
Credits		9
2nd Semester/Term		
Core Course		3
Core Course		3
Industrial Engineering Elective		3
Credits		9
3rd Semester/Term		
Industrial Engineering Elective		3
Free Elective		3
Free Elective		3
Credits		9
4th Semester/Term		
Free Elective		3
Credits		3
Total Credits		30

Learning Outcomes

Upon successful completion of the program, graduates will:

1. Understand the general principles underlying the various types of control charts and, why it works, how to interpret results and how to decide which method to use in any particular case
2. Understand the sampling theory and the uses of sampling table and be able to define the right sampling plan for any particular area.
3. Define quality system components (Quality Control and Improvements, and Quality Assurance) and be able to understand their application in manufacturing and systems environments.
4. Create flowcharts for simulations, determine whether or not a difference in responses is significant.
5. Design experiments, set up and analyze the results of a Witness Horizon program, and simulation via spreadsheet.
6. Gain an understanding of the phasing of facility design work and its importance in the engineering and construction field today.
7. Learn how to layout an industrial plant from a practical point of view.
8. Understand the various engineering entities involved in planning and design, and the complexity of their interactions.
9. Understand how to develop a budget estimate for the capital investment required for the design and construction of an industrial facility and how different techniques apply to different design phases.
10. Gain an understanding of the role that the legal component plays in the planning and permitting process.
11. Have an opportunity to actually see an industrial plant on a field trip, review its design aspects and compare those aspects to classroom learning.
12. Understand linear programming as applied to operations optimization.

13. Understand Single Stage Systems and Markov Processes.
14. Understand Queuing Systems and the application to Operations Simulation.
15. Understand the impact of variation on throughput and setup.
16. Be able to define the similarities and differences of push-pull systems.
17. Understand the core dimensions of service effectiveness.

Policies

NYU Policies

University-wide policies can be found on the New York University Policy pages (<https://bulletins.nyu.edu/nyu/policies/>).

Tandon Policies

Additional academic policies can be found on the Tandon academic policy page (<https://bulletins.nyu.edu/graduate/engineering/academic-policies/>).