

Welcome to NYU 's Tandon School of Engineering!

Master of Science
Industrial Engineering
Program Overview

Fall 2020



The team – *we are here to support you*



Thomas Mazzone

Director of Industrial Engineering,
Industry Associate Professor



Aric C. Meyer

Administrative Director
Technology Management and Innovation



Rebecca Menzer

Academic and Career Advisor
Technology Management and Innovation



Elizabeth Spock

Academic Advisor
Technology Management and Innovation



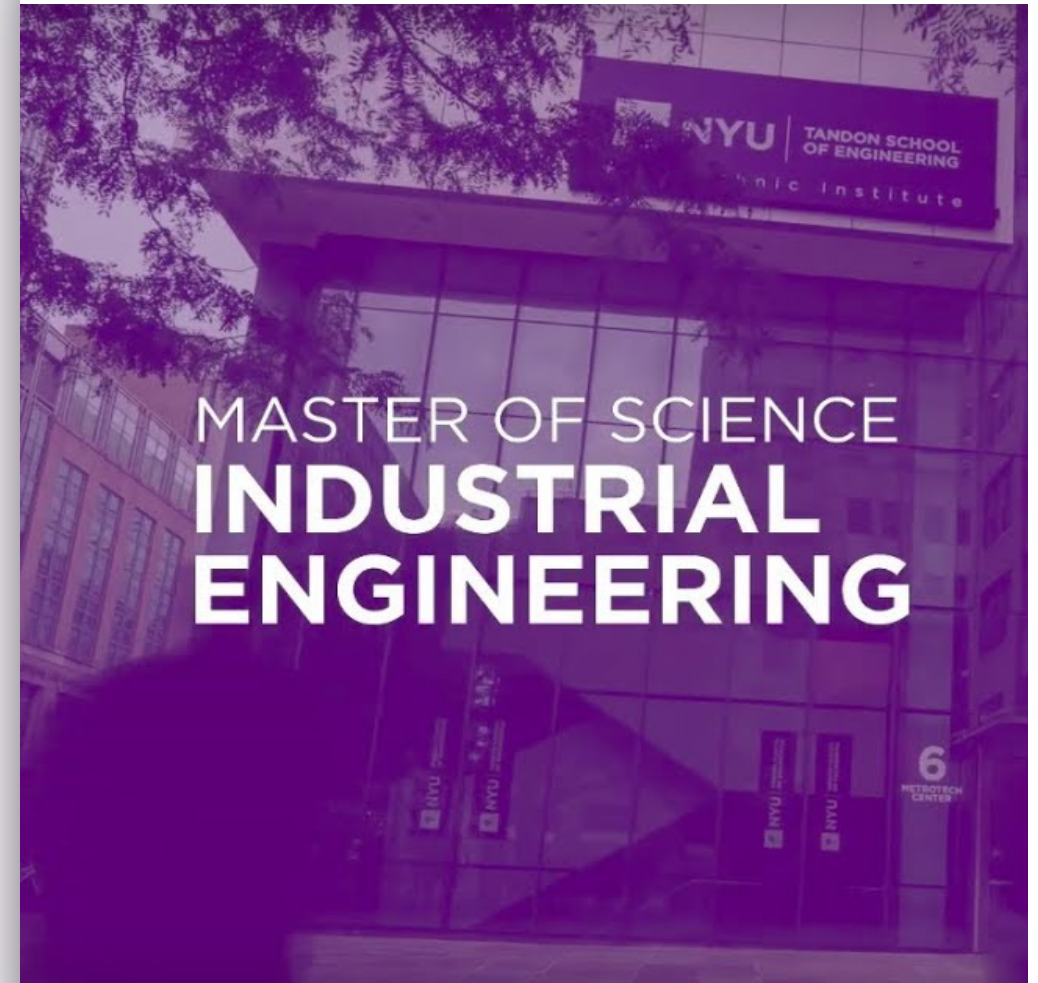
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TANDON SCHOOL
OF ENGINEERING

Industrial engineers determine the most effective ways to *design, manage and improve systems* —people, machines, materials, information, and energy—to make a product or provide a service

Industrial Engineers earn salaries above the average and *the market* for our degree *is expected to grow 8% - 10%* over the coming decade in areas like change management, organizational transformation and systems optimization. Industrial Engineering Students come from a wide variety of backgrounds and *an engineering degree is not required to join our program*

The skills that Industrial Engineers develop *are valuable*, and highly sought after across a wide range of industries. Industrial engineers work in *consulting firms, financial services, health care, government, transportation, construction, social services, operations and supply chain management*



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Industrial Engineering provides greater career flexibility

The ***industrial engineering*** skill set we help you develop is broad, deep and focused on application. This ***opens a broader scope of job opportunities***.

The type of jobs* we prepare you for:



**reference*
[www.Glassdoor.com](https://www.glassdoor.com)
search on job, salary
and location (NYC)

- **Industrial Engineer** – ave. \$75K
- **Business Process Analyst** – ave. \$73K
- **Change Management Consultant** – ave. \$110K
- **Lean Consultant** – ave. \$85K
- **Agile Consultant** – ave. \$86K
- **Process Improvement** – ave. \$76K
- **Supply Chain Analyst** – ave. \$72K
- **Project Manager** – ave. \$70K
- **Operations Research Analyst** – ave. \$71K
- Benchmarks
 - Computer Programmer - \$64K
 - Application Developer – \$77K
 - Electrical Engineer - \$75K
 - Mechanical Engineer - \$75K
 - Biomechanical Engineer - \$67K
 - Financial Analyst - \$72K
 - Strategy Analyst - \$72K



Most of these jobs are critical entry points for senior level positions in management, venture capital and investment banking. They provide the foundational knowledge and experience in how work gets done and new ideas are implemented.

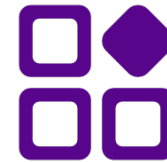
Master of Science in Industrial Engineering



Core Courses
(12 Credits)



Core Electives
(9 Credits)



Free Electives
(9 Credits)

30 credits required

we provide a great degree of flexibility in course selection



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Industrial Engineering – Our Core builds a strong foundation

IE-GY 6113 Quality Control and Improvement

This course provides students with a *solid foundation in the cost of quality, quality assurance and quality management*. Emphasis is on the basic tools of quality control such as control charts and their use, the concept of “out of control,” acceptance sampling, variables and attributes charts and producer’s and consumer’s risk. A unique aspect of this course is the demonstration of the power of teams of people with different expertise to improve quality. A course project is required.

Topics in this course include *facilities design for global competitiveness*, strategic master site planning, site selection, factory layout and design, facility-management systems and materials handling and storage planning. Also presented are guidance on selecting alternative facility plans and application of queuing methods and computer modeling for facility design and evaluation.

IE-GY 6213 Facility Planning And Design

IE-GY 6823 Factory Simulation

This course prepares students for *exploring alternative designs of complex industrial, commercial and service systems*, such as factories and hospitals. During the course students will develop, run and test several simulation models. Understand the validation, verification and calibration of models and test the accuracy of models by testing inputs parameters and output performance measures.

This course *reviews just-in-time and synchronous manufacturing methods*. It analyzes the basic dynamics of factories to understand the importance of congestion and bottleneck rates on cycle time and inventories. Analytical models are developed to study variability and randomness introduced by breakdown, setups and batching. Simulation studies are used to provide data on performance of transfer lines.

IE-GY 7893 Production Science

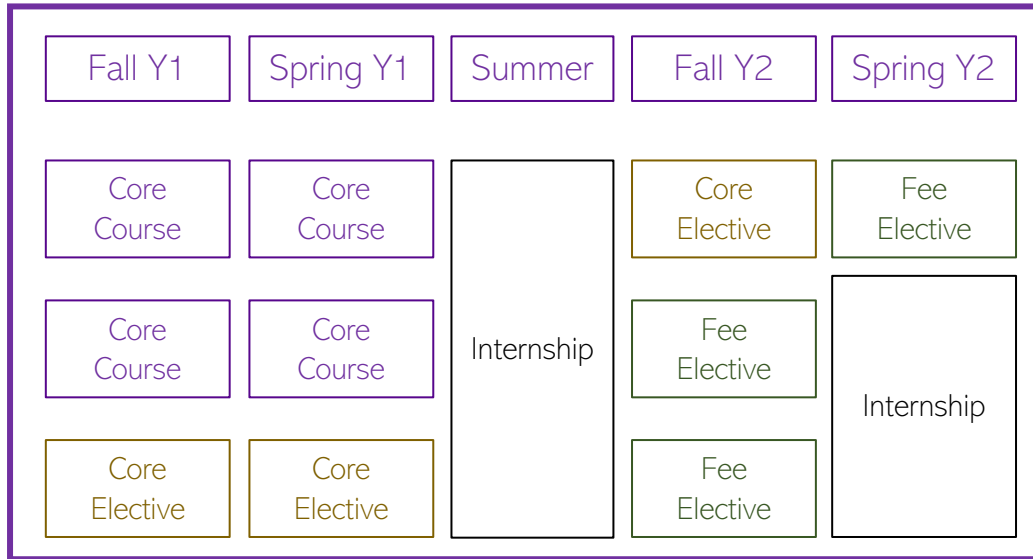


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Industrial Engineering – We have a wide scope of courses

Academic Calendar



Core Electives - 9 Credits (pick 3)

IE-GY 6003 Engineering Economics

IE-GY 7883 Manufacturing Systems Engineering

IE-GY 7923 Design for Manufacturability

IE-GY 7993 Supply Chain Engineering

IE-GY 6193 Production Planning and Control

IE-GY 6203 Project Planning and Control

IE-GY 9753 Data Analytics for Process Improvement

IE-GY 9113 Managing New Product and Service Development

MG-GY 6103 Management Science

IE-GY 6063 Work Design and Measurement

IE-GY 7653 Human Factors in Engineering design

MG-GY 8203 Project Management

MG-GY 6303 Operations Management

MG-GY 7993 Supply Chain Management

IE/MN-GY 7873 Lean Manufacturing

IE-GY 9753 Data Visualization for Strategic Storytelling

IE-GY 9753 Complex Systems Analysis - Advanced Optimization and Regression Analytical Methods for Describing and Improving Large, Complex Systems

MG-GY 9753 Quality Management/Six Sigma

Free Electives – 9 Credits (pick 3)

Recommendations from MOT (subset of NYU and MOT courses)

MG-GY 8673 Technology Strategy

MG-GY 9013 Design Thinking for Creative Problem Solving

MG-GY 9753 Economics and Strategies for Digital Platforms

MG-GY 8401 Programming for Business Intelligence

MG-GY 8411 Design Strategies

MG-GY 8423 Machine Learning

MG-GY 9753 Product Design Studio

MG-GY 9753 Strategic Change Management

MG-GY 9781 AI Based Business Innovation

MG-GY 8411 Data Engineering

MG-GY 6343 Human Capital Engineering & Analytics

MG-GY 6373 Human Capital Big Data, Predictive Analytics, & ROI

Core Courses – 12 Credits

IE-GY 7883 Quality Control and Improvement

IE-GY 7883 Factory Simulation

IE-GY 7883 Facility Planning and design

IE-GY 7883 Production science

Self-directed options

MG-GY 9753 Independent/Group Project

IMG-GY 997X Masters Research Thesis

MG-GY 9683 Internship and Action Learning

To further specialize your curriculum you can focus one of your free electives on a project or thesis



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**TANDON SCHOOL
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Further specializing your curriculum – self-directed

Independent Study



Individual or
Team-based *Project*

MS Thesis



Individual
Research

Internship



Company
Sponsored *Project*

We provide additional options for refining your focus



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Industrial Engineering Concentrations

As an Industrial Engineering student, you can ***create a self-customized curriculum*** by organizing electives into “concentrations.”

These suggested specializations and reflect the recent directional advances in the field. However, students may elect a unique focus by creating a curriculum that includes courses across the prescribed areas of concentration.



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Industrial Engineering Concentrations:

Aligning courses with your career aspirations



Business Transformation and Continuous Improvement



Operations and Supply Chain Management

These are suggested areas of concentration. We work with you to select courses across our department to create opportunities to align with and provide support for your career ambitions



Operations Research and Systems Analytics



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Business Transformation and Continuous Improvement

Are you interested in helping organizations understand where to focus, then help them build and implement the capability to transform their organization?

Suggestions for Core Electives

IE-GY 6003 Engineering Economics

IE-GY 7923 Design for Manufacturability

IE-GY 6203 Project Planning and Control

IE-GY 9753 Data Analytics for Process Improvement

IE-GY 9113 Managing New Product and Service Development

MG-GY 6103 Management Science

MG-GY 8203 Project Management

MG-GY 6303 Operations Management

MG-GY 7993 Supply Chain Management

IE/MN-GY 7873 Lean Manufacturing

IE-GY 9753 Data Visualization for Strategic Storytelling

MG-GY 9753 Quality Management/Six Sigma

Suggestions for Free Electives from MOT

MG-GY 8673 Technology Strategy

MG-GY 9013 Design Thinking for Creative Problem Solving

MG-GY 9753 Strategic Change Management

MG-GY 9753 Economics and Strategies for Digital Platforms

MG-GY 9753 Product Design Studio



Career Focus on Consulting



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Operations and Supply Chain Management

Are you interested in building agile, dynamic teams capable of partnering across the enterprise to continuously define and deliver customer-centric value?

Suggestions for Core Electives

IE-GY 7883 Manufacturing Systems Engineering

IE-GY 7923 Design for Manufacturability

IE-GY 7993 Supply Chain Engineering

IE-GY 6193 Production Planning and Control

IE-GY 6203 Project Planning and Control

IE-GY 6003 Engineering Economics

MG-GY 6103 Management Science

IE-GY 6063 Work Design and Measurement

IE-GY 7653 Human Factors in Engineering design

MG-GY 6303 Operations Management

MG-GY 7993 Supply Chain Management

IE/MN-GY 7873 Lean Manufacturing

MG-GY 8203 Project Management

MG-GY 9753 Quality Management/Six Sigma



Career Focus on Management

Suggestions for Free Electives from MOT

MG-GY 8673 Technology Strategy

MG-GY 9013 Design Thinking for Creative Problem Solving

MG-GY 9753 Economics and Strategies for Digital Platforms

MG-GY 9753 Product Design Studio

MG-GY 9753 Strategic Change Management

MG-GY 9781 AI Based Business Innovation

Operations Research and Systems Analytics

Are you 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?

Suggestions for Core Electives

IE-GY 6003 Engineering Economics

IE-GY 7883 Manufacturing Systems Engineering

IE-GY 7923 Design for Manufacturability

IE-GY 6193 Production Planning and Control

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MG-GY 6303 Operations Management

MG-GY 7993 Supply Chain Management

IE-GY 9753 Data Visualization for Strategic Storytelling

IE-GY 9753 Complex Systems Analysis - Advanced Optimization and Regression Analytical Methods for Describing and Improving Large, Complex Systems



Career Focus on Analytics

Suggestions for Free Electives from MOT

MG-GY 9013 Design Thinking for Creative Problem Solving

MG-GY 8401 Programming for Business Intelligence

MG-GY 8411 Data Engineering

MG-GY 9753 Strategic Change Management

MG-GY 9781 AI Based Business Innovation

MG-GY 8423 Machine Learning

MG-GY6343 Human Capital Engineering & Analytics

MG-GY 6373 Human Capital Big Data, Predictive Analytics, & ROI



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**TANDON SCHOOL
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Join an Industrial Engineering Student Club

Connecting with Colleagues, Alumni and Industry

We are launching three separate Industrial Engineering Student Clubs in Fall 2020 to help support your professional; development through, networking, mentoring and professional certification support



Industrial Engineering Consulting Club

Focus on students seeking support to work for consulting firms

*contact student leader; Daniel Weinstein
daniel.rory.weinstein@gmail.com*



Industrial Engineering Catalyst Club

Focus on taking a leadership role in the Institute for Industrial and Systems Engineers and in LSS and PMI certification

*contact student leader; Ajinkya Shinde,
ars1120@nyu.edu*



Industrial Engineering Operations Research Club

Focus on taking a leadership role in the INFORMS Professional Association

*contact; Abubakr Abdalla
aba452@nyu.edu*



NYU Industrial Engineering Alumni Advisory Panel

Newly formed, Alumni Advisory Group eager to connect with students to provide mentorship and support



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**TANDON SCHOOL
OF ENGINEERING**

We have a competitive program that will help you accelerate your career!

Thomas Mazzone, MBA, CPA

*Director of Industrial Engineering,
Industry Associate Professor*



Let's talk!

Contact me at tm1298@nyu.edu

Professor Mazzone is an Industry Associate Professor and the Program Director of the Industrial Engineering Program. He earned his BBA from the University of Notre Dame, his MBA from EDHEC Business School in France and his CPA certificate from the State of Rhode Island.

Professor Mazzone has wide-ranging teaching experience and has developed courses for graduate, undergraduate and executives in project and change management, product and service development, supply chain and operations management and global innovation.

Professor Mazzone has had significant industry and international experience in senior executive positions at A.T Kearney, Ernst and Young, Royal Bank of Scotland and Fidelity Investments working in the US , Europe and East Asia. Professor Mazzone has both led large-scale, operational and technology change programs, as well as, built departments and centers of excellence in business transformation, continuous improvement, change management and technology development.