# TANDON SCHOOL OF ENGINEERING

# Introduction

The New York University Tandon School of Engineering (formerly the Brooklyn Polytechnic Institute, the Polytechnic University, the Polytechnic Institute of NYU, the NYU Polytechnic School of Engineering, and now widely known as NYU Tandon) is home to a vibrant community of unconventional engineers – renowned faculty, undergraduate and graduate students united in a mission to understand and create technology that powers cities, enables worldwide communication, fights climate change, and builds healthier, safer, and more equitable real and digital worlds. The school's culture centers on encouraging rigorous, interdisciplinary collaboration and research; fostering inclusivity, entrepreneurial thinking, and diverse perspectives; and creating innovative and accessible pathways for lifelong learning in STEM. NYU Tandon dates back to 1854, the founding year of both the New York University School of Civil Engineering and Architecture and the Brooklyn Collegiate and Polytechnic Institute. Located in the heart of Brooklyn, NYU Tandon is a vital part of New York University and its unparalleled global network, and is closely connected with engineering in NYU Abu Dhabi and NYU Shanghai. NYU Tandon also operates multiple startup incubators at its 370 Jay Street location, and a 14,000-foot emerging media production and research facility in the Brooklyn Navy Yard. In addition, NYU Tandon runs the largest academic institution-supported K-12 STEM center, focused on creating expanded pathways into STEM education within the New York City community, including among communities underrepresented in STEM and those who lack access to STEM education through other means.

# **History**

Founded in 1854 as the Brooklyn Collegiate and Polytechnic Institute, the school originally educated young men, ages 9 to 22, and was located on Livingston Street in downtown Brooklyn. In 1889, the collegiate and preparatory departments separated, and the collegiate division adopted the name Polytechnic Institute of Brooklyn. The Institute, historically referred to as "Brooklyn Poly," moved its campus to Jay Street in 1957. In 1961, it opened a Long Island campus in Farmingdale as a graduate and research center.

In 1973, the New York University School of Engineering and Science merged into Polytechnic and the school was renamed the Polytechnic Institute of New York. The Institute began offering undergraduate programs at its Long Island campus in 1974 and, in 1975, opened the Westchester Graduate Center in Hawthorne. As a result of institutional realignment, the Hawthorne campus was closed in August 2013, and the Long Island Campus is only operating programs for continuing students, and will be closed as of May 2014.

In 1985, the New York State Board of Regents granted the institution university status and the official name became Polytechnic University.

The next 15 years saw a period of great activity as the University played a key part in the creation of MetroTech Center, a 16-acre, \$1.5-billion university-corporate park, which was built around Polytechnic's existing buildings and revitalized an area that had been in decline. Polytechnic updated its facilities, renovated its student-center building and built a new home for its library and for the Center for Advanced Technology in Telecommunications. The University also began to offer several programs

in management of technology and financial engineering in the heart of Manhattan's high-technology and financial district.

During this time, the University launched the Campaign for Polytechnic - Fulfilling the American Dream - to raise \$275 million to transform itself into one of the nation's premier technological universities. In 1998, Polytechnic received a \$175 million bequest from the estates of Donald F. Othmer, a longtime Polytechnic professor, and his wife, Mildred. At that time, it was the largest single cash gift ever made to a private American university. In 1999, Polytechnic received its second largest contribution from alumnus and former student of Professor Othmer, Joseph J. Jacobs, who gave \$20 million.

In 2000, Polytechnic began construction on two new buildings on the MetroTech campus: the Joseph J. and Violet J. Jacobs Building, an eightstory academic and athletic facility with classrooms and laboratories and a full gymnasium; and the 20-story, 400-bed Donald F. and Mildred Topp Othmer Residence Hall, Polytechnic's first on-campus residence hall in Brooklyn. Both buildings opened in summer 2002. Since that time, the NYU School of Engineering has expanded into all four sides of MetroTech, while enhancing its existing facilities.

In 2008 the University entered into a formal affiliation with New York University in recognition of the synergies between engineering, science, technology, medicine, dentistry, public policy, law and the arts. It became known as the Polytechnic Institute of New York University, or informally as NYU-Poly, the affiliation has further enhanced its capability to prepare leaders to address the challenges of the 21st century. In 2012, the Board of Trustees of NYU and the Board of Trustees of NYU-Poly voted for the institutions to undertake the final set of steps necessary to complete the merger and make NYU-Poly NYU's School of Engineering. Key approvals from state and accrediting authorities subsequently kept the merger on track, and it was finalized as of January 1, 2014, at which point NYU-Poly became the newest school at NYU: the NYU Polytechnic School of Engineering. Thanks to a visionary and generous donation made in 2015, the NYU Board of Trustees made the decision to rename the school NYU Tandon School of Engineering. In 2022, the University demonstrated its commitment to growing engineering at NYU by publicly announcing a \$1B long-term investment to increase tenured and tenure-track faculty by nearly 50%, fuel groundbreaking research, and expand lab, administrative, student, and experiential learning spaces in Downtown Brooklyn.

The NYU Tandon School of Engineering delivers programs on-site, online, and in hybrid modalities locally and globally. NYU Tandon students also have the ability to study abroad at NYU's global sites and other affiliated international universities.

# Research at the NYU Tandon School of Engineering

The NYU Tandon School of Engineering offers major research programs in experimental, theoretical and computational areas, leading to significant contributions in the advancement of technology – technology that powers cities, enables worldwide communication, fights climate change, and creates new and safer digital worlds. The NYU Tandon faculty continue to excel as world leaders in vital research areas and the intersections between them, including Al/Data Science/Robotics, communication networks, cybersecurity, emerging media, healthcare, sustainability, and urban engineering.

Some of the specific areas our researchers are exploring include responsible artificial intelligence, quantum computing, power engineering, electromagnetics and wave propagation, telecommunication and

distributed information systems, data management, software engineering and development, polymer chemistry and engineering, dynamical systems, smart materials, nanofabrication, biomaterials and bioengineering, engineered interfaces, plasma science and technology, sensors and sensor systems, decarbonization techniques, secure cloud computing, and urban engineering relating to urban infrastructure, resiliency, and smart cities.

# **Global Outreach**

In addition to its programs on the main campus in downtown Brooklyn, the NYU Tandon School of Engineering offers programs around the globe remotely through online courses. NYU Tandon School of Engineering is closely connected to engineering in NYU Abu Dhabi and NYU Shanghai as well as to the NYU Center for Urban Science and Progress (CUSP) also located in Downtown Brooklyn, while operating three innovation incubators. In addition, as discussed throughout, students and faculty enjoy many opportunities to take advantage of the resources and broader community in Manhattan at Washington Square and along the Medical Corridor on First Avenue and around the globe.

As a global network university, Tandon students have the opportunity to study in some of the world's most dynamic cities. Aside from our campuses in Abu Dhabi and Shanghai, NYU has global academic centers in Accra, Buenos Aires, Berlin, Florence, London, Los Angeles, Madrid, Paris, Sydney, Tel Aviv, and Washington DC. Some of these sites are partnered with local universities to offer classes, classroom space, and other opportunities. In addition, NYU is partnered with 13 different universities through an International Exchange Program located in Amsterdam, Berlin, Copenhagen, Dublin, Santiago, Stockholm, Vienna, and more than one city in Italy, Japan, and Korea.

Through the Global Engineering Education Exchange, Tandon students have the unique opportunity to study abroad for a fall, spring, full year, or summer at the leading science, technology, and engineering institutions across the world including in Australia, Egypt, Israel, Malaysia, The Netherlands, New Zealand, Singapore, and all across Europe. Outside of academic exchange, many of these institutions also offer summer programs, research opportunities, sustainability projects, and short-term opportunities. Outside of these, Tandon Prehealth and GLASS partner to coordinate alternative break trips to non-traditional study abroad locations like Jamaica, Tanzania, and Sri Lanka to provide global community service opportunities.

# **Mission Statement**

To excel as a leading high-quality research university engaged in education, discovery and innovation with social, intellectual and economic impact in the New York region, the nation and the world.

To achieve this mission, we educate, discover and invent. We engage students seeking educational achievement and opportunity, faculty seeking excellence and relevance, and organizations seeking solutions and talent. We creatively bring intellectual rigor, technological innovation and a passion for science to the communities where we work and live and to the citizens of the world.

We innovatively extend the benefits of science, engineering, management and liberal studies to critical real-world opportunities and challenges, especially those linked to urban systems, health and wellness and the global information economy.

Our learning environment develops the skills to discover and invent, stimulates innovation and encourages entrepreneurship. We refer to

this environment of invention, innovation and entrepreneurship as  $i^2e$ . It is what has produced generations of thought leaders and action-oriented learners who are capable of thinking globally and across multiple disciplines.

# **Programs**

- Applied Urban Science and Informatics (Advanced Certificate) (https://bulletins.nyu.edu/graduate/engineering/programs/applied-urban-science-informatics-advanced-certificate/)
- Applied Urban Science and Informatics (MS) (https:// bulletins.nyu.edu/graduate/engineering/programs/applied-urbanscience-informatics-ms/)
- Bioinformatics (MS) (https://bulletins.nyu.edu/graduate/engineering/ programs/bioinformatics-online-ms/)
- Biomedical Engineering (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/biomedical-engineering-ms/)
- Biomedical Engineering (PhD) (https://bulletins.nyu.edu/graduate/engineering/programs/biomedical-engineering-phd/)
- Biotechnology (MS) (https://bulletins.nyu.edu/graduate/engineering/ programs/biotechnology-ms/)
- Biotechnology and Entrepreneurship (MS) (https://bulletins.nyu.edu/ graduate/engineering/programs/biotechnology-entrepreneurshipms/)
- Chemical Engineering (MS) (https://bulletins.nyu.edu/graduate/engineering/programs/chemical-engineering-ms/)
- Chemical Engineering (PhD) (https://bulletins.nyu.edu/graduate/ engineering/programs/chemical-engineering-phd/)
- Civil Engineering (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/civil-engineering-ms/)
- Civil Engineering (PhD) (https://bulletins.nyu.edu/graduate/ engineering/programs/civil-engineering-phd/)
- Computer Engineering (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/computer-engineering-ms/)
- Computer Science (PhD) (https://bulletins.nyu.edu/graduate/engineering/programs/computer-science-phd/)
- Computer Science Tandon (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/computer-science-tandon-ms/)
- Construction Management (Advanced Certificate) (https://bulletins.nyu.edu/graduate/engineering/programs/construction-management-advanced-certificate/)
- Construction Management (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/construction-management-ms/)
- Cybersecurity (MS) (https://bulletins.nyu.edu/graduate/engineering/ programs/cybersecurity-ms/)
- Electrical Engineering (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/electrical-engineering-ms/)
- Electrical Engineering (PhD) (https://bulletins.nyu.edu/graduate/ engineering/programs/electrical-engineering-phd/)
- Emerging Technologies (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/emerging-technologies-ms/)
- Environmental Engineering (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/environmental-engineering-ms/)
- Environmental Science (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/environmental-science-ms/)
- Executive Construction Management (Advanced Certificate) (https://bulletins.nyu.edu/graduate/engineering/programs/executive-construction-management-advanced-certificate/)

- Financial Engineering (MS) (https://bulletins.nyu.edu/graduate/engineering/programs/financial-engineering-ms/)
- Human-Centered Technology, Innovation & Design (PhD) (https://bulletins.nyu.edu/graduate/engineering/programs/human-centered-technology-innovation-design-phd/)
- Industrial Engineering (MS) (https://bulletins.nyu.edu/graduate/engineering/programs/industrial-engineering-ms/)
- Integrated Design and Media (MS) (https://bulletins.nyu.edu/ graduate/engineering/programs/integrated-design-media-ms/)
- Management of Technology (MS) (https://bulletins.nyu.edu/ graduate/engineering/programs/management-technology-ms/)
- Mathematical Sciences (MS) (https://bulletins.nyu.edu/graduate/ engineering/programs/mathematical-sciences-ms/)
- Mechanical Engineering (MS) (https://bulletins.nyu.edu/graduate/engineering/programs/mechanical-engineering-ms/)
- Mechanical Engineering (PhD) (https://bulletins.nyu.edu/graduate/ engineering/programs/mechanical-engineering-phd/)
- Mechatronics and Robotics (MS) (https://bulletins.nyu.edu/graduate/engineering/programs/mechatronics-robotics-ms/)
- Traffic Engineering (Advanced Certificate) (https://bulletins.nyu.edu/ graduate/engineering/programs/traffic-engineering-advancedcertificate/)
- Transportation Management (MS) (https://bulletins.nyu.edu/ graduate/engineering/programs/transportation-management-ms/)
- Transportation Systems (MS) (https://bulletins.nyu.edu/graduate/engineering/programs/transportation-systems-ms/)
- Transportation Systems (PhD) (https://bulletins.nyu.edu/graduate/ engineering/programs/transportation-systems-phd/)
- Urban Infrastructure Systems (MS) (https://bulletins.nyu.edu/ graduate/engineering/programs/urban-infrastructure-systems-ms/)
- Urban Systems (PhD) (https://bulletins.nyu.edu/graduate/engineering/programs/urban-systems-phd/)

# **Interdisciplinary Program**

The Tandon School of Engineering and School of Law offer the following interdisciplinary program:

 Cybersecurity Risk and Strategy (MS) (https://bulletins.nyu.edu/ graduate/law/programs/cybersecurity-risk-strategy-ms/)

# **Accreditation**

All NYU Tandon School of Engineering undergraduate engineering programs are accredited by the Accreditation Board for Engineering and Technology (ABET (http://www.abet.org/)). ABET identifies the following eight General Criteria that every engineering program should address: (1) Students; (2) Program Educational Objectives; (3) Student Outcomes; (4) Continuous Improvement; (5) Curriculum; (6) Faculty; (7) Facilities; and (8) Institutional Support.

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