Industrial and Systems Engineering
AT RUTGERS

Do you look at things and think of ways to improve them? Do you want to make everyday processes more efficient, safer, less expensive, and environmentally sustainable? Do you wonder how artificial intelligence and humans will work side by side? Whether it's overseeing the design and construction of a plant, streamlining operations through human-machine systems, or getting products to market faster and with higher quality and reliability, industrial engineers develop, model, and analyze complex problems and deliver solutions.

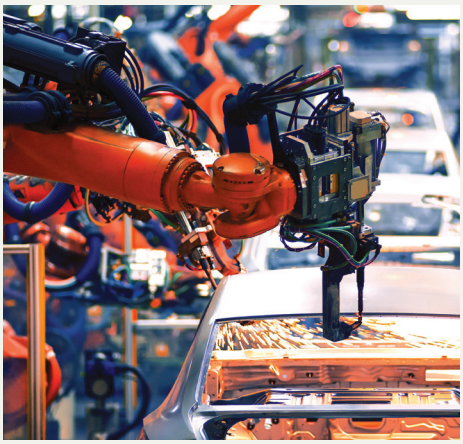
With its focus on reliability engineering, advanced manufacturing, and smart systems, Rutgers' Industrial and Systems Engineering program prepares the next generation of engineers and technology leaders.

An emphasis on combining classroom and laboratory learning with hands-on practical and pre-professional training through numerous research and internship opportunities gives students the experience they need to make safer, cost-effective, and energy efficient products and services.

Students can choose from track options focused on financial engineering, artificial intelligence in industry, quality and reliability engineering, or manufacturing engineering. The program prepares students for careers designing and analyzing the large systems that serve industry, government, and service sectors. Industrial engineers can be found in careers spanning manufacturing, aerospace, and banking to healthcare, energy, and the military.

PROFESSIONAL OPPORTUNITIES

Quality engineer
Project manager
Production engineer
Consultant
Process engineer
Reliability engineer
Operations manager
Supply chain analyst
Financial systems analyst
Data scientist



THE FUTURE IS NOW

Prof. Weihong Guo, whose research interests include data analytics and quality-oriented design and modeling of complex manufacturing systems, is working with Ford Motor Company and its Global Data Insight and Analytics team to utilize large datasets for diagnostic and end-line repairs to streamline the factory floor.

DEGREES OFFERED AND CURRICULAR OPTIONS

BS

Tracks: Financial Management
Manufacturing Engineering
Industrial Artificial Intelligence
Quality and Reliability Engineering

BS/BA Dual Degree

BS/MS Five-year Dual Degree

BS/ME Five-year Dual Degree

BS/MBA Five-year Dual Degree

MS

PhD

For more information, visit
ise.rutgers.edu

"I've always wanted to work around something analytical and base my career around problem-solving. I decided on ISE. I am extremely interested in process improvement."

Denise Miller

RUTGERS
School of Engineering

Established in 1864, Rutgers University's School of Engineering is a vibrant academic community whose richly diverse students and faculty members are committed to globally sustainable engineering. Its mission is built on a commitment to fostering the integration of education and research to achieve transformational innovation that is ethically responsible. With seven academic departments representing key engineering disciplines, the School of Engineering is recognized around the world as comprehensive and leading-edge, training the next generation of innovators across a broad spectrum of professions.

Industrial and Systems Engineering at Rutgers

PROGRAM HIGHLIGHTS

We prepare engineers to take the lead in designing cost-effective, efficient systems that integrate complex technologies into manufacturing, service, and government enterprises.

Our rich, broad-based engineering education offers students the opportunity to specialize in a range of industrial engineering and manufacturing fields.

Students learn to apply mathematical and economic analysis, engineering sciences, and information technology to design and improve supply chain, quality control, and monitoring systems; healthcare delivery systems; transportation and port operations; security systems and automated manufacturing systems; and more.

HANDS-ON ACTIVITIES

Students collaborate in multi-disciplinary project teams to solve engineering solutions for pressing industry problems in everything from robotics and manufacturing to machine vision and simulation. They also pursue research opportunities in state-of-the-art labs under the guidance of faculty experts.

Students gain real-world experience in corporate or industrial settings through co-op internship programs that compensate them for their work and lets them earn credits toward their degree.

COURSES OFFERED

Engineering Economics
Facilities Layout
Engineering Statistics
Probabilistic Models
Data Analytics
AI in Decison Making
Human-Machine Systems
Work Design and Ergonomics

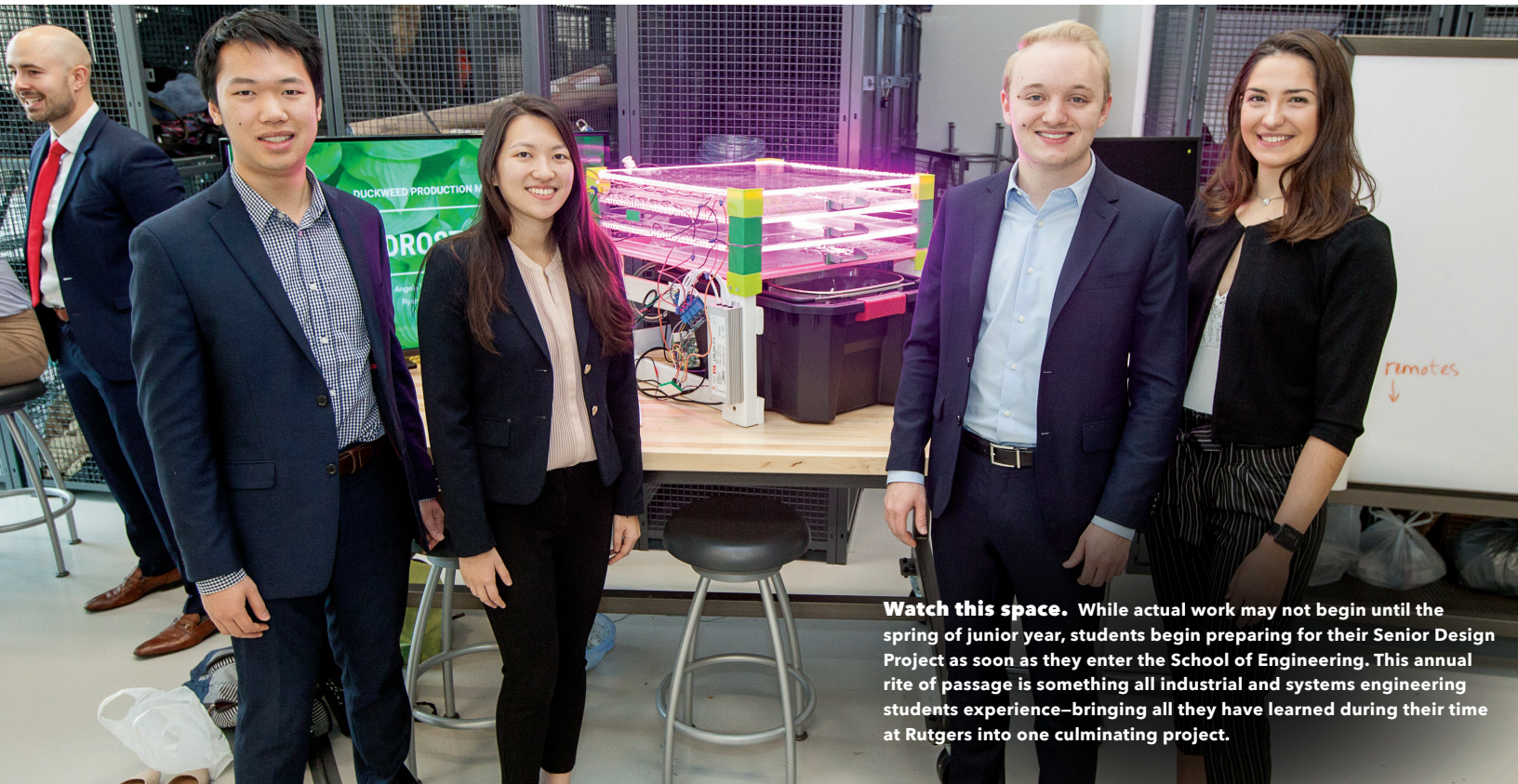
RESEARCH FACILITIES AND CENTERS

Laboratory for Energy Smart Systems (LESS)
Quality and Reliability Center
Laboratory for Stochastic Systems
Rutgers Manufacturing and Automation Research Laboratory
Instructional Laboratories:

- Automation
- Manufacturing Processes
- Human-Machine Systems Lab
- Energy Lab
- Computer Control and Mechatronics

Prof. Melike Baykal-Gürsoy received funding from the National Science Foundation for her research using **games and game theory** in protecting soft targets against terrorist attacks. Her research explores where security, operations research, machine learning, and behavioral sciences interact.

Prof. Ahmed Aziz Ezzat is working to facilitate the **large-scale integration of renewable energy** like wind and solar into power systems, using **data science solutions and models**. His research also ventures into technological advancements and processing capabilities in material imaging and computational modeling.



Watch this space. While actual work may not begin until the spring of junior year, students begin preparing for their Senior Design Project as soon as they enter the School of Engineering. This annual rite of passage is something all industrial and systems engineering students experience–bringing all they have learned during their time at Rutgers into one culminating project.