Mechanical Engineering
AT RUTGERS

Do you dream of designing the next generation of fuel-efficient engines or a versatile robot for search and rescue or deep space exploration? Do you want to develop new technologies to improve health? As a mechanical engineer, you might be involved in creating everything from wind turbines to bomb squad robots to 3D and 4D printing with novel materials.

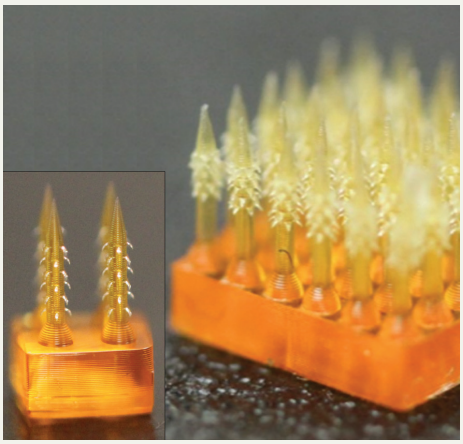
For over a century, the Department of Mechanical Engineering has fueled innovation and growth in a wide range of industries, including automotive, aerospace, robotics, energy generation, advanced manufacturing, naval, materials development, nanostructures, fluid interactions, and many more.

A program of mathematical, scientific, and technical knowledge, coupled with opportunities for research, prepares students for professional success in industry, government, and academia.

Our Industry Advisory Board of leaders from companies and government agencies such as ExxonMobil, Hoffmann-LaRoche, NASA, and Lockheed Martin supports our research and career development initiatives.

PROFESSIONAL OPPORTUNITIES

Design
Research
Manufacturing
Automation
Automobiles and aircraft
Electric power generation plants
Medical products
Consumer Products
Sales



THE FUTURE IS NOW

Using 4D printing—where the fourth dimension is time—a team led by Prof. Howon Lee has created tiny needles inspired by parasites that could replace painful hypodermic needles for giving shots, injecting drugs, and drawing blood.

For more information, visit
mae.rutgers.edu

"As an undergrad, I didn't expect to take on mechanical engineering research that would ultimately lead to a first authorship on an article in a peer-reviewed journal."
Arielle Gamboa

DEGREES OFFERED AND CURRICULAR OPTIONS

BS

Options:
- Aerospace Concentration
- Energy Systems Concentration
- Flexible Curriculum

BS/MS Five-year Dual Degree
BS/ME Five-year Dual Degree
BS/MBA Five-year Dual Degree
BS/MBS Five-year Dual Degree
MS
ME
PhD

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.

Mechanical Engineering at Rutgers

PROGRAM HIGHLIGHTS

Mechanical engineering is all about bringing new ideas to life through design and manufacturing. Students acquire basic principles in design, analysis and modeling of physical components, and processes, while gaining core competence in fluids, thermal, and structures.

MAE engineering students:

- Apply mechanical engineering principles to develop functional product prototypes in senior year design and manufacturing projects.
- Compete nationally in the Rutgers Formula Racing Team and other student organizations.
- Pursue independent study courses under faculty guidance.

HANDS-ON ACTIVITIES

Students apply classroom learning to create designs and conduct research in our nearly 20 advanced labs and centers outfitted with state-of-the-art equipment.

Students gain relevant work experience and make lasting professional network connections through business and industry internships—and can also earn academic credit and a salary through our co-op program.

Guided by an award-winning faculty, students regularly engage in cutting-edge research in design and control; solid mechanics; materials and structures; fluid mechanics; and thermal sciences.

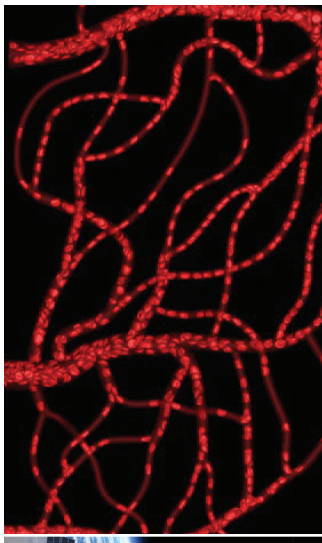
COURSES OFFERED

Megatronics
Alternative Energy
Internal Combustion Engines
Power Plants
Spacecraft Mission Design
Design Mechanical Components
Multiphysics Simulations
Vehicle Dynamics

RESEARCH FACILITIES AND CENTERS

Advanced Materials and Structures Lab
Center for Computational Design
Emil Buehler Supersonic Wind Tunnel
Engineering Robotics Laboratory
Hybrid Energy Systems and Materials
Rapid Automated Prototyping and Integrated Design Lab (R^2APID)
Smart Systems Laboratory (SSL)

Working from a mechanistic viewpoint, **Prof. Prosenjit Bagchi** is developing **high-fidelity computational models** and performing large-scale **simulations using supercomputers** to understand the mechanisms of pathophysiological conditions related to microvascular blood flow and drug transport.



Prof. Stephen Tse runs experiments from his Rutgers office to the **International Space Station** that involve spherically symmetrical "s-Flames" to learn how combustion could improve energy efficiency, pollutant mitigation, and more on Earth and in space.

Watch this space. The Robotics Lab is a space for exciting research projects such as sensor-based tire/road interaction modeling and control; human-inspired safety-preserved agile vehicle maneuvers; autonomous motorcycles/bicycles; unstable physical human/robot interaction and rehabilitation robotics; and autonomous robots for evaluation and rehabilitation of bridge decks.