DUKE / forward

Engineering Education

To find solutions to the world's most pressing problems, we need dreamers and we need doers. At the Pratt School of Engineering, we produce engineers who are both—individuals who combine a breadth of perspective with the technical expertise necessary to tackle complex issues in creative and practical ways.

An increasingly complex world requires an increasingly expansive education. At Duke, we're fortunate to be able to leverage the strengths of the university's other great professional and liberal arts schools to provide students in the Pratt School of Engineering with a curriculum that fosters discovery.

Our challenge in the years ahead will be to ensure that our ambitious students have the tools they need to make meaningful contributions to industry and society. We'll do this by sustaining and enhancing our rigorous technical curriculum and rich, interdisciplinary learning environment.

Financial support for our educational programs during the Duke Forward campaign will help us expand our course offerings, incorporate experiential learning techniques into our teaching, and keep class sizes small. Opportunities to make a difference in engineering education include support for student scholarships and fellowships and for programs that add value to our degrees.

Undergraduate Education

Today, hands-on experience defines a Pratt education. Our freshmen electrical and computer engineers, for instance, build autonomous robots that can sniff out bad food in a refrigerator or measure how much energy is being produced by solar panels on Duke's Smart Home. And our students have an appetite for project-based learning and service above and beyond their standard coursework. In fact, nearly 95 percent of our students have had an intensive research experience or industry internship, or have participated in one of our extracurricular programs before graduation.

These experiences—including DukeEngage, Engineers Without Borders, Engineering World Health, the Pratt Fellows Undergraduate Research Program, and DUhatch, an incubator for student businesses—are designed to provide meaningful ways for students to apply their knowledge and make a difference even as they acquire greater problem-solving skills. Pratt Fellows, for example, work side-by-side on a research project with faculty and graduate students over the course of a semester and during a summer internship. They've co-authored peer-reviewed journal articles, presented research at conferences, and even generated intellectual property.

Associate Professor of Mechanical Engineering Josiah Knight assists a student constructing a tracking solar collector.

Then there's the NAE Grand Challenge Scholars program, a pioneering educational program Pratt launched in 2008, inspired by the National Academy of Engineering's 14 Grand Challenges for the 21st Century, which include engineering better medicines and providing access to clean water. The students selected to participate in this powerful, interdisciplinary program explore a specific topic related to a grand challenge through undergraduate research, interdisciplinary coursework, entrepreneurship, global engagement and outreach, and community service. As a capstone, they produce a research thesis that ties together all five elements.

However, providing our students with these important opportunities comes at a significant burden to our operating budget, which constrains our ability to support other needs and priorities. Private support for problem-focused programs like these during the campaign will stoke the intellectual curiosity of our students—and ensure they have the chance to tackle real-world problems and seek viable solutions.

YOUR GIFT OF $100,000 OR MORE
can support innovative educational offerings that provide the hands-on experience that defines a Duke engineering education.

TACKLING REAL-LIFE PROBLEMS: SUSTAINABLE SOLUTIONS THAT WORK

In the Pratt School's Engineering Sustainable Design and Construction course, teams of undergraduates create conceptual designs for sustainable solutions to world problems. They then build, test, refine, and present their prototypes to the class. Some recent projects include a water catchment system for a girls' school in Kenya; a human-powered water aerator for shrimp farms in Indonesia; and a portable, easy-to-deploy shelter for people who lose their homes in natural disasters.

Graduate Education

A bachelor's degree in engineering is just the start. By developing new master's degree programs and distance education programs, Pratt seeks to meet industry needs for engineers who possess not only advanced technical skills, but also have experience in integrating policy, business fundamentals, leadership, and practice.

As the master's degree has become the entry point for work in many technical fields, Pratt is working to make obtaining a master's degree easier, faster, and more affordable. Through our 4+1 B.S./M.S. program offered in every engineering major, students can earn both degrees in five intensive years. In addition, a suite of new Master of Engineering degrees offered both in traditional formats and online—including our entrepreneurship- and business-focused Master of Engineering Management degree—provides students the opportunity to develop their business savvy even as they deepen their engineering knowledge.

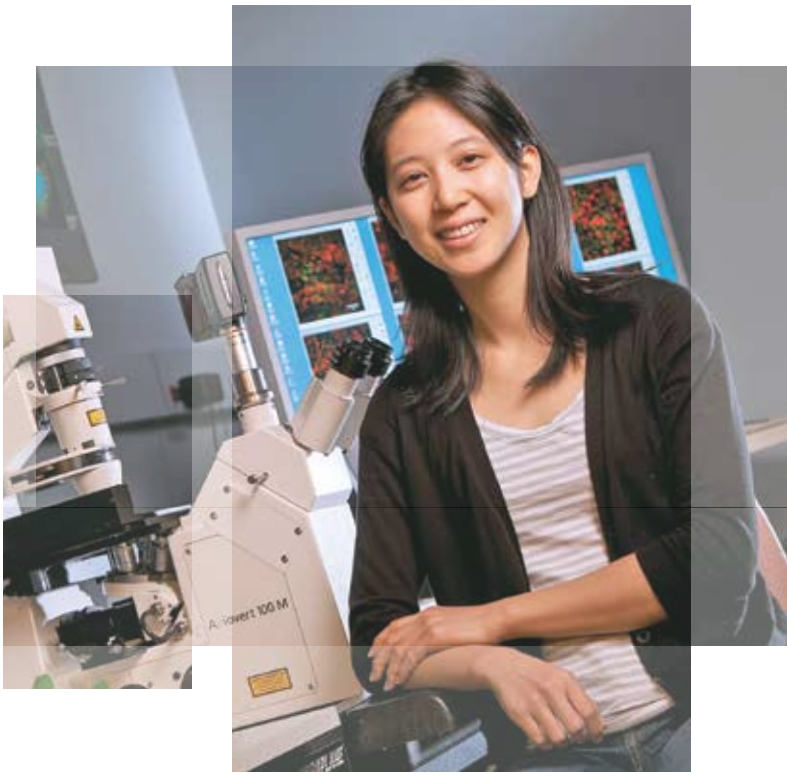
At the doctoral level, Pratt is launching a Ph.D. enhancement program designed to add value to the traditional model of a highly research-focused doctoral degree. This program offers doctoral students a host of opportunities, including internships and courses, to cultivate critical skills like proposal writing and to explore ways to leverage their research through areas such as entrepreneurship, policy, or industrial research.

Private financial support can help Pratt meet the rising demand for these master's and doctoral programs and help us attract top graduate students to Duke. Such investments can help us expand our course offerings and provide unique experiential programs that enrich the quality of the classroom experience.

YOUR GIFT OF $100,000 OR MORE
can provide vital programmatic support to the advanced educational programs that give Pratt students an edge as they look to their future.

PAVING THE WAY FOR WHAT'S NEXT

As graduation loomed, biomedical engineering major **Esther Lee** wasn't sure whether she wanted to go into industry or to pursue a doctoral degree. So she chose to enroll in the Pratt 4+1 program to broaden her knowledge base and to continue to work on research with her Pratt Fellow mentors—professors Jun Chen and Lori Setton—as she weighed her options. Lee spent the year investigating a type of cell that could potentially help lessen or reverse disc degeneration, the painful condition that causes the spine to become less flexible. "The 4+1 program gave me the chance to develop greater depth in biomedical engineering and gain more research experience," says Esther, who ultimately decided to pursue a Ph.D. "It offered me a clearer picture of what I want to do in the future and would have benefited me whichever path I chose."



Scholarships and Fellowships

Skill, professional dedication, and entrepreneurial spirit. We seek to admit the students who best embody these qualities into all Pratt degree programs, from undergraduate through the master's and doctoral levels. But to convince these top students to choose Duke, we must provide aid packages that put an engineering education within reach for undergraduates with demonstrated need, as well as fellowship support that allows us to compete for the best graduate students. At every level, scholarship and fellowship support during the campaign will make a lasting difference for an impressive student at a critical juncture in his or her life and career.

YOUR GIFT OF $100,000 OR MORE
can create an unrestricted scholarship or fellowship that helps talented students reach their potential.

YOUR GIFT OF $250,000 OR MORE
can create a restricted financial aid endowment with preference to engineering students who are from a particular region or pursuing a specific field of study.

Education Space

The desire for a Pratt education has never been greater—our overall enrollment has soared by 45 percent over the past decade. But our classrooms aren't equipped to handle that kind of demand, and their traditional format doesn't allow for the technology-intensive teaching we want to pursue.

We have a vision for a new building that offers flexible research and teaching spaces—or "classitories,"—that will integrate interactive and new media technology and that can seamlessly morph from classroom to hands-on learning laboratory. The Pratt School is seeking leadership gifts to help us move forward with construction plans and build on the quality and capability of our research and education infrastructure.

HOW WILL YOU MOVE DUKE FORWARD?