Boston University College of Engineering

2019-20

Academic Year Summary

Leadership in Engineering

BOSTON UNIVERSITY

Collaborative. Nimble. Leading the Way.

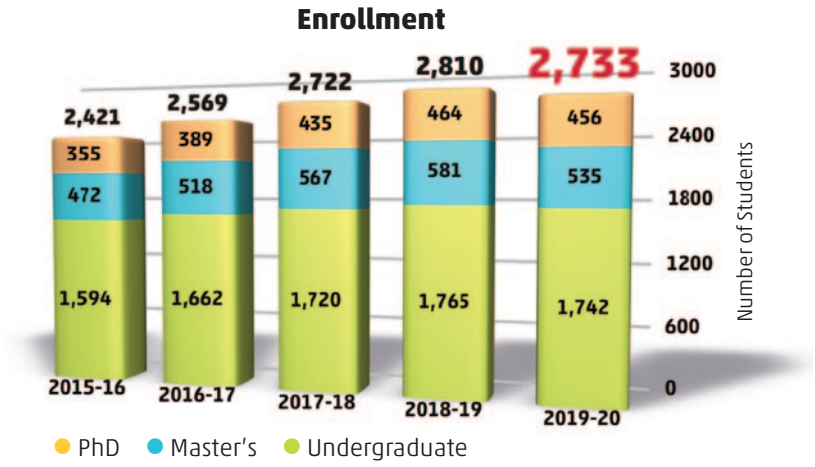
Bringing a bionic pancreas to the threshold of the marketplace. Tackling inherent racism in engineering textbooks. Opening a facility that revolutionizes biomedical engineering teaching and innovation. Then, quickly pivoting to focus on defeating the threat of COVID-19. These are just some of the highlights of the 2019-20 year at the Boston University College of Engineering.

16

Rank among private graduate US engineering programs.

Source:
US News & World Report

Enrollment Remains Strong



9

Rank of Biomedical Engineering Department nationally.

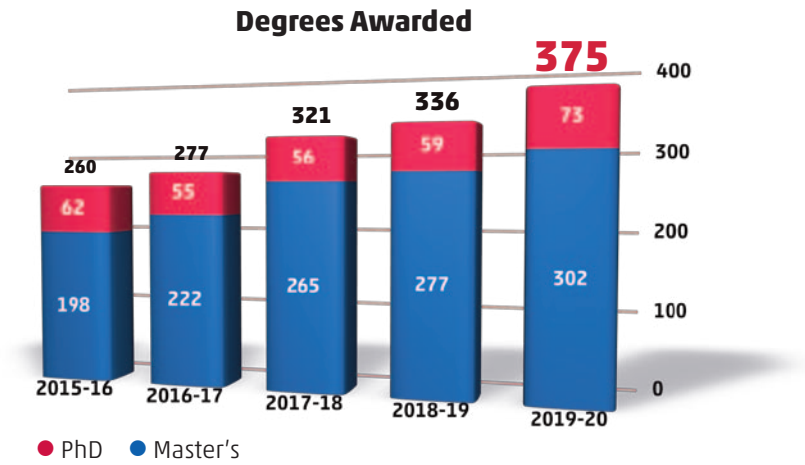
Source: *US News & World Report*

36

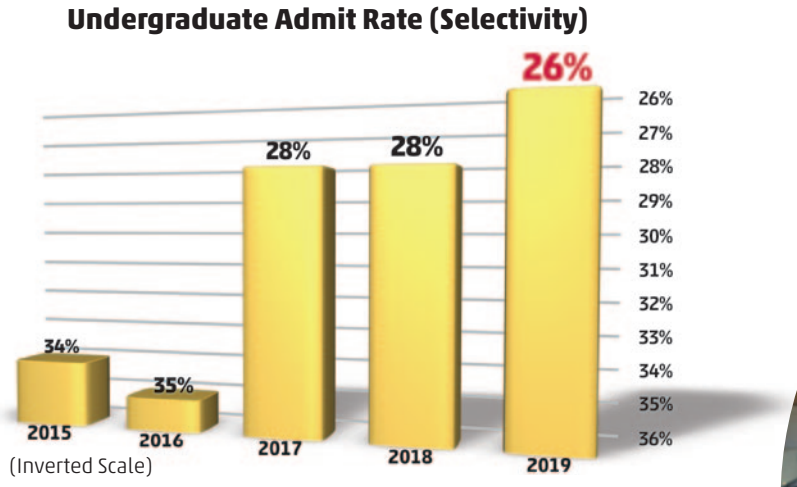
Rank among all graduate US engineering programs.

Source: *US News & World Report*

Graduate Degrees Grow

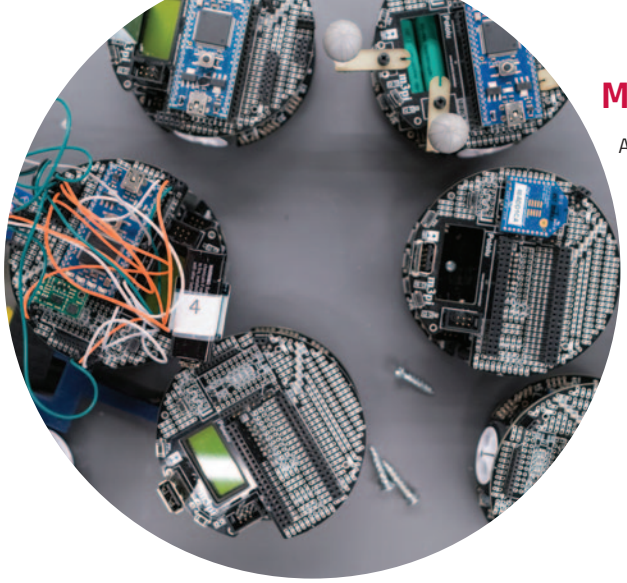


Undergraduate Selectivity Increasing



Bionic Pancreas Nears Realization

Biomedical Engineering Professor **Ed Damino**'s bionic pancreas – which monitors blood glucose levels and adjusts levels up or down every few minutes as needed – entered the final stages of the FDA approval process and drew $126 million in funding aimed at bringing the device to market. His work was featured in a PBS documentary.



Master's in Robotics & Autonomous Systems

A news Master of Science program in the burgeoning field of Robotics & Autonomous Systems began classes in September. Enrollment was double what was expected in the program's first year. The new program builds on faculty expertise in the area, as well as the Center for Autonomous & Robotics Systems, and the College's state-of-the-art Robotics Laboratory.

10

Rank in research expenditures per faculty member among private engineering schools ($740,000).

Source: *US News & World Report*

Center for Multiscale and Translational Mechanobiology Launched

The College established the interdisciplinary Center for Multiscale and Translational Mechanobiology to serve as the leading nexus for engineering and quantitative methods to understand and control mechanobiology and develop clinically translatable approaches for enhancing quality of life.

8

National Academy of Engineering and national academy of sciences members.

Faculty Pivot to Fight COVID-19

When COVID-19 emerged in the spring, several Engineering faculty turned their research focus to combatting the pandemic. They are working on developing better ventilators in conjunction with clinicians at major Boston hospitals; devising faster, more accurate tests for the virus and testing their efficacy; creating smart phone apps for contact tracing; and 3D printing improved nasal swabs.

A team led by Biomedical Engineering Professor **Catherine Klapperich** put together a massive operation to test 40,000 BU students, faculty and staff for the COVID-19 virus, most of them at least once a week. Bringing to bear her expertise in point-of-care diagnostics as director of the Precision Diagnostic Center, and assisted by Electrical & Computer Engineering Professor **Douglas Densmore** and his expertise in automated lab testing, Klapperich has developed a PCR protocol capable of conducting several thousand tests per day.

Anti-Racism in Action

Graduate student **Santiago Gomez** was so disturbed when he came across the master/slave metaphor in a textbook describing the relationship between two circuits that he wrote to the publisher and pointed out the racist connotation. The publisher quickly withdrew the textbook, vowed to change the language and review its host of other publications for that and other offensive language.

95%

Undergraduates employed or in graduate school within 6 months of graduation.

Leader in Diversity

The American Society for Engineering Education (ASEE) included the College in its Diversity Recognition Program. The distinction recognizes the College's efforts in supporting underrepresented students and implementing programs to strengthen the K-12 pipeline.

Challenges Accepted

The College joined the National Academy of Engineering's Grand Challenges program, which provides the opportunity for undergraduates to tackle the main challenges facing our society.

$99 Million

Research expenditures (average of 2018-19).

A New Way to Teach Biomedical Engineering

The Bioengineering Technology & Entrepreneurship Center (BTEC) is designed to transform education and innovation for bioengineering students through hands-on learning. The new 5,000-square-foot makerspace advances cutting-edge technologies identified in partnership with industry, from gene editing to biosensors to digital medicine.

Capital Campaign Makes Impact

The College's first-ever capital campaign concluded, raising $99.3 million from nearly 9,000 alumni, friends, parents, foundations and corporations. The campaign funded creation of three cutting-edge makerspaces: the Engineering Product Innovation Center; the Singh Imagineering Lab; and the Bioengineering Technology & Entrepreneurship Center. In addition, the campaign raised nearly $14 million for faculty fellowships and generated funding for nearly 900 student scholarships.

Faculty Honors

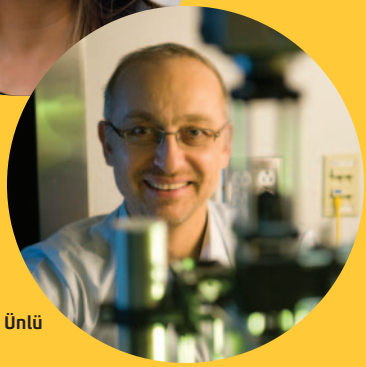
- Professor **Roscoe Giles** was elected a Fellow of the American Association for Advancement of Science.
- Professor **Muhammad Zaman** was awarded a Guggenheim Fellowship.
- Associate Professor **Cara Stepp** received a Presidential Early Career Award for Scientists and Engineers.
- Associate Professor **Ahman "Mo" Khalil** was awarded the Vannevar Bush Faculty Fellowship.
- Professor **John White** was elected president of the Biomedical Engineering Society.
- Professor **Xin Zhang** was elected a Fellow of the American Physical Society, and received the Innovation Award from the Institution of Engineering and Technology
- Professor **Siddarth Ramachandran** was awarded a Multidisciplinary University Research Initiative grant.
- Assistant Professor **Michelle Sander** was elected to the Photonics Society Board of Governors.
- Associate Professor **Vivek Goyal** was elected Fellow of the Optical Society.
- Professor **Selim Ünlü** was elected to the College of Fellows of the American Institute for Medical and Biological Engineering.
- Associate Professor **Ayse Coskun** was selected to participate in the National Academy of Engineering's Frontiers of Engineering Symposium.

Muhammad Zaman

Roscoe Giles

Cara Stepp

Ahman "Mo" Khalil



Selim Ünlü

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ENG At A Glance

Students in 2019-20

Undergraduate **1,742**
Master's Degree **535**
Doctoral Degree **456**

Degrees Granted

Bachelor's **430**
Master's **338**
Doctoral **73**

Faculty

Tenure/Tenure Track **125**
Non-Tenure Track **18**
Research **15**

Alumni

Living Alumni **19,615**

Academic Degrees

Biomedical Engineering
Computer Engineering
Electrical Engineering
Electrical & Computer Engineering
Manufacturing Engineering
Materials Science & Engineering
Product Design & Manufacture
Robotics & Autonomous Systems
Systems Engineering

Interdisciplinary Research Centers & Institutes

Biological Design Center
Center for Autonomous & Robotics Systems
Center for Computational Science
Center for Information & Systems Engineering
Center for Semiconductor Materials & Devices Modeling
Center for Mulitscale and Translational Mechanobiology
Center for Space Physics
Fraunhofer Center for Manufacturing Innovation
Hearing Research Center
Institute for Sustainable Energy
Institute for Health System innovation & Policy
Nanotechnology Innovation
Neurophotonics Center
NSF Engineering Research Center in Cellular Metamaterials
Precision Diagnostics Center
Rakif B. Hariri Institute for Computing and Computational Science & Engineering
Smart Lighting Engineering Research Center