More than two decades ago, Henry Rowan had a vision to transform engineering education. Our college made good on Mr. Rowan’s dream, attracting stellar faculty and students from around the world to build a program that would soon become recognized for our unique approach to undergraduate engineering education.

In 2013, building on an exceptional past, our College and University embarked on the development of a world-renowned research program. That research has enabled us to increase our enrollment, expand our world-class facilities, and further enhance our state-of-the-art undergraduate program. All of the College’s students benefit from this respected and industry-responsive research program.

In the past six years, our University has transformed from a regionally recognized, primarily undergraduate institution into a nationally ranked university with recognition from the Carnegie Classification of Institutions of Higher Education as an R2 (high research activity) doctoral university. We are the second public comprehensive research university in the State of New Jersey.

Today, Rowan University and the Henry M. Rowan College of Engineering are more in demand and more respected than ever before — and with good reason. The College’s commitment to extraordinary education and research have helped the University earn Carnegie R2 status. What makes Rowan’s recognition especially distinctive is our commitment to fostering research opportunities in the undergraduate program, as well as our robust interdisciplinary collaborations. This extends beyond the walls of our Rowan and Engineering halls, and includes health sciences and research partnerships with industry, government and other entities. Together, we develop and implement innovations to improve people’s lives and our world.

Proud of our core commitment
Regardless of how much we grow, the fundamentals have not changed. Our College is committed to providing a strong, hands-on undergraduate education. We continue to offer research opportunities at the undergraduate level that many schools only offer to master’s and doctoral students. And we produce students who can move seamlessly into careers, equipped with technical and communication skills, and experience collaborating on multidisciplinary projects.

Indeed, we are proud of our College.
OUR MISSION
To create knowledge through teaching and research, and to produce versatile leaders with technical expertise of considerable depth and breadth; to study and solve the National Academy of Engineering’s “Grand Challenges” for the 21st century, and to improve the quality of life and create a better society.

OUR VISION
The Henry M. Rowan College of Engineering will be at the forefront of undergraduate education, graduate education and engineering research, with an emphasis on interdisciplinary collaboration, innovation and entrepreneurship.
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RECENT MILESTONES

The College has seen tremendous change and growth since 2012.

2013  Rowan University receives research university status from the State of New Jersey

2014  Biomedical Engineering program founded
       Ph.D. program established

2015  College of Engineering renamed
       Henry M. Rowan College of Engineering
       Rowan Family Foundation Global Fellowship Endowment established
       The College adopts a new strategic plan to address the National Academy of Engineering’s “Grand Challenges” for the 21st century

2016  Experiential Engineering Education Department founded
       Center for Research and Education in Advanced Transportation Engineering Systems (CREATEs) ($2.5 million facility) opens at the South Jersey Technology Park at Rowan University

2017  Engineering Hall dedicated ($70.3 million project)
       Full renovation of Rowan Hall begins ($9.8 million project)
       College secures $2 million National Science Foundation Revolutionizing Engineering Departments grant to enhance recruitment and retention efforts, and to enhance diversity and inclusion among underserved populations
       Rowan University receives Carnegie Classification as a research university

2018  Rowan University is ranked among “national universities” by U.S. News & World Report
       Henry M. Rowan College of Engineering ranked a top 25 program for undergraduate engineering education by U.S. News & World Report
       Engineering Technology Department founded
       The College’s first Biomedical Engineering undergraduates and first Ph.D. students graduate
       College secures $3.4 million award from U.S. Department of Defense for CREATEs to improve strategic cold regions infrastructure
       College secures $1.3 million award from the U.S. Department of Education. The Graduate Areas of Assistance for National Need grant is designed to foster Ph.D. fellowships in Artificial Intelligence and Machine Learning

2019  The U.S. Department of Defense awards $14.5 million, Rowan University’s largest research award, for a cold-spray additive manufacturing program overseen by the Advanced Materials & Manufacturing Institute
       College graduates students from first undergraduate cooperative education program with Lockheed Martin
       Dean Anthony Lowman, Ph.D., is appointed Rowan University provost and senior vice president
       Dr. Stephanie Farrell, department chair and professor in Experiential Engineering Education, is appointed interim dean
THEN AND NOW

Rowan Engineering’s growth is evident in the numbers. Undergraduate enrollment alone has more than doubled.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>University enrollment</td>
<td>12,945</td>
<td>19,500</td>
</tr>
<tr>
<td>Engineering undergraduate enrollment</td>
<td>780</td>
<td>1,583</td>
</tr>
<tr>
<td>Graduate enrollment</td>
<td>39</td>
<td>224</td>
</tr>
<tr>
<td>Faculty</td>
<td>33</td>
<td>79</td>
</tr>
<tr>
<td>Departments</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Graduates (per year)</td>
<td>129</td>
<td>300</td>
</tr>
</tbody>
</table>

INTERESTING FACTS

2018 first-year: 385 first-time students (3.9 GPA, 1322 SAT) and 82 transfers

Student retention rate: >90%
Graduation rate: 83%
Class of 2019 career or graduate school placement: 94%
PARTNERSHIP INITIATIVES

The Henry M. Rowan College of Engineering has a successful history of collaborating with the professional engineering community to develop distinctive programs and specialized workforce credentials that empower graduates with both engineering expertise and professional acumen.

Rowan’s signature undergraduate Engineering Clinic program—an eight-semester sequence of courses—provides students with opportunities to work directly with industry, foundation, and government agency sponsors to solve real-world engineering problems. The clinic program fosters interdisciplinary collaborations and promotes project-based learning.

As Rowan Engineering continues to invest in its nationally recognized clinic program, it is pleased to offer expanded industrial partnership opportunities through the introduction of formal cooperative education programs (co-op). Co-op programs award academic credit to students who complete formal internships and onsite coursework with professional engineering community sponsors. Co-op students enjoy unique opportunities to seek mentorship from industry professionals, who often serve as program faculty and project supervisors.

Rowan’s first co-op program, sponsored by Lockheed Martin, placed student interns at Lockheed Martin’s Moorestown campus, where they also complete a sequence of combat systems engineering courses. Students earn both a certificate of undergraduate study in combat systems engineering and a bachelor’s degree in electrical and computer engineering, completing their studies and earning multiple credentials in just four years.

Fittingly, the State of New Jersey honored the partnership with its inaugural Innovative Partnership Award in 2017. The award recognizes high-quality collaborations among higher education institutions, business and industry.

The College’s expanding co-op program ensures that students will continue to receive a world-class education and industry partners will have even greater opportunities to tap into the resources of Rowan Engineering and its exceptional students and graduates. The College’s approach to industry and agency collaboration creates pipelines to professional opportunities for students upon graduation, contributing to the College’s success in placing graduates in engineering careers.

Rowan Engineering has dozens of other partnerships—some new, some more than 20 years strong—with government, industry, nonprofit organizations and academia. Those partnerships involve organizations with projects in Rowan’s backyard and as far as the North Pole.
Advanced Materials & Manufacturing Institute (AMMI)
AMMI advances fundamental and applied science and engineering technology related to materials and manufacturing with the vision to utilize nature’s chemistries, both renewable and fossil reserves, to enhance material performance and improve our global sustainability by gaining a comprehensive understanding of the processing-structure-property relationships of materials through advanced experimental, analytical and modeling techniques.

Center for Research and Education in Advanced Transportation Engineering Systems (CREATES)
CREATES conducts cutting-edge, applied and readily implementable research in transportation engineering. The Center seeks to ensure a diverse working environment that educates and trains the next generation of professionals, and enhances the skill sets of the current workforce that can meet the engineering demands of the 21st century.

Sustainable Facilities Center (SFC)
The Center helps public and private entities sustainably manage facilities by reducing the environmental, economic and social impacts of buildings. The faculty associated with the SFC have worked on sustainable facilities projects since before 2004. These efforts resulted in the founding of the SFC in 2018.

Virtual Reality Center
The Virtual Reality Center’s team of experts create innovative virtual reality and augmented reality applications. The Center offers a one-of-a-kind collaborative environment built to support cutting-edge research by the University’s students and faculty, as well as community, nonprofit, government and corporate clients.
Combat Systems Engineering Cooperative Education Experience
Lockheed Martin
Students participate in a formal co-op program with on site internships and specialized courses with the potential of earning multiple credentials.

Engineers Without Borders
Engineers Without Borders Rowan Chapter
The Rowan Chapter has a team of multidisciplinary engineering students who coordinate with faculty and apply their curriculum to solve real world problems locally and internationally.

MemSat-1U Rowan Cube Nanosatellite
National Aeronautics and Space Administration (NASA)
Students engage in evaluation of memory technologies in a space environment for NASA, including payload, control and data, electronic power, communication and structure subsystems.

Water Recovery & Reuse
U.S. Environmental Protection Agency; Nestlé USA Beverage
Team works on a vibratory-field membrane process for food/biomass waste processing in spray-dried and freeze-dried coffee.

Modular Fabrication System
Rowan University Venture Fund
Team develops tool that performs 3D printing, laser engraving and CNC milling manufacturing operations at a competitive price point to stand-alone systems.

National Guard Armory Building Audits
New Jersey Department of Military & Veterans Affairs; Army National Guard
Students conduct building audits by inventorying all water- and energy-consuming devices, and provide recommendations for energy and water efficiencies.

Optimization of Pipeline Flushing Operations
ExxonMobil
The Rowan Engineering clinic project team works to improve the efficacy of flush methods for product fill lanes used for the various grades of lubrication oil produced at the ExxonMobil blending plant. Rowan Engineering team members seek to propose several novel solutions to make operations more efficient by reducing the amount of flush oil used in change-outs.

Polymer Nanocomposites with Enhanced Dielectric Strength and Reduced Thermal Contraction for Superconductor Cables
Naval Surface Warfare Center
Clinic project focuses on developing nanocomposite-enhanced polymers with enhanced dielectric strength for superconducting cables, which involves a large multidisciplinary team of undergraduate and graduate researchers who are actively exposed to unique challenges associated with using superconductors in naval applications.
Students in Civil & Environmental Engineering work with Dr. Beena Sukamaran following Hurricane Sandy.
Biomedical Engineering

Biomedical Engineering demonstrated student, faculty and program achievements early in its existence.

<table>
<thead>
<tr>
<th>Year</th>
<th>Undergraduate Enrollment</th>
<th>Doctoral Student Enrollment</th>
<th>Starting Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>42</td>
<td>4</td>
<td>$75,000–$90,000</td>
</tr>
<tr>
<td>2019</td>
<td>168</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**Recent Highlights**

- **2014** Biomedical Engineering Department (BME) is formed, first undergraduate class and Ph.D. students enroll.
- **2015** Accelerated 3+4 BS/DO with Rowan University School of Osteopathic Medicine established. Accelerated 3+4 BS/MD with Cooper Medical School of Rowan University established.
- **2016** Dr. Peter Galie wins major American Heart Association Research Grant for “Establishing a Mechanistic Link Between Cerebral Blood Flow and the Blood-Brain Barrier” and publishes groundbreaking work in the area in the journal *Biomaterials*.
- **2017** Dr. Mohammad Abedin-Nasab wins PA Science Center competition to create medical robotics company, Robossis, producing orthopedic surgical robots. Dr. Vince Beachley, first BME faculty member, wins National Science Foundation (NSF) CAREER Award to study novel electrospinning methods and materials.
- **2018** Department accelerates three major, faculty-led medical device startup companies with Rowan Innovation Venture Fund.
- **2019** BME undergraduates lead University in national prestigious undergraduate scholarships. Two NSF graduate research fellowships, one honorable mention, and three Goldwater Scholarship winners. Department establishes new NSF Research Experiences for Undergraduates Site in Biomedical Materials, Devices, Therapeutics and Emerging Frontiers. Department graduates first BME Ph.D. students.
## RECENT HIGHLIGHTS

**2012**  
With Pfizer Inc. and the U.S. Environmental Protection Agency (EPA), department develops a sustainable design toolbox for pharmaceutical manufacturing

**2013**  
With Johnson Matthey, department investigates a new process to recover and reuse nitric acid

**2014**  
With DuPont and the EPA, department develops sustainable pollution prevention design for batch-based specialty chemical manufacturing

**2015**  
With Johnson Matthey, department removes nickel in waste stream using a soluble polymer

**2016**  
Department develops a road map for Nestle and the EPA in food processing intensification methods

**2018**  
With the EPA and other partners, department develops a road map for solvent recovery for industrial manufacturing

Dr. Martin Haase receives a National Science Foundation CAREER Award, the first in Chemical Engineering’s history

**2019**  
Department hosts the ninth International Conference on Engineering Education for Sustainable Development, the first time prestigious conference was held in the United States

Department receives $14.3 million grant from the U.S. Department of Defense for Advanced Materials & Manufacturing Institute

With ExxonMobil, department optimizes pipeline flushing operations at the company’s lubricant oil blending plant

Department expands its footprint in Rowan Hall, doubling research and teaching spaces

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### Chemical Engineering

Long a national front runner in engineering education, Chemical Engineering continues to innovate in the classroom and in the lab.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate enrollment</td>
<td>192</td>
<td>197</td>
</tr>
<tr>
<td>Average starting salary</td>
<td>$66,000</td>
<td>$73,000</td>
</tr>
<tr>
<td>Students who graduate per year</td>
<td>45</td>
<td>48</td>
</tr>
<tr>
<td>Retention rate: 90%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Civil & Environmental Engineering

Civil and Environmental Engineering is a leader in the design and maintenance of smart cities, as well as in promoting diversity in engineering education.

### Undergraduate enrollment

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>178</td>
<td>351</td>
</tr>
</tbody>
</table>

### Average starting salary

<table>
<thead>
<tr>
<th></th>
<th>$50,000</th>
<th>$60,000</th>
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</thead>
</table>

### Students who graduate per year

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27</td>
<td>63</td>
</tr>
</tbody>
</table>

Retention rate: 85%

### Recent Highlights

- **2015**
  - Resiliency Planning for Communities
  - Computation Lab created

- **2016**
  - Three ’14 alumni become National Science Foundation (NSF) graduate research fellows at Carnegie Mellon University, the University of Michigan and University of Virginia
  - First civil engineering program in the nation to receive $1.92 million NSF Revolutionizing Engineering Departments grant for diversity education
  - Center for Research and Education in Advanced Transportation Engineering Systems (CREATES) established

- **2017-**
  - Juniors Kayleigh McDevitt, Jerome Malaran
  - 2019 receive the $10,000 Sol Seid Award

- **2018**
  - Sustainable Facilities Center established
  - Intelligent Transportation Systems Laboratory established
  - Dr. Sarah Bauer, a Civil & Environmental (CEE) alumna, joins the faculty after receiving her Ph.D. from the University of Virginia

- **2019**
  - Dr. Cheng Zhu receives an NSF Innovation Corps grant titled “The Shaker Shield—An Innovative Technology for Inhabitant Protection in High Seismic Risk Areas”
  - Taylor Groves ’19 named Best Entrepreneur Lead, NYC Innovation Node, for the “Shaker Shield” project
  - Dr. Yusuf Mehta and his CREATES team receive $3.4 million from the U.S. Department of Defense for innovative construction materials for cold regions applications, the largest award at the Glassboro campus
  - CEE Alumna Patricia Hurley ’18 receives the $10,000 George W. Laird Merit Fellowship at the University of Delaware
  - Sustainable Facilities Center grand opening
  - Dr. Yusuf Mehta and his CREATES team receive an additional $3.4 million from the U.S. Department of Defense to continue their research
  - Sustainable Facilities Center wins the 2019 Army Community Partnership Award. These awards recognize exceptional community partnerships that have improved readiness, driven modernization and contributed to reform initiatives throughout the U.S. Army
Electrical & Computer Engineering

Electrical & Computer Engineering is a ground breaker in research and innovative learning experiences.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate enrollment</td>
<td>189</td>
<td>350</td>
</tr>
<tr>
<td>Average starting salary</td>
<td>$62,000</td>
<td>$71,000</td>
</tr>
<tr>
<td>Students who graduate per year</td>
<td>33</td>
<td>77</td>
</tr>
</tbody>
</table>

Retention rate: 85%

RECENT HIGHLIGHTS

2016–present
Students organize ProfHacks, an annual hacking marathon open to high school and college students that has grown to 250 participants in three years

2017
Department moves into Engineering Hall, more than doubling its footprint

2018
Department receives Innovative Program of the Year Award from the Electrical and Computer Engineering Department (ECE) Heads Association

Department establishes College’s first formal cooperative education program with Lockheed Martin

ECE faculty and students design and build—a through an engineering clinic course—a cubes satellite launched into orbit by NASA

2017-2018
Department establishes a unique nine-month co-op program with Lockheed Martin, allowing students to graduate in four years with an additional certificate in Combat Systems Engineering—the only program of its kind in the nation

Department receives $1.3 million U.S. Department of Education Graduate Assistance in Areas of National Need award to develop Ph.D. fellowships in Artificial Intelligence and Machine Learning

2019
Department receives a new six-year accreditation with several program strengths highlighted by ABET

Department ranked as #15 in best undergraduate degree programs by U.S. News & World Report

2019-2020
Department starts a new B.S. in Electrical Engineering Technology, a 3+1 program in collaboration with Rowan College at Burlington County
Experiential Engineering Education (ExEEd)

The department manages the engineering entrepreneurship degree, which supports students who wish to invent, develop and commercialize products and services.

ExEEd was launched in September 2016 to:

• Lead the College’s undergraduate engineering educational mission for first- and second-year students
• Catalyze the translation of educational innovations into the classroom
• Cultivate a collaborative environment for engineering education research

2012 2019
Number of first- and second-year students in the college 423 630

RECENT HIGHLIGHTS

2016
ExEEd Department is founded
First Engineering Entrepreneurship undergraduate students enroll

2017
ExEEd moves into its new home in Engineering Hall.
Led by ExEEd, the Henry M. Rowan College of Engineering is selected to join the KEEN network. KEEN is dedicated to transforming undergraduate engineering education through an entrepreneurial mindset.

ExEEd Founding Chair Dr. Stephanie Farrell becomes American Society for Engineering Education (ASEE) President

Dr. Cheryl Bodnar receives national Raymond W. Fahien Award for outstanding teaching effectiveness and educational scholarship from the ASEE Chemical Engineering Division

Dr. Cheryl Bodnar receives a grant from the National Science Foundation (NSF) to develop experiential process safety training

2018
ExEEd hosts the ASEE’s national First-Year Engineering Experience Conference.

Dr. Stephanie Farrell receives a grant from the NSF for a project to promote Diversity and Inclusion in Engineering nationwide.

Dr. Stephanie Farrell receives the Nikola Tesla Chain for outstanding achievement in engineering education, the highest honor from the International Society for Engineering Pedagogy.

2019
ExEEd enrolls first PhD students.

Engineering Entrepreneurship student Michael Weinberg selected as Stanford University Innovation Fellow.

ExEEd undergraduate Clinic Team earns distinction in ASEE’s Best New Ideas in Entrepreneurship and Innovation competition for their paper presented at the annual conference in Tampa.

Dr. Kaitlin Mallouk receives a grant from the NSF to study the impact of engineering guilds with respect to the adoption of research-based instructional practices.

2020
ExEEd graduates first class of engineering entrepreneurship majors.

Dr. Scott Streiner launches Rowan’s Global Engineering Education initiative.
RECENT HIGHLIGHTS

2015  Undergraduate research (summer junior/senior clinic) funded through Naval Engineering Education Consortium, New Jersey Health Foundation, National Institutes of Health
Rowan engineers take third place in North American Baja car competition
Labs renovated and upgraded ($3+ million)

2016  Stanford program names Rowan students University Innovation Fellows

2017  Rowan placed 13th of 80 teams in American Society of Mechanical Engineers Design Competition

2018  Rowan team chosen for 2018 NASA Revolutionary Aerospace Systems Concepts—Academic Linkage Mars Ice Challenge
Undergraduate research opportunities expand through recent Graduate Assistance in Areas of National Need award (U.S. Department of Education), international undergrad intern exchange (e.g., University of the Philippines)

U.S. News & World Report (2020 edition) ranks program 17th in Best Undergraduate Engineering Programs (master’s or bachelor’s category)

Mechanical Engineering

The nationally ranked Mechanical Engineering program continues to achieve in numerous fields.

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Undergraduate enrollment</td>
<td>141</td>
<td></td>
</tr>
<tr>
<td>Average starting salary</td>
<td>$59,000</td>
<td>$70,000</td>
</tr>
<tr>
<td>Students who graduate per year</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Retention rate: 93%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>