



Master of Engineering

M.ENG

 **BME**

Biomedical Engineering



CLEMSON

BIOENGINEERING

The M.Eng. in Biomedical Engineering (BME) degree program provides an in-depth advanced engineering education to students who have completed a bachelor of science degree in engineering and desire to embrace an industrial career in the field of medical technology.



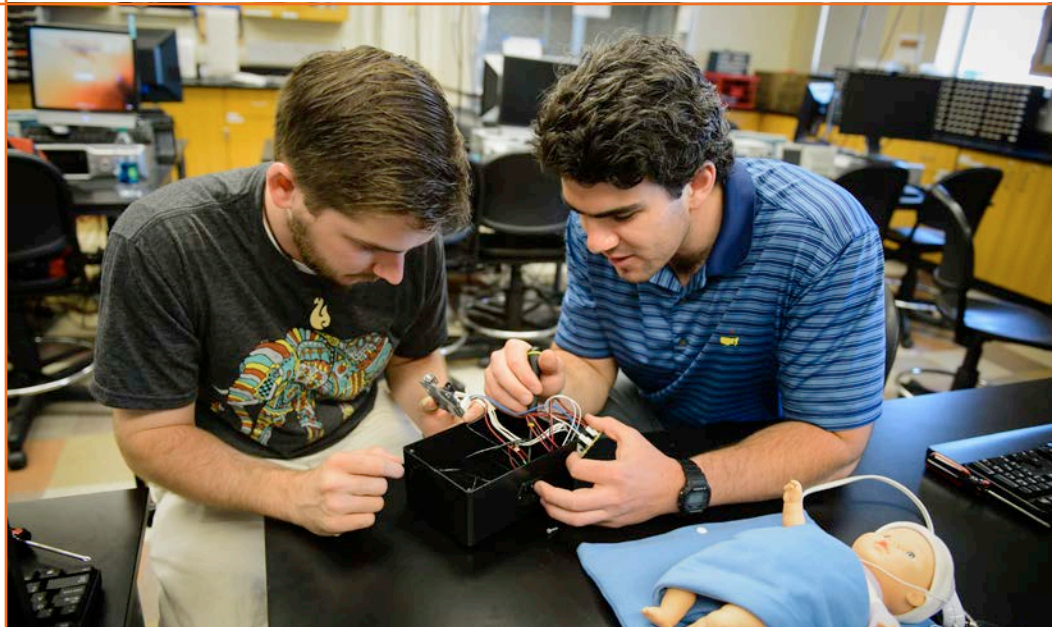
The M.Eng. in Biomedical Engineering (BME) provides an intellectually rigorous professional graduate education that emphasizes clinical applications and biomedical engineering design in order to better train a workforce to sustain a growing biomedical industry in South Carolina and in the United States.

This program is based on core biomedical engineering, plus relevant clinical applications, providing the basis for strong technical contributions in industry. This program prepares engineering graduates for professional practice in BME and leadership roles in the biomedical science and technology private sector to help develop and sustain economic growth.

More specifically, students in the program will acquire a broad perspective of the biomedical engineering discipline that complements their undergraduate training in engineering or science, and an in-depth knowledge of an essential area in biomedical engineering. Graduates will be equipped to design biomedical devices and develop therapeutic strategies within the bounds of health care economics, the needs of patients and physicians, the regulatory environment for medical devices and pharmaceuticals, and stringent ethical standards of biomedical engineering practice. Overall, the program will graduate students who:

- Demonstrate advanced level academic expertise and practical engineering experience necessary to function as biomedical engineering professionals in a modern, ever-changing world. (Advanced Knowledge and Life-long Learning)
- Display competence by being selected for employment by industrial, academic or government entities or further professional/graduate studies. (Career Opportunities)
- Understand the broad, social, ethical and professional issues of contemporary engineering practice. (Awareness and Responsibility).





ADMISSION CRITERIA


Admission to a graduate level program is controlled by the Graduate School at Clemson University. M.Eng. in BME applicants must meet the minimum requirements established by the University for admission to a graduate program. In addition, individuals with the following qualifications will be admitted into the M.Eng. program:

- Must hold a BS degree from an ABET-accredited program (or equivalent if from an international university) in Bioengineering, biomedical engineering or other related engineering and technology discipline and must provide transcripts from the institution where the degree was obtained.
- A minimum undergraduate grade point average (GPA) of 3.0 is required for admission.
- International students are required to submit TOEFL scores.
- Individuals may request a waiver of some of the above requirements (e.g., undergraduate GPA less than 3.0, or undergraduate degree not in engineering) and admission to the program if they provide sufficient evidence to the graduate program director that they have had sufficient industrial experience to warrant a waiver. It will be up to the program to accept or decline this request.



"This program sets the stage for M.Eng students to have an immediate and positive impact within the Med Device Industry, with extensive exposure to medical device regulation, design and development geared towards manufacturability, and most importantly using an experienced network of clinical and industry mentors that drives innovation!"

Chadd Clark, M.Eng. '16
Clemson University
 Manager of Technology Development,
 Brookhaven Vascular

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CURRICULUM

The M.Eng. curriculum provides skills and expertise that enhance the individual's ability to contribute to the technical workforce. The degree will provide professionals in the technical workforce an opportunity to continue their education and development in the context of an advanced degree. The M.Eng. also serves the practicing engineer to further his/her career in the context of an application of engineering knowledge, as opposed to a master's of science in a research context, which is focused on discovering new knowledge.

The minimum requirement for this degree is one year of full-time graduate study, or its equivalent. Eligibility for graduation requires a minimum of thirty (30) graduate credits from a mandatory core including a mandatory internship of 2 credits and technical elective courses. No thesis is required for this degree. A student who has previous graduate work at another institution that has not been used towards a degree may petition the Graduate Committee to transfer up to nine (9) semester credit hours of relevant course work with grades of 'B' or better.

CORE CREDITS

- Bioengineering Seminar
- Industrial Bioengineering
- Medical Device Commercialization
- Biomedical Device Design Innovation
- Biomedical Product Translation

TECHNICAL ELECTIVES

- Orthopaedic Engineering
- Cardiovascular Engineering
- Biomaterials
- Modeling
- Biomedical Imaging
- Regulatory Science

INTERNSHIP (OPTIONAL)

- Industrial Internship 1-2 credits (45 hours = 1 credit)
- Clinical Internship 1 credit max





M.ENG BME OVERVIEW

INDUSTRY FOCUSED 1 YEAR MASTER'S PROGRAM:

- 30 hours total. Non-Thesis.
- Supports medical device economy through the development of skilled and innovative personnel
- Develops skills and expertise to enhance one's ability to contribute to the technical workforce.

EMPHASIS ON:

- Industry
- Entrepreneurship
- Clinical application
- Economic development
- Regulatory science

AT CLEMSON UNIVERSITY:

Department of Bioengineering
Clemson University
301 Rhodes Research Center
Clemson, SC 29634-0905

OPPORTUNITIES:

- Extensive product development through Innovation Design Program
- Earn certifications through electives of choice.
- Connect with biomedical engineering experts and inventors
- Take advantage of cutting edge facilities for technology development.
- Be involved in shaping the biomedical work-force and its development
- Engage in business opportunities.

AT MUSC:

Clemson-MUSC Joint Bioengineering Program
Medical University of South Carolina
68 President Street - BE 101D - MSC 501
Charleston, SC 29425



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"Brookhaven Vascular (formerly CreatiVasc Medical) was in need of an entry level biomedical engineer to conduct bench-top reliability and performance testing of our Hemoaccess Valve System®. We were fortunate enough to find Chadd Clark who was working on his Masters of Engineering degree at Clemson. The skills Chadd absorbed from his M.Eng. Senior Design Project were immediately applicable to a wide spectrum of our work. Clemson has created a Master's program grounded in the real world and we have seen the program's ability to produce talented graduates that enter the door and 'hit the ground running.' A Clemson M.Eng. graduate comes fully prepared to make contributions the first day in the door."

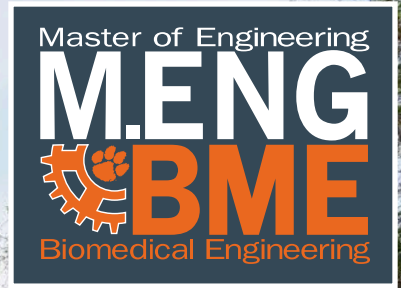
STEVE JOHNSON

President & CEO, Brookhaven Vascular Inc.

CLEMSON'S STUDENTS HAVE GAINED INDUSTRY EXPERIENCE WITH THE FOLLOWING COMPANIES:

- Bard
- Baxter
- Brookhaven Medical
- Corbion Purac
- Edwards Life Sciences
- FDA
- GE Healthcare
- Lab Corp
- Medtronic
- Milliken Healthcare
- St. Jude
- VidiStar
- W.L. Gore & Assoc.

Clemson's bioengineering program is widely recognized as a pioneer in the biomaterials field. The department has ongoing collaborations with the University of South Carolina, Medical University of South Carolina, Greenville Hospital System, Emory University and Carolinas Medical Center.



RHODES BIOENGINEERING RESEARCH CENTER



Department of Bioengineering
301 Rhodes Research Center
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