THE CITADEL
SCHOOL OF ENGINEERING

The Citadel's Mechanical Engineering Program is nationally accredited by the Engineering Accreditation Commission of ABET (www.abet.org). ABET ensures engineering programs prepare students for professional practice and licensure. The Citadel is accredited by the Southern Association of Colleges and Schools Commission on Colleges.

For information on Mechanical Engineering:
www.citadel.edu/me
me@citadel.edu

To apply to The Citadel
*contact **The Citadel Admissions** at:*

***Phone:** (843) 953-5230*
***Email:** admissions@citadel.edu*
or at or apply online at:
citadel.edu/admissions

The South Carolina Corps of Cadets

BACHELOR OF SCIENCE
IN MECHANICAL ENGINEERING

THE CITADEL
THE MILITARY COLLEGE OF SOUTH CAROLINA

Your Undergraduate Experience

The ever changing engineering workforce has led to a job market with companies looking to hire talented team members who possess a technical and professional skillset. The Mechanical Engineering program will prepare you for career advancement in industry or the military.

- A faculty adviser assigned to you will create a student experience around your career goals, which allows you to obtain the exact knowledge and skills needed to move your career forward in an innovative world.
- Within the School of Engineering, faculty are primarily focused on teaching in their discipline.
- The School of Engineering has been ranked in the Top 25 U.S. News & World Report (2014, 2015, 2016, 2017, 2018) for best undergraduate engineering programs at schools offering up to a masters degree.
- Our graduates thrive in competitive job markets, graduate programs, or the military.

About the Mechanical Engineering Program

Program Vision
Achieving excellence in the education of principled mechanical engineering leaders by being a recognized leader in mechanical engineering education, student performance, and student diversity.

Curriculum
The Mechanical Engineering curriculum places emphasis on a broad liberal education base, a strong background in mathematics and basic sciences, and a logical sequence of Mechanical Engineering courses that provide the breadth and depth necessary for continuous professional growth in today's technological society.

Engineering design problems, concepts, and laboratories are included throughout the curriculum and the experience is capped by a mandatory two-semester senior design course which the students undertake significant design projects.

Dedicated, High Quality Faculty
Mechanical Engineering faculty maintain an open door policy and interact with students on many issues, including academic advising, course assignments, student projects, career planning, research, professional development, and engineering teamwork. The Citadel is distinguished by small classes, all led by accomplished professors. Students and faculty work together in a close-knit dynamic environment. Coming from backgrounds in academia, industry, and the military, the faculty primarily focuses on one imperative: engineering undergraduate education.

Why The Citadel is Right for You

Focus on Students
We believe the education, development, empowerment, and welfare of our students comprise the primary focus of our efforts.

Mechanical Engineers as Principled Leaders
We believe the engineering profession requires the highest professional and ethical standards, which we seek to model, teach and prepare our students to embrace.

Collaborative Teaching and Learning Environment
We believe a collaborative collegial environment among our faculty, staff and students is critical in sustaining advancement in educational excellence.

Growth Through Assessment
We believe data-driven inquiry and improvement will lead students, faculty and staff to sustained advancement in educational excellence.

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING CURRICULUM

The Mechanical Engineering program will incorporate a number of courses within the existing ABET accredited civil and electrical engineering programs. Courses prepare students for challenging careers in mechanical engineering and there are five main focus areas:

Power and Energy
The study of Power and Energy will give students the tools to create, improve, and maintain technologies that power the modern world.

Manufacturing
The study of manufacturing deals with the processes, equipment, and tools used to turn raw materials into a new product.

Aeronautical Systems
The Aeronautical Systems track is concerned with the research, design, development, testing, and science of aircraft.

Composites
The study of materials is concerned with the discovery and design of new materials. New composite materials are essential to creating advanced technologies and making current technologies stronger, smaller, or lighter.

Mechatronics
Mechatronics is the crossroads in engineering where mechanical engineering, electrical engineering, computer science, and controls engineering meet to create new and exciting real-world systems.

Freshman Year

Fall Semester
ENGL 101 Composition and Literature I - 3
CHEM 140 Chemistry for Engineers - 3
CHEM 141 Chemistry for Engineers Lab - 1
MATH 131 Analytical Geometry and Calc I - 4
HIST 10x Western or World Civilizations - 3
MECH 101 Intro to Mechanical Engineering - 1
LDRS 101 First Year Seminar - 1
RPED 250 Required Physical Education - 2

Spring Semester
ENGL 102 Composition and Literature II - 3
BIOL 150 General Biology for Engineers - 3
or CHEM 152 General Chemistry II - 3
BIOL 151 General Biology for Eng Lab - 1
or CHEM 162 General Chemistry II Lab - 1
MATH 132 Analytical Geometry and Calc II - 4
PHYS 221 Physics with Calculus I - 3
PHYS 271 Physics with Calculus I Lab - 1
MECH 102 Engineering Computer Appl. - 2
LDRS 111 Freshmen Ethical Fitness Seminar - 0
RPED 251 Required Physical Education - 2

Sophomore Year

Fall Semester
COMM 260 Technical Communication - 3
PHYS 222 Physics with Calculus II - 3
PHYS 272 Physics with Calculus II Lab - 1
MATH 231 Analytical Geometry and Calc III - 4
CIVL 202 Statics - 3
LDRS 201/11 Sophomore Seminar/Lab - 1
MECH 325 Computer Applications w/ Lab - 3

Spring Semester
ENGL American or World Literature - 3
MATH 234 Applied Mathematics I - 4
ELEC 208 Circuits w/ Lab - 3
CIVL 203 Dynamics - 3
CIVL 304 Mechanics of Materials - 3
CIVL 307 Materials Laboratory - 1
RPED Required Physical Education - 0

Junior Year

Fall Semester
MECH 310 Thermo-Fluid Systems I w/Lab - 3
MECH 304 Engineering Materials w/Lab - 3
MECH 330 Measurements & Instrumentation w/Lab - 3
MECH 340 Manufacturing Processes w/Lab - 3
MECH 350 Modeling/Analysis & Dynamic Syst. - 3
LDRS 311 Junior Ethics Enhancement Sem. - 0

Spring Semester
HIST 10x Western or World Civilizations - 3
MECH 311 Thermo-Fluid Systems II w/ Lab - 3
MECH 345 Machine Design - 3
MECH 351 Modeling/Analysis & Dynamic Syst. II w/Lab - 3
MECH 365 Eng. Computation Methods - 3
MECH 460 ME Systems Design - 3
RPED Required Physical Education - 0

Senior Year

Fall Semester
MECH 415 Heat Transfer - 3
MECH ( ) ME Option I - 3
MECH 481 Senior Design I - 3
MECH 450 Mechatronics w/Lab- 3
LDRS 411 Senior Leadership Integration Seminar - 0
( ) Technical Elective - 3

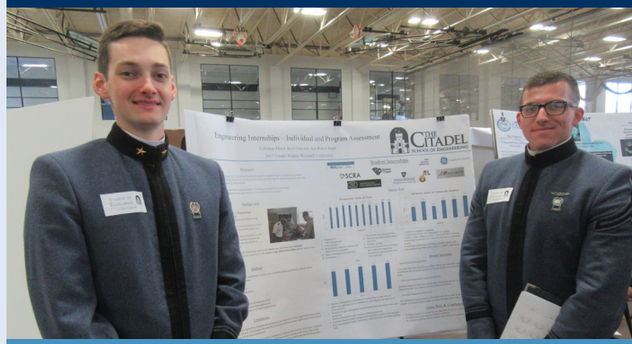
Spring Semester
MECH 482 Senior Design II - 3
MECH ( ) ME Option II - 3
( ) Social Science Core Course - 3
MECH ( ) Mechanical Elective - 3
( ) Adv. Humanities - 3

**Basic ROTC during each semester of freshmen and sophomore years. Advanced ROTC or Leadership required each semester junior and senior year.*

Why Study Mechanical Engineering?

"Mechanical engineers fill a wide variety of critical roles in companies, from CAD designers to top executives. A foundation of technical understanding, critical thinking and problem solving make mechanical engineers a highly valued resource at many different levels throughout industry. In an age of high-technological advances through electrical and computer engineering, mechanical engineers are needed now more than ever. No matter what technology can be put on a ship, plane, car or your mobile phone, eventually a mechanical action to turn a shaft, spin a turbine, stamp a part, or even to assemble your smart phone must happen. Mechanical engineers put innovative ideas into action."

Gregory Gordon
Defense Engineering Services
Charleston, SC



"I enjoy working with fellow students and faculty on research projects. I am confident this major will prepare me for a variety of career paths in the Mechanical Engineering field."
- Kyle Johnson