College of Engineering and Computer Science

Areas of Mechanical Engineering

Fluid Mechanics

Involves development and design of combustion systems like engines, mixing processes for paint and other fluids, pumps, pipes, fans and turbines by understanding the behavior of liquids and gases.

Thermal Sciences

Involves design of engines and other combustion systems, power plants, heating and cooling equipment by applying heat transfer and thermodynamics principles.

Solid Mechanics and Structures

Involves the analysis and creation of high quality, lightweight, long-lasting devices by proper use of material properties and the principles of mechanics.

Engineering Design

Involves integrating formal problem solving techniques with emerging computer and information technology to apply modern methods of Solid Modeling, Computer Aided Design (CAD), and Computer Aided Manufacturing (CAM), and Additive Manufacturing to real-life projects.

Manufacturing and Control Systems

Involves planning and integration/optimization of manufacturing processes for various products and volumes of production, in addition to the development and design of machines that carry out these processes including robots, automation equipment, quality inspection devices and artificial intelligence systems.

Materials Science

Involves applying the fundamental principles of chemistry and atomic structure to study engineering materials including the characterization and testing of materials/ mechanical properties for proper materials selection in mechanical design and the development of new materials.

Graduate Program

The Master of Engineering Program provides students with opportunities to engage in advanced eduation and reserarch in materials science and engineering, sustainable systems engineering, and engineering managment.

For further information, please contact:

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Southern University and A&M College

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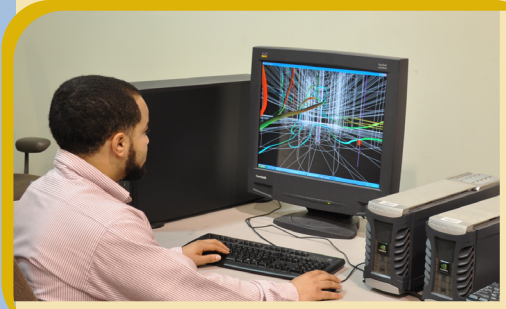
Mechanical Engineering



Southern University and A&M College

Southern University and A&M College • College of Engineering and Computer Science

Mechanical Engineering

Why Mechanical Engineering?

For centuries mechanical engineers have been major contributors to civilization by applying their knowledge of the mathematical and physical sciences to solve the world's problems. Mechanical engineering is employed in the creation of products for society that range from everyday items like home appliances to large rockets that propel vehicles into space for diverse missions. Furthermore, the field is evolving as mechanical engineers play pivotal roles in the development of innovative and sustainable technologies that reach from the smallest of size scale to largest. It is considered by many as the broadest of all engineering disciplines. Mechanical engineers apply the principles of force, energy, and motion to analyze, design, manufacture and maintain mechanical processes and systems. Their versatility make them very desirable (and employable) by many organizations for technical and non-technical roles, such as project management. The field is also very appealing to students because mechanical engineers graduates typically command a very high starting salary after obtaining their undergraduate degree. The mechanical engineering field covers a broad section of topics that relate to the design of dynamic products such as:

- Land and sea vehicles and their subsystems (cars, trucks, motorcycles, ATVs, heavy equipment, buses, trains, ships, submarines, engines, vehicle chassis, mechanical power transmission, etc.)
- Aerospace vehicles (airplanes, aircraft engines, rocket engines, spacecraft, control systems, etc.)
- Automated machines (robots, image and data acquisition, recognition, control, etc.)
- Manufacturing equipment (machine tools, additive manufacturing/3D printing, microfabrication tools, etc.)
- Electronic communication devices (PCs, laptops, tablets, smartphones, semiconductor tools, etc.)
- Micromechanical devices
- Energy conversion systems (electric power generation plants, gas turbines, wind turbines, solar energy, fuel cells, etc.)
- Heating and cooling systems (HVAC, air-conditioners,
- refrigerators, etc.)
- Industrial and rotating equipment and machinery (such as, pumps, compressors, blowers, turbines, etc.)
- Piping systems in various industries (chemical,petrochemical, etc.)
- Biotechnology (medical devices, prosthetics (limbs), implants (artificial heart), pharmaceutical fluidic systems, etc.)
- Household appliances (alarm clocks, toasters, ovens, washing machines, etc.)
- Monitoring and measuring equipment
- Athletic equipment

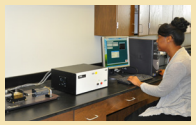
Why Southern University?

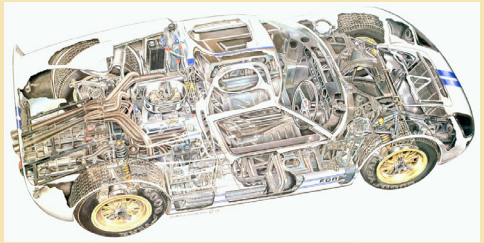
The Southern University College of Engineering is one of the most prestigious engineering programs in the nation and one of the top producers of underrepresented engineering graduates. The College is housed in a multimillion dollar facility equipped with a Student Retention Center, high tech auditorium, multimedia ready classrooms, and state-of-the-art instructional and research facilities, including mechanical, thermal, materials, fluid mechanics, mechatronics, and computer integrated manufacturing laboratories.

Program Objectives

The mechanical engineering curriculum at Southern University is dedicated to preparing students for productive careers in the state, nation, and the world. Within a few years after graduation, graduates of the mechanical engineering programs will have:

- Utilized a foundation in engineering and science using modern tools to improve lives and livelihoods through a successful career in mechanical engineering or other fields.
- Become effective collaborators and innovators, leading or participating in efforts to address social, technical and business challenges in a pro-fessional and ethical manner.
- Pursued life-long learning and professional development through self-study, continuing education or graduate and pro-fessional studies to address the societal needs.





Scholarship Opportunities

The Mechanical Engineering Department also offers a variety of engineering scholarships allowing eligible students to focus on academics without the worry of financial obligations.

Special Programs

In addition to projects being carried out by faculty and staff, the department is currently the recipient of several recent multi-million dollar projects:

- National Science Foundation sponsored "Next Generation Composites CREST Center: NextGenC3" for $5.0 million
- NASA/EPSCoR "Bio-mimetic Self-Healing Composite Sandwich for Impact Tolerant NextGen Aerospace Structures" for $1.4 million

These programs have added to the infrastructure of the College establishing high tech computer laboratories, research opportunities and stipends for eligible students.