



JSU | JACKSON
1877 STATE
UNIVERSITY®

Civil Engineering Program

COLLEGE OF SCIENCE, ENGINEERING AND TECHNOLOGY

JACKSON STATE UNIVERSITY

ABOUT US

With the founding of the School of Engineering at Jackson State University (JSU) in 2000, our Civil Engineering Program was established, becoming one of only three Civil Engineering programs in Mississippi and the only one in the greater Jackson metropolitan area. The Civil Engineering Program at JSU offers Bachelor of Science in Civil Engineering, Master of Science in Engineering, and Ph.D. in Engineering degrees. Fields of specialization include structural engineering, geotechnical engineering, water resources engineering, transportation engineering, coastal engineering, environmental engineering and construction management and engineering. The state-of-the-art classrooms provide an interactive learning environment with audio/visual equipment. The eleven teaching and research laboratories have contemporary equipment for students to gain practical skills. The program's graduates are making profound contributions to the well-being of society, working at national research laboratories, industries, and governmental agencies as civil engineering professionals across the country. The undergraduate Civil Engineering Program at JSU is accredited by **ABET**.



Engineering
Accreditation
Commission



DEGREE PROGRAMS

B.S. in Civil Engineering

Our Bachelor of Science in Civil Engineering offers specialized concentrations to tailor your education to your interests and career goals:

1. General Civil Engineering Concentration
2. Environmental Engineering Concentration

Ph.D. in Engineering

Pursue groundbreaking research and innovation with our Doctor of Philosophy in Engineering, available with these emphases:

1. Civil Engineering
2. Environmental Engineering
3. Coastal Engineering

M.S. in Engineering

Advance your expertise with our Master of Science in Engineering, featuring the following emphases:

1. Civil Engineering
2. Environmental Engineering
3. Coastal Engineering
4. Construction Engineering and Management

STUDENT ORGANIZATIONS

Our program proudly supports a diverse range of student organizations that provide valuable opportunities for professional development, networking, and leadership. These organizations help students connect with industry professionals, participate in competitions, and engage in community service, enhancing their academic experience and career prospects. Here are some of the active student organizations:

- American Society of Civil Engineers (ASCE)
- National Society of Black Engineers (NSBE)
- Society of Women Engineers (SWE)
- Mississippi Engineering Society (MES)
- Institute of Transportation Engineers (ITE)
- Society of American Military Engineers (SAME)

Engage with these groups to broaden your horizons and build a strong foundation for your future career in engineering.



FIELDS OF SPECIALIZATION

Geotechnical Engineering focuses on the behavior of earth materials. It plays a crucial role in the design and construction of foundations, retaining structures, and earthworks. By analyzing soil and rock mechanics, geotechnical engineers ensure the stability and safety of structures, mitigating risks associated with landslides, earthquakes, and other ground-related hazards.

Environmental Engineering focuses on improving and protecting the environment by addressing pollution control, waste management, and sustainable development. It involves designing systems for water and air purification, recycling, and waste disposal to minimize the adverse impacts of human activities on the natural world.

Coastal Engineering focuses on managing and protecting coastal areas. It involves the design and construction of structures like seawalls, breakwaters, and jetties, as well as beach nourishment projects. Coastal engineers address issues related to erosion, flooding, and sea level rise, ensuring the sustainability and resilience of coastal communities.

Structural Engineering involves the analysis and design of buildings, bridges, and other structures. It ensures that these constructions can withstand various loads and forces, providing safety and durability. Structural engineers use innovative materials and techniques to create resilient infrastructures that enhance both functionality and aesthetics.

Transportation Engineering deals with the planning, design, operation, and maintenance of transportation systems. This includes roads, bridges, railways, and airports. By optimizing the efficiency and safety of these systems, transportation engineers facilitate the smooth movement of people and goods, contributing to economic growth and quality of life.

Water Resources Engineering focuses on the analysis of water in both natural and engineered systems for the planning, design, construction, operation, and maintenance of projects related to flood control, irrigation, and water supply facilities. Water resources engineering addresses the sustainable use of water resources, the mitigation of water-induced hazards such as floods, heat, and droughts, and the challenges posed by climate changes.



LABORATORY FACILITIES

Environmental Engineering Laboratory, having a floor area of 1,206 ft² of space, features modern instruments like ICP-OES, GC/MS, and EDX for analyzing trace elements, organics, and solid samples. The lab is equipped with benches, power outlets, compressed air, vacuum nozzles, sinks, a fume hood, and various storage cabinets. It supports the Environmental Engineering Laboratory course, graduate thesis research, and other scholarly activities.



The high-bay **Hydraulics Laboratory**, spanning 1,206 ft² with a 30 ft interior clearance, features 28 linear ft of lab bench space and utilities like compressed air, vacuum, and water. It includes equipment such as Hydrostatic and Hydraulics Benches, Bernoulli's Theorem and Osborne Reynolds' Demonstration Apparatus, and a Pump Test Set. The lab also has computers for water resources software and a high-performance computing platform for high-resolution simulations in storm surge and hurricane modeling.

Materials Testing Laboratory

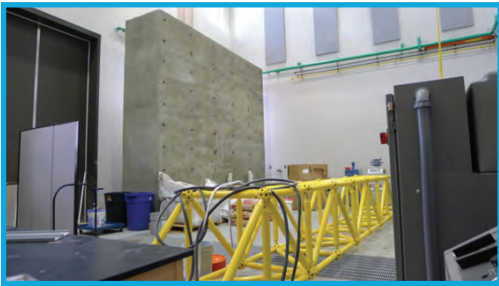
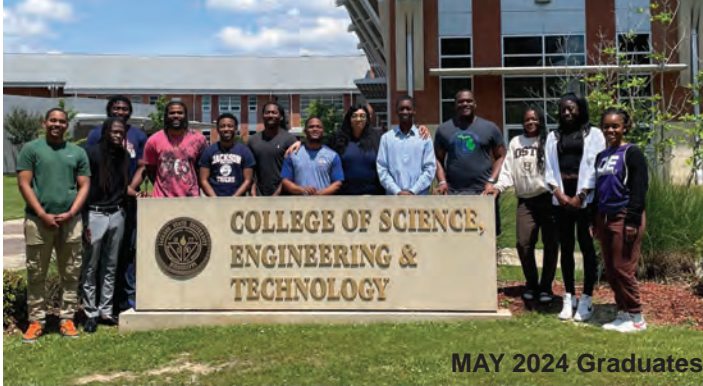
This high-bay lab has 1,206 ft² area and a 30 ft interior clearance. It features a five-ton overhead trolley crane, curing room with automatic controls, storage bins for aggregates, and benches with power outlets, compressed air, vacuum nozzles, sinks, and storage cabinets. The lab supports the Structures and Materials Lab course in conducting experiments on aggregates, concrete mixing, and slump tests. The ASCE Student Chapter also constructs concrete canoe here for competitions.



Surveying Laboratory

The 490 ft² Surveying Laboratory has equipment and tools necessary for field surveying. It features state-of-the-art equipment and computers for survey data collection and processing. The lab supports the Engineering Surveying & Lab class.





Structural Analysis Laboratory

This high-bay lab spans 1,206 ft² and includes a five-ton overhead trolley crane. It features a reaction wall (15' W x 10' H, 200 kips) and a reaction floor (20' x 27', 200 kips). The lab houses a 55 kips MTS 810 Material Testing System and supports the Structures and Materials Lab course. The lab also supports the ASCE Student Chapter in constructing their steel bridge for competitions.



Traffic Engineering Laboratory

This 490 ft² lab features benches, power outlets, internet access, a laser printer, a color plotter, and high-performance computers for traffic simulations. It supports Introduction to Transportation Engineering and Traffic Engineering classes, as well as research projects.

Geotechnical Engineering Laboratory

This 1,410 ft² high-bay lab is equipped for standard geotechnical tests for soil index properties, compaction, hydraulic conductivity, consolidation, and shear strength. It features GeoTAC systems like GeoJac, DigiFlow Pump, and Sigma1 for advanced testing and analysis. The lab supports the Geotechnical Engineering Lab course and graduate research.



Senior Design Laboratory

This 511 ft² lab has modern computers equipped with design software (AutoCAD, MicroStation, ArcGIS, GEO-SLOPE) and a large meeting table for Capstone design projects. A color plotter is available for full-scale drawings. The lab is dedicated to senior students in the Capstone Design class.



Open Computer Laboratory

Spanning 1,165 ft², this lab has 45 computers loaded with software packages for teaching and research. Students have full access to the software and the Internet in this lab. Civil Engineering courses such as Engineering Graphics are conducted in the lab. A large size Newline interactive display system in this lab is used by instructors for various courses.

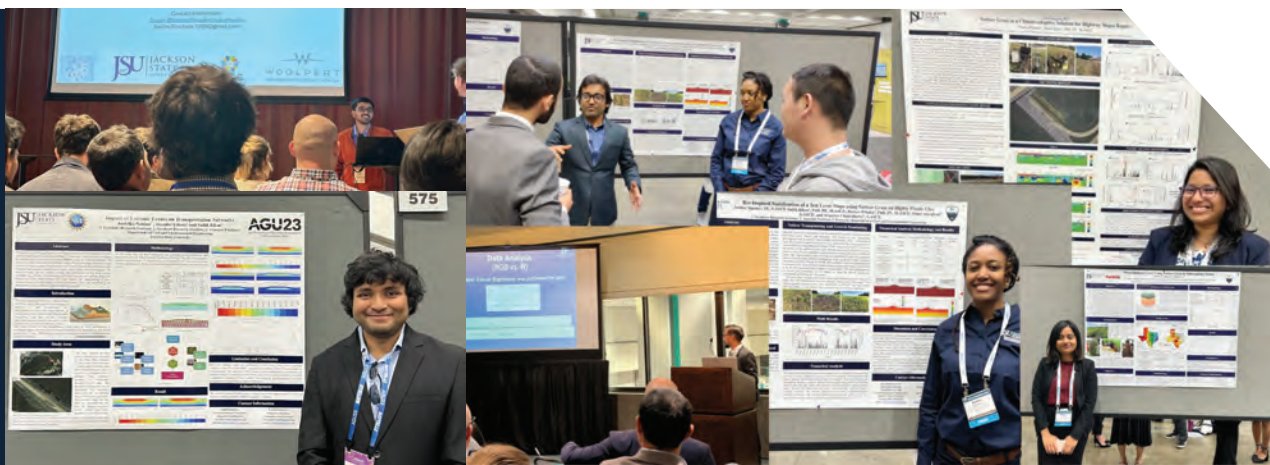
Nano Technology Laboratory

This 510 ft² lab is equipped with advanced equipment for teaching and research in nanotechnology. The MTS Nanoindenter and Nano Universal Testing machine can analyze nanoscale material properties, offering superior means for nanomechanical characterization.



Vibration & Earthquake Engineering Laboratory

This 1,206 ft² lab enables soil dynamic and earthquake tests with equipment like the ELE Cyclic Triaxial Test and Dynamic Cone Penetrometer. It features automated GeoTAC systems for triaxial shear strength, direct shear, consolidation, and unconfined compression tests. The lab also includes ERI, MASW, SASW, LiDAR, and GPR equipment for field testing, supporting advanced geotechnical and earthquake engineering research.





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