

COLLEGE OF ENGINEERING

Overview

Departments: Dan F. Smith Chemical Engineering, Civil and Environmental Engineering, Phillip M. Drayer Electrical Engineering, Industrial and Systems Engineering, and Mechanical Engineering

Dr. Brian Craig, Dean, Cherry 2016, (409) 880-8741

Dr. Jenny Zhou, Associate Dean, Cherry 2014, (409) 880-7830

Carrie Masson, Business Manager, Cherry 2010, (409) 880-8741

Karli Padia, Director of Outreach and Student Services, Cherry 2008, (409) 880-8426

Mary Givan, Director of Admission, Graduate Programs, Cherry 2105, (409) 880-8736

Paula Dunigan, Senior Academic Advisor of Undergraduate Programs, Cherry 2300, (409) 880-7442

Carrie Schmidt-Busch, Senior Academic Advisor of Undergraduate Programs, Cherry 2300, (409) 880-8063

Abigail Znuga, Marketing Coordinator, Cherry 2006, (409) 880-7400

Engineering Endowed Chair Professors

Brian Craig, *Charles and Elanor Garrett Chair*

Thomas C. Ho, *Michael E. and Patricia P. Aldredge Chair of Industrial Infrastructure*

Harley R. Myler, *William B. and Mary G. Mitchell Chair of Telecommunications*

College of Engineering Mission

Vision: Lamar University, College of Engineering strives to be a national leader in providing a one-student-at-a-time, accredited undergraduate and graduate education resulting in a nation-leading return on investment for our graduates and their value to the industry, community engagement and economic impact.

Mission: We are an inclusive and accessible global college of engineering that provides the launch point for all students' career choices, life-long learning, and high-impact scholarly research. We serve as a recognized solutions provider, contributing to the socio-economic advancement and resilience of the Gulf Coast region

- Department of Civil and Environmental Engineering (<https://catalog.lamar.edu/college-engineering/civil-environmental-engineering/>)
 - Engineering (M.E.) (<https://catalog.lamar.edu/college-engineering/civil-environmental-engineering/engineering-me/>)
 - Civil Engineering (B.S.) (<https://catalog.lamar.edu/college-engineering/civil-environmental-engineering/civil-engineering-bs/>)
 - Engineering (D.E.) (<https://catalog.lamar.edu/college-engineering/civil-environmental-engineering/engineering-de/>)
 - Engineering (MES) (<https://catalog.lamar.edu/college-engineering/civil-environmental-engineering/engineering-mes/>)
 - Environmental Engineering (M.S.) (<https://catalog.lamar.edu/college-engineering/civil-environmental-engineering/environmental-engineering-ms/>)
 - Environmental Studies (M.S.) (<https://catalog.lamar.edu/college-engineering/civil-environmental-engineering/environmental-studies-ms/>)
- Department of Industrial and Systems Engineering (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/>)
 - Engineering (D.E.) (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/engineering-deng/>)
 - Engineering (M.E.) (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/engineering-me/>)
 - Engineering (MES) (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/engineering-mes/>)
 - Engineering Management (MEM) (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/engineering-management-mem/>)
 - Industrial Automation and Robotics Certificate (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/industrial-automation-robotics-certificate/>)
 - Industrial Engineering (B.S.) (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/industrial-engineering-bs/>)
 - Industrial Engineering (B.S.) Online (2+2) Option (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/industrial-engineering-bs-online-2-2-option/>)
 - Industrial Technology (B.S.) (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/industrial-technology-bs/>)
 - Management of Ports and Marine Terminals Certificate (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/management-ports-marine-terminals-certificate/>)
 - Port and Marine Terminal Development and Operations Certificate (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/port-marine-terminal-development-operations-certificate/>)
 - Port and Terminal Management (M.S.) (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/port-terminal-management-ms/>)
 - Ports, Trade and Global Logistics Certificate (<https://catalog.lamar.edu/college-engineering/industrial-systems-engineering/ports-trade-global-logistics-certificate/>)
- Department of Mechanical Engineering (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/>)
- Dan F. Smith Department of Chemical and Biomolecular Engineering (<https://catalog.lamar.edu/college-engineering/dan-f-smith-department-chemical-biomolecular-engineering/>)
 - Chemical and Biomolecular Engineering (B.S.) (<https://catalog.lamar.edu/college-engineering/dan-f-smith-department-chemical-biomolecular-engineering/chemical-engineering-bs/>)
 - Chemical Engineering (Ph.D.) (<https://catalog.lamar.edu/college-engineering/dan-f-smith-department-chemical-biomolecular-engineering/engineering-phd/>)
 - Fermentation Science and Engineering Graduate Certificate (<https://catalog.lamar.edu/college-engineering/dan-f-smith-department-chemical-biomolecular-engineering/fermentation-science-engineering-graduate-certificate/>)
 - Master of Engineering - Chemical (M.E.) (<https://catalog.lamar.edu/college-engineering/dan-f-smith-department-chemical-biomolecular-engineering/engineering-me/>)
 - Master of Engineering Science - Chemical (MES) (<https://catalog.lamar.edu/college-engineering/dan-f-smith-department-chemical-biomolecular-engineering/engineering-science-mes/>)

- Mechanical Engineering (B.S.) (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/mechanical-engineering-bs/>)
- Mechanical Engineering (D.E.) (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/mechanical-engineering-de/>)
- Mechanical Engineering (M.E.) (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/mechanical-engineering-me/>)
- Mechanical Engineering (MES) (<https://catalog.lamar.edu/college-engineering/mechanical-engineering/mechanical-engineering-mes/>)
- Phillip M. Drayer Department of Electrical Engineering (<https://catalog.lamar.edu/college-engineering/phillip-m-drayer-department-electrical-engineering/>)
 - Electrical Engineering (B.S.) (<https://catalog.lamar.edu/college-engineering/phillip-m-drayer-department-electrical-engineering/electrical-engineering-bs/>)
 - Electrical Engineering (D.E.) (<https://catalog.lamar.edu/college-engineering/phillip-m-drayer-department-electrical-engineering/electrical-engineering-de/>)
 - Electrical Engineering (M.E.) (<https://catalog.lamar.edu/college-engineering/phillip-m-drayer-department-electrical-engineering/electrical-engineering-me/>)
 - Electrical Engineering (MES) (<https://catalog.lamar.edu/college-engineering/phillip-m-drayer-department-electrical-engineering/electrical-engineering-mes/>)
 - Instrumentation and Control Certificate (<https://catalog.lamar.edu/college-engineering/phillip-m-drayer-department-electrical-engineering/instrumentation-control-certificate/>)
 - Power and Energy Engineering Certificate (<https://catalog.lamar.edu/college-engineering/phillip-m-drayer-department-electrical-engineering/power-energy-engineering-certificate/>)

College of Engineering Standards

In addition to the university requirements, the College of Engineering enforces the following standards:

- a. Students are required to take courses in the sequence shown in the Lamar University General Catalog for each degree program.
 - b. Engineering students are required to maintain a GPA of 2.0 or higher in the program. Students who fall below the required GPA of 2.0 will be placed on probation and given two long semesters to raise their GPA to a 2.0 or better (maximum load of 13 semester hours). Students who fail to meet this requirement will be suspended from their Engineering Major for one long term. Students returning from suspension must prepare a performance contract in consultation with their academic advisor. A minimum term of the contract requires the student to remove deficiencies every semester of enrollment. Students who fail to meet the terms of their contract will be permanently suspended.
 - c. Engineering students must make a 'C' or better in all STEM (Science, Technology, Engineering & Math) courses in order to satisfy degree plan/prerequisite requirements.
 - d. A course may be repeated for additional credit toward a degree only as specified by the official course description in the General Catalog. Excluding courses that may be taken for additional credit toward
- a degree, a student may not register for any course more than four times. Any student who wishes to repeat a course must do so before completing a more advanced course in the same subject matter field.
 - e. Upon the completion of the first two years of the specific degree plan with a GPA of 2.0 (Civil, Electrical, Industrial and Mechanical) or 2.25 (Chemical) or higher on all required courses, will be considered for admission to their professional engineering program. For all engineering programs, it is required that at least 45 semester hours (at least 25 semester hours in engineering at the 3000 and 4000 level) be earned after admission to the professional program.
 - f. The student's advisor must approve all electives.

The Dean of Engineering may require students to meet the current degree requirements or program standards.

Please see each department's four-year suggested program of study.

Graduate Programs

The objectives of the graduate programs in Engineering, Environmental Science and Studies, and Engineering Management are:

- a. Advance the state-of-the-art of the practice of engineering.
- b. Advance the state-of-the-art of the teaching/learning process in engineering.
- c. Contribute to the economic well-being of the residents of Southeast Texas, the entire state, and nation.
- d. Improve the safety, health, and environment of Southeast Texas, the entire state, and nation.

Admission Requirements for Masters Programs

See: Graduate Admissions (<https://client-snap.dev8.leefrog.com/lamar/www.lamar.edu/catalog/graduate-admission/>)

In addition to the General Requirement in the College of Graduate Studies, the College of Engineering sets the following minimum admission requirements:

- a. A bachelor's degree in engineering or equivalent to a 4-year engineering program in the United States. Master of Science in Environmental Studies accepts students with engineering, science, life science, and environmental backgrounds.
- b. Students without a bachelor's degree in engineering are only accepted in very limited cases where the student has a degree in an area closely related to their home department. The student's transcripts will be closely reviewed to determine the eligibility and pre-requisites if provisional admission is granted.
- c. Official transcripts from higher education institutions where degrees were earned and most recently attended institutions (if different from the institutions where degrees were earned).
- d. A GRE score is required. For students who graduated with an ABET-accredited engineering degree, the GRE requirement is waived. Each department and degree may have standards or guidance for minimum GRE and GPA listed on the department website.
- e. Three reference letters (optional, but encouraged for assistantships/scholarships)
- f. Resume (optional, but encouraged for assistantships/scholarships)
- g. Personal statement of educational goals (optional, but encourage for assistantships/scholarships).

- h. Engineering departments may have additional admission requirements and guidance on their website. International students should review the current international student admissions requirements and procedures

Applicants who are not citizens or permanent residents of the U.S. (International Students) must submit the following as part of the application:

- TOEFL or IELTS score (waived if the student has completed a bachelor's or master's degree from a regionally accredited university located in the United States or in another country in which English is both the language of instruction and the only official language of the country. All years of the degree must be completed in the qualifying country.)
- Proof that the applicant has the financial resources to attend Lamar University. As part of the application process, international students must submit a written Confirmation of Financial Resources form that contains personal, family, and/or sponsor financial information and a bank verification of financial holdings. All international students are required to have health and accident insurance for themselves and all their dependent family members in the United States. Insurance may be purchased at the university during the registration period.

Admission Requirements for Doctoral Programs

See: [Graduate Admissions \(https://client-snap.dev8.leefrog.com/lamar/www.lamar.edu/catalog/graduate-admission/\)](https://client-snap.dev8.leefrog.com/lamar/www.lamar.edu/catalog/graduate-admission/)

In addition to the General Requirement in the College of Graduate Studies, the College of Engineering sets the following minimum admission requirements:

- A bachelor's degree in engineering or equivalent to a 4-year engineering program in the United States.
- Students without a bachelor's degree in engineering are only accepted in very limited and rare cases where the student has a degree in an area closely related to their home department. The student's transcripts will be closely reviewed to determine the eligibility and pre-requisites if provisional admission is granted.
- Official transcripts from higher education institutions where degrees were earned and most recently attended institutions (if different from the institutions where degrees were earned).
- A GRE score is required. For students who graduated with an ABET-accredited engineering degree, the GRE requirement is waived.
- Academic background necessary to conduct research in the planned area of study as demonstrated by GPA, GRE, work experience, and prior research experience.
- Three reference letters (optional, but encouraged for assistantships/scholarships)
- Resume (optional, but encouraged for assistantships/scholarships)
- Personal statement of educational goals (optional, but encourage for assistantships/scholarships)
- Please see the department website for guidance on admission standards.
- Engineering departments may have additional admission requirements on their website. International students should review the current international student admissions page for additional requirements.

Applicants who are not citizens or permanent residents of the U.S. (International Students) must submit the following as part of the application:

- TOEFL or IELTS score (waived if the student has completed a bachelor's or master's degree from a regionally accredited university located in the United States or in another country in which English is both the language of instruction and the only official language of the country. All years of the degree must be completed in the qualifying country.)
- Proof that the applicant has the financial resources to attend Lamar University. As part of the application process, international students must submit a written Confirmation of Financial Resources form that contains personal, family, and/or sponsor financial information and a bank verification of financial holdings. All international students are required to have health and accident insurance for themselves and all their dependent family MEMBERS in the United States. Insurance may be purchased at the university during the registration period.

4+1 Pathways to Graduate School

The 4+1 pathway provides a clear pathway for continuing your studies at Lamar. You can apply to graduate school during your junior year and take up to 2 graduate classes (6 hours) that count towards both your bachelor's and master's degree. Lamar University offers the following 4+1 programs:

- Master of Engineering (non-thesis) with concentrations in Chemical, Civil, Electrical, Industrial and Mechanical
- Master of Engineering Science (thesis) with concentrations in Chemical, Civil, Electrical, Industrial and Mechanical
- Master of Science in Environmental Engineering
- Master of Science in Environmental Studies
- Master of Engineering Management
- BSIE MBA and BSEE MBA

Full-time students can complete the master's degree within one year (24 credit hours). The Master of Engineering Management is offered online (and on-campus) allowing students to work while completing their degrees. Please contact your undergraduate advisor for more information.

Requirements

- 3.0 GPA or permission from the department chair
- Senior standing to take graduate coursework
- Meeting with the graduate advisor and undergraduate advisor to determine coursework each semester
- Apply to Graduate School

Program Outcomes

- Ability to explain, discuss and describe the principles and theories related to basic process control instrumentation. Read and analyze instrumentation diagrams and documents. Design instrumentation and automation systems.
- Ability to devise control algorithms for automation systems. To that end, the students will learn to design relay logic and ladder logic diagrams. Ladder logic diagrams are the foundation for modern programmable logic controllers (PLCs).
- Develop an understanding of advanced industrial measurement and control systems including detailed measurement and control

strategies, advanced control systems and elementary process modeling.

- d. Ability to design control schemes and analyze their closed-loop stability of the control processes using the theory of control and software tools such as MATLAB.