

SCHOOL OF ENGINEERING

Administration

Mark Horstemeyer, B.S., M.S., Ph.D.
Dean, School of Engineering

Carl Pettiford, B.S., M.S., Ph.D.
Associate Dean, School of Engineering

Program Directors

A listing of program directors can be viewed on the Program Director webpage.

Research Intensive Courses

All research intensive courses are listed online on the Center for Research & Scholarship QEP Overview webpage.

Purpose

The School of Engineering functions with the purpose of teaching Christ-centered men and women with the values, knowledge, and skills critical for impacting engineering and the associated technologies for tomorrow's world. Established in the fall of 2007, the school has the long-term vision of creating and maintaining nationally recognized technology-related degrees, centers, institutes, and initiatives in education, research, training, and missions so that our Christ-centered graduates can have the greatest impact on tomorrow's world.

The school offers degrees that provide students with the skills, knowledge, and understanding of engineering necessary for impacting tomorrow's socio-technological culture.

Program Accreditation

The Bachelor of Science degree programs in Computer Engineering, Electrical Engineering, Industrial and Systems Engineering, and Mechanical Engineering have received accreditation from the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

ABET is the recognized accrediting agency for college and university programs in applied science, computing, engineering, and engineering technology. ABET accreditation demonstrates a program's commitment to providing its students with a quality education.

Technical Electives

Certain degrees within the School of Engineering require specific technical electives to be completed as part of the degree. The intent of the technical electives is to enhance (i.e. deepen and/or broaden) the scientific, mathematical, technological, or engineering knowledge or experience of the student in his or her career potential and development.

The following stipulations must be followed when choosing technical electives in any of the four engineering degree programs.

Code	Title	Hours
Engineering Technical Electives		
AVIA 230 or AVIA 405	Unmanned Aerial Systems ¹ Advanced Aerodynamics	3
BIOL 101 & BIOL 103	Principles of Biology and Principles of Biology Laboratory ²	4

Code	Title	Hours
BIOL 102 & BIOL 104	Principles of Human Biology and Principles of Human Biology Laboratory ²	4
CSIS 112	Advanced Programming	3
CSIS 215	Algorithms and Data Structures	3
CSIS 326	Database System Concepts	3
CSIS 340	Studies in Information Security	3
CSIS 342	Computer Architecture and Organization	3
CSIS 344	Information Security Operations	3
CSIS 345	Introduction to Linux	3
CSIS 355	Network Architecture and Protocols	3
CSIS 434	Theory of Programming Languages	3
CSIS 443	Operating Systems	3
CSIS 461	Technical Aspects of Computer Security	3
MATH 302	Introduction to Experimental Design in Statistics	3
MATH 307	Introductory Number Theory	3
MATH 311	Probability and Statistics I	3
MATH 331	Complex Variables	3
MATH 332	Advanced Calculus	3
MATH 350	Discrete Mathematics	3
MATH 352	Numerical Analysis	3
Any 200-400-level engineering (ENGC, ENGE, ENGI, ENGM, ENGR, ENGV) course ^{3,4}		

¹ Only one course is able to satisfy the technical elective

² Although **no** additional lab sciences have to be taken as part of the program, **no more than one** of the following lab science courses can or will be counted toward a technical elective.

³ The student is limited to 3 semesters of ENGR 495 Directed Research (1-6 c.h.) at 2 credits per semester (which will give a total of 6 hours of technical electives) to count toward technical electives, as specified in the syllabus.

⁴ Engineering technical electives transferred in must satisfy a Liberty University engineering specific 200, 300, 400 level course. Engineering transfer, XX courses do not satisfy this requirement, students must substitute for a current Liberty University engineering specific 200, 300, 400 level course.

Code	Title	Hours
Major Specific Technical Electives		
CHEM 121	General Chemistry I ^{1,2}	4
FACS 243	Digital Drafting I ³	3
MATH 221 or MATH 321	Applied Linear Algebra ^{4,5} Linear Algebra	3
PHYS 320	Thermodynamics ²	3

¹ Although **no** additional lab sciences have to be taken as part of the program, **no more than one** of the following lab science courses can or will be counted toward a technical elective.

² Able to apply to the B.S. in Industrial and Systems Engineering, B.S. in Electrical Engineering, or B.S. in Computer Engineering degree

³ Able to apply to the B.S. in Industrial and Systems Engineering degree only

⁴ Only one course is able to satisfy the technical elective

⁵ Able to apply to the B.S. in Mechanical Engineering degree only

The student is responsible for satisfying any prerequisites for the technical electives chosen and any requirements specified in the college catalog course description [e.g., courses such as the 497 Topics & 499 Internship courses require the permission of the instructor]. Under certain circumstances and where denoted, the course instructor, in consultation with the student's engineering advisor, has the option to approve or deny a student's technical elective choice.

Engineering Program Learning Outcomes

The student will be able to:

1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3. An ability to communicate effectively with a range of audiences.
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Programs

Certain degrees within the School of Engineering require specific technical electives be completed as part of the degree. The intent of the technical electives is to enhance (i.e., deepen and/or broaden) the scientific, mathematical, technological, or engineering knowledge or experience of the student in his or her career potential and development.

- Civil Engineering Major (B.S.)
- Computer Engineering Major (B.S.)
- Electrical Engineering Major (B.S.)
- Industrial & Systems Engineering Major (B.S.)
- Industrial Engineering Technology Major (B.S.)
- Mechanical Engineering Major (B.S.)
- School of Engineering Minors