DEPARTMENT OF ENGINEERING

COLLEGE OF ARTS AND SCIENCES

Faculty

H R (2002). Professor of Engineering and Department Chair. B.S., Mississippi State University M.B.A., Colorado State University Ph.D., Vanderbilt University P.E.

D V (2001). Professor and Director of Accreditation. B.S. and M.S., University of Illinois in Chicago M.S. of Adm. Ph.D., New Jersey Institute of Technology P.E., CEM.

B (2006). Associate Professor of Engineering. B.S.M.E. and M.S.M.E., Rose-Hulman Institute of Technology Ph.D., Northwestern University P.E.

G P (2010). Assistant Professor of Engineering. B.A., Samford University B.S. and M.S., Washington University Ph.D., University of Colorado at Boulder.

R S S (2004). Associate Professor of Engineering. B.S., Hardin-Simmons University M.S., Texas A&M University Ph.D., University of Illinois-Champaign P.E.

Objectives

1. Graduates will make contributions through engineering practice, graduate school, or other professional pursuits.
2. Graduates will solve problems through inventive thinking.
3. Graduates will participate in continuing education.
4. Graduates will exemplify Christian principles and ethical standards.

Curriculum

Union offers the Bachelor of Science in Engineering, BSE, with concentrations in electrical and mechanical engineering.

Students begin their preparation for engineering by enrolling in prerequisites and introductory engineering courses in the Fall Semester, assuring them an adequate foundation for engineering. These prerequisites provide students with a strong background in the physical sciences and mathematics, as well as the humanities. Incoming students are expected to have completed the necessary requirements that will allow them to begin mathematics at the level of calculus. Ideally, engineering students will have been introduced to calculus in high school. These courses are combined with engineering courses to fully prepare the student for a successful professional engineering career. Students who do not have the appropriate math and science background will be carefully advised to take the proper courses to build the required foundation. This track will require approximately years to finish, instead of a usual 4 years.

The engineering major must complete all General Core Requirements to include CHE 111 and MAT 211. The major must also complete the BSE Specific Core comprised of MAT 212, 213, 314 (11 hours) MAT 208 or 31 (3) CSC 2 (3) CHE 113 (2) and PHY 231-32 (10).

The student with an acceptable bachelors degree seeking the BSE as his second baccalaureate will complete CHE 111, MAT 211 and the BSE Specific Core as prerequisites to the major as well the major requirements described below.

Engineering Major Requirements—61 hours

I M 47 C

A. EGR 101, 10 , 109, 210, 240, 2 0, 261, 262

B. EGR 330, 342, 360, 3

C. EGR 4 , 491, 492, 498

I M E C 14

A. EGR 320, 3 2, 38

B. EGR 4 0, 4 6

E and E C 14

A. EGR 361, 39 (3)

B. EGR 40 , 416

Assessment of Majors

Assessment of majors culminates with the Fundamentals in Engineering (FE) exam taken during the senior year. The test, prepared by the National Council of Examiners for Engineering and Surveying, is administered by the State of Tennessee as the first step toward becoming a licensed professional engineer. Throughout the program, however, the student is monitored by a portfolio tracking system to ensure he/she will have attained all expected educational outcomes.

Course Offerings in Engineering (EGR)

( ) Hours Credit FFall, WWinter SSpring SuSummer

101 I E D
A 2 F
Provides an overview of the engineering profession, including technical and legal responsibilities, the design and analysis method, and application of the engineering process to problem solving.

105 E G 3 S
Graphical communication methods through one of the widely used software packagesProE covers 2-D projec tions and views, 3-D surface and solid modeling, and general concepts such as object dimensions and tolerances.

109 I M C
P 2 F, S
Introduces computer programming using Matlab as a