

# DEPARTMENT OF ENGINEERING

## COLLEGE OF ARTS AND SCIENCES

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### Faculty

Jeannette Herring Rus (2002). Professor of Engineering and must also complete the BSE Specific Core comprised of MAT 212, 213, 314 (11 hours); MAT 208 or 315 (3); CSC 255 (3) Department Chair, B.S. in Science (1980), State University of New York at Binghamton, Ph.D. in Science (1984), University of Colorado at Boulder; P.E. Northwestern University; P.E.

Georg Pinggen (2010). Professor of Engineering. B.A., Samford University; B.S. and M.S., Washington University; Ph.D., University of Colorado at Boulder; P.E.

Randal S. Schwind (2004). Professor of Engineering. B.S., Hardin-Simmons University; M.S., Texas A&M University; Ph.D., University of Illinois at Urbana-Champaign; P.E.

### Staff

Amy Eads (2022). Academic Secretary—Engineering, Physics, Math, and Computer Science.

Ethan Wilding (2015). Lab Systems Engineer. B.S., University of Memphis; B.S.E., Union University; M.S., University of Tennessee.

### 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. The curriculum is designed to expose students to a broad base of engineering knowledge and the basic science and math upon which that knowledge rests. In addition, the curriculum at Union includes a strong general education component that provides a greater understanding of the world in which engineering products will ultimately be used.

Because engineering courses build upon one another, the prerequisite sequences that exist in the curriculum must be closely followed. Incoming freshmen will ideally be ready to begin the calculus sequence in their first semester in order to satisfy the various prerequisites and complete the degree in four years.

The engineering major must complete all General Core Requirements to include CHE 111 and MAT 211. The major



240. Mechanical Engineering Fundamentals I:  
Mechanics (3) F

361. Digital Electronics (4) S

Prerequisite: EGR 261 or CSC 160

Design and simulation techniques for digital systems, including optimal state assignment and state reduction for sequential circuits, circuit fault analysis, and higher level conceptual modeling. Covers system level topics such as computer organization and design test techniques. Includes weekly lab.

365. Electromagnetics (3) F

Prerequisites: EGR 262, MAT 314

179-279-379-479. External Domestic Study Programs (1-3)  
As Needed