

ENGINEERING

Scott Segalewitz, Associate Dean for Academics and Student Success

Doctor of Engineering

Doctor of Engineering (D.E.)

The D.E. is granted in recognition of superior achievement in coursework and an independent project. The project will usually be broad in scope, involve more than one discipline or subdiscipline, and be closely tied to an industrial application.

Coursework Requirements: ¹

EGR 500	Academic Integrity and Responsible Conduct of Research for Engineers ²	0
Coursework		39
Major Area ³		
Advanced Mathematics ^{4,5}		
Synergistic Area of Engineering Science ⁶		
Dissertation ⁷		21

For additional details, see the Doctoral Degree Requirements section on the School of Engineering page and consult with the program director.

- ¹ A minimum of 60 semester hours beyond the master's degree is required for the D.E. degree.
- ² EGR-500 or equivalent, as determined by program requirements.
- ³ Minimum of 21 semester hours in the major area covering the domains of at least two subdisciplines
- ⁴ Minimum of six semester hours in approved advanced mathematics beyond the bachelor's degree.
- ⁵ At the discretion of the dissertation committee and/or department, additional mathematics semester hours may be required.
- ⁶ Minimum of nine semester hours required
- ⁷ The dissertation must address an integrated industrial project. It is expected to result in a manuscript submitted for publication in an applied engineering journal and/or to documentation leading to a patent.

Courses

EGR 500. Academic Integrity and Responsible Conduct of Research for Engineers. 0 Hours

The importance of practicing academic and research integrity in engineering is examined. The university's honor code and expectations for academic integrity within the context of ethical engineering practice are discussed. The principles of engineering research ethics and integrity are studied in-depth using the Responsible Conduct of Research (RCR) training program as a framework. The RCR Training topics include: research misconduct; conflicts of interest; data sharing, management and ownership; collaborative research; mentor/trainee relationships; responsible authorship and publication practices; peer review; human subjects protection; animal welfare; and, university policies affecting researchers at all levels. Course topics are examined via online coursework, video examples, live training workshops and interactive case studies.

EGR 501. ETHOS Center Internship. 6 Hours

Full time domestic or international internship with a non-profit or international non-governmental agency. Permission only.

EGR 530. Appropriate Technology and Design II. 0-3 Hours

An experiential, case-based course in appropriate technology and engineering design. Case studies focus on international standards and specifications for appropriate technologies; global protocols for needs assessment and engineering impact evaluation; and social science research methods for well being assessment. The course also includes an intensive ETHOS service-learning immersion experience focused on technical or engineering design work in a developing country. Senior or graduate status; permission by instructor.

EGR 590. Selected Readings. 1-6 Hours

Directed readings on an interdisciplinary engineering topic approved by the student's academic advisor and the department chair. May be repeated. Possible topics include: (a) Research Ethics, (b) Engineering Innovation, (c) Entrepreneurship, or (d) Multidisciplinary Design. Prerequisite(s): Variable.