

# ENGINEERING EDUCATION

## **EGN 6913 Engineering Graduate Research 0-3 Credits, Max 12 Credits**

**Grading Scheme:** S/U

Course will provide the student with supervised research in a laboratory setting.

## **EGN 6933 Special Topics 1-3 Credits, Max 12 Credits**

**Grading Scheme:** Letter Grade

Special Topics in Engineering, not specific to a major.

## **EGS 6012 Research Methods in Engineering Education 3 Credits**

**Grading Scheme:** Letter Grade

Introduce basic principles and practices of quantitative, qualitative, and mixed method research methods used in engineering education research.

## **EGS 6020 Research Design in Engineering Education 3 Credits**

**Grading Scheme:** Letter Grade

Fundamentals of research design in engineering education research. How to select a research approach that aligns with a research question, principles of research design, management of data, and ethics of human subject research.

## **EGS 6050 Foundations in Engineering Education 3 Credits**

**Grading Scheme:** Letter Grade

An introduction to fundamental issues, questions, and approaches to engineering education.

## **EGS 6051 Instructional Design in Engineering Education 3 Credits**

**Grading Scheme:** Letter Grade

Introduces students to the design of instructional interventions in engineering education that are focused on facilitating students' learning. Includes how to align the content, assessment and pedagogy of these interventions guided by the premises of a learning theory.

## **EGS 6054 Cognition, Learning, and Pedagogy in Engineering Education 3 Credits**

**Grading Scheme:** Letter Grade

Applications of cognitive psychology, educational learning theory, and pedagogy to engineering education. The processes learned will inform research and instructional practice decisions, approaches, and analysis.

## **EGS 6056 Learning and Teaching in Engineering 1 Credit**

**Grading Scheme:** Letter Grade

Learn and apply evidence-based teaching and assessment techniques. Understand how to create course content based on the student-centered learning approach to teaching. Be introduced to methods to foster an inclusive classroom environment to support diverse learners in your classroom. Develop teaching philosophy based on the principles provided through this course

**Prerequisite:** Enrolled in a graduate-level engineering program.

## **EGS 6085 Advanced Engineering Educational Technology 3 Credits**

**Grading Scheme:** Letter Grade

Design principles and application in engineering education towards developing effective tools and methods to enhance the learning experience with respect to student lifelong learning. Theory and practical applications in engineering education based on Learning Sciences and Human-Computer Interaction. Practice of system evaluation through theoretical and empirical data. Includes identifying and discussion of ethical and professional responsibilities with technology in engineering education.

## **EGS 6930 Engineering Education Seminar 1 Credit, Max 6 Credits**

**Grading Scheme:** S/U

Graduate seminar in engineering education. Speakers may include graduate students in the program, faculty from campus, and speakers from other institutions.

## **EGS 6940 Foundations of Research to Practice in Engineering Education 1 Credit**

**Grading Scheme:** S/U

Preparation for the research to practice experience in engineering education. The research to practice experience implements a practical experience in engineering education under pre-approved supervision. The preparation course is used to develop a research-based plan and create the content that will be implemented during the practicum with the student's chosen practicum supervisor.

## **EGS 6949 Research to Practice Experience in Engineering Education 1-3 Credits**

**Grading Scheme:** S/U

Practical experience in engineering education under pre-approved supervision.

**Corequisite:** EGS 6940.

## **EGS 6971 Research for Master's Thesis 1-12 Credits, Max 12 Credits**

**Grading Scheme:** S/U

Students are expected to devote an equivalent of three hours a week of course work in this class for each credit in which they are enrolled. Students should check with their department on the impact of excess surcharges and whether the credits will count toward their degree. Students should carefully discuss with their thesis advisor the time expectations for completion of the requirements of the class.

## **EGS 7979 Advanced Research 1-12 Credits, Max 36 Credits**

**Grading Scheme:** S/U

Research for doctoral students prior to admission to candidacy. Designed for students with a master's degree in the field of study or for students who have been accepted for a doctoral program. Not appropriate for students who have been admitted to candidacy.

## **EGS 7980 Research for Doctoral Dissertation 1-12 Credits, Max 36 Credits**

**Grading Scheme:** S/U

Research for doctoral students post-admission to candidacy.