

Engineering Education (EED)

EED 401/EED 501 Teaching Undergraduate Engineers (3 credit hours)

This course in engineering education focuses on evidence-based pedagogical methods that improve learning for undergraduate engineering students. Other topics include engineering accreditation, diverse groups, and how to create effective teaching resources. The class will culminate with a micro-teaching module for each student. Topical areas will be supported with readings from the engineering education literature.

R: Senior standing or permission of the instructor
Typically offered in Fall only

EED 411/EED 511 Diversity & Social Justice in Engineering Education (3 credit hours)

This course covers issues related to gender, race, class, sexuality, culture, and ethnicity as associated with recruiting, persistence, and retention of a diverse population of engineering students. In addition, this course will examine methodologies and pedagogies that can help eliminate barriers to success for these groups. The course will also provide insight as to the disparate impacts of structural inequities as related to access to resources for underrepresented populations across the various engineering disciplines.

R: All majors in COE; Technology Engineering & Design Education, Science Education, Math Education majors in CED, and Senior standing.
GEP U.S. Diversity, Equity, and Inclusion
Typically offered in Fall only

EED 414/EED 514 Ethics for Engineering Education (3 credit hours)

The course will focus on the importance of ethical decision-making in the education and instruction of engineering students. Additionally, it will provide a platform to facilitate the examination and interpretation of complex issues from the perspective of ethical leadership as it relates to the various engineering disciplines.

R: Senior standing or permission of the instructor
Typically offered in Fall, Spring, and Summer

EED 501/EED 401 Teaching Undergraduate Engineers (3 credit hours)

This course in engineering education focuses on evidence-based pedagogical methods that improve learning for undergraduate engineering students. Other topics include engineering accreditation, diverse groups, and how to create effective teaching resources. The class will culminate with a micro-teaching module for each student. Topical areas will be supported with readings from the engineering education literature.

R: Senior standing or permission of the instructor
Typically offered in Fall only

EED 502 Engineering Education : Content, Assessment, and Pedagogy (3 credit hours)

This course in engineering education focuses on course design or redesign by considering course design to be an engineering design problem. Students will use an engineering design process, as they consider the constraints and criteria of designing an engineering undergraduate course. Areas covered will be writing learning outcomes that link to specific course goals for undergraduate engineering courses, how to establish course goals (explicit and implicit), ways to assess whether learning outcomes and course goals are being met, and innovative pedagogical approaches, including online and blended learning. Topical areas will be supported with readings from the engineering education literature.

R: Graduate standing in Engineering, Mathematics, or Sciences, or instructor permission
Typically offered in Spring only

EED 509 Field Experiences in Engineering Education (3 credit hours)

This course in engineering education focuses on evidence-based pedagogical methods that leverage teaching methodologies that can be used to link across cultures, classrooms, and various learning environments. Students will learn how engineering interplays with other subject areas and learn how to teach these subject areas through engineering activities. Other topics include how to teach in under-resourced settings, how to teach diverse groups, and how to create effective teaching resources under suboptimal conditions. Students will work to understand how engineering impacts economic advancement in relation to their course of study.

R: Senior or Graduate Standing or permission of instructor
Typically offered in Fall and Spring

EED 511/EED 411 Diversity & Social Justice in Engineering Education (3 credit hours)

This course covers issues related to gender, race, class, sexuality, culture, and ethnicity as associated with recruiting, persistence, and retention of a diverse population of engineering students. In addition, this course will examine methodologies and pedagogies that can help eliminate barriers to success for these groups. The course will also provide insight as to the disparate impacts of structural inequities as related to access to resources for underrepresented populations across the various engineering disciplines.

R: All majors in COE; Technology Engineering & Design Education, Science Education, Math Education majors in CED, and Senior standing.
GEP U.S. Diversity, Equity, and Inclusion
Typically offered in Fall only

EED 514/EED 414 Ethics for Engineering Education (3 credit hours)

The course will focus on the importance of ethical decision-making in the education and instruction of engineering students. Additionally, it will provide a platform to facilitate the examination and interpretation of complex issues from the perspective of ethical leadership as it relates to the various engineering disciplines.

R: Senior standing or permission of the instructor
Typically offered in Fall, Spring, and Summer

EED 595 Special Topics in Engineering Education (1-3 credit hours)

Individual students or groups of students, under the direction of a faculty member, may explore new or emerging areas of special interest not covered by existing courses in Engineering Education. The format may consist of lectures, readings and independent study, field exercises, or other experiential learning opportunities. Also used to develop and test new 500-level courses. May be repeated for credit if topic changes.

Prerequisite: Graduate Standing or by instructor permission

Typically offered in Fall and Spring

EED 795 Advanced Special Topics in Engineering Education (1-6 credit hours)

Individual students or groups of students, under the direction of a faculty member, may explore new or emerging areas of special interest not covered by existing courses in Engineering Education. The format may consist of lectures, readings and independent study, field exercises, or other experiential learning opportunities. Also used to develop and test new 700-level courses. May be repeated for credit if topic changes.

Prerequisite: Graduate Standing or Permission of the Instructor

Typically offered in Fall and Spring