

ENGINEERING**EGR****College of Engineering****100 Introduction to Engineering Design**

Fall, Spring. 2(1-2) P: ((MTH 116 or concurrently) or (MTH 132 or concurrently) or (MTH 152H or concurrently) or (LB 118 or concurrently)) and (WRA 1004 or designated score on English Placement test) R: Open to students in the College of Engineering and open to students in the Lyman Briggs College.

Engineering design process as modeled by team-based, interdisciplinary design projects. Roles of engineers and the contributions of engineering in society. Project management, creativity and design of products and processes to specified outcomes under specified constraints. Introduction to computing tools and physical equipment in support of engineering design. Engineering ethics. Oral and written technical communications.

102 Introduction to Engineering Modeling

Fall, Spring. 2(1-3) P: (MTH 132 or concurrently) or (MTH 152H or concurrently) or (LB 118 or concurrently) R: Open to students in the College of Engineering or in the Lyman Briggs College. Not open to students with credit in CSE 131.

Application of systematic approaches to engineering problems. Problem decomposition and identification of a solution approach. Solution using tools such as advanced spreadsheet features and MATLAB. Data representation, curve fitting and analysis. Mathematical modeling of engineering systems. Application of principles through team-based engineering projects.

106 Preparation for Science and Engineering

Fall. 1(1-0) Interdepartmental with Lyman Briggs. Administered by Engineering. R: Open to freshmen. Approval of college.

Academic and environmental aspects to college success. Review of math and science fundamentals and development of writing skills. Introduction to Science, Technology, Engineering, and Mathematics (STEM) careers.

160 Diversity and Engineering

Fall, Spring. 2(2-0) P: (MTH 116 or concurrently) or (MTH 132 or concurrently) R: Open only to freshmen or sophomores in the College of Engineering.

Diversity and engineering. Transitional problems. Career options. Communication skills.

192 Environmental Issues Seminar

Fall, Spring. 1 credit. A student may earn a maximum of 4 credits in all enrollments for this course. Interdepartmental with Agriculture and Natural Resources and Communication Arts and Sciences and Natural Science and Social Science. Administered by Natural Science. R: Open only to students in the College of Agriculture and Natural Resources or College of Engineering or College of Natural Science or College of Communication Arts and Sciences or College of Social Science. Approval of college.

Environmental issues and problems explored from a variety of perspectives, including legal, scientific, historical, political, socio-economic, and technical points of view.

290 Independent Study

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Open to students in the College of Engineering. Approval of college.

Independent undergraduate research in engineering.

291 Selected Topics

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 6 credits in all enrollments for this course.

Experimental course development or special topics offerings.

292 Applications in Environmental Studies

Fall. 2(1-2) Interdepartmental with Agriculture and Natural Resources and Communication Arts and Sciences and Natural Science and Social Science. Administered by Natural Science. P: NSC 192 R: Open only to students in the Specialization in Environmental Studies.

Community engagement project. Projects vary depending on student's major and area of environmental interest.

393 Engineering Cooperative Education

Fall, Spring, Summer. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to students in the College of Engineering and not open to freshmen.

Pre-professional educational employment experiences in industry and government related to student's major. Educational employment assignment approved by College of Engineering.

400 Special Problems in International Engineering

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to juniors or seniors or graduate students in the College of Engineering.

Supervised study of selected topics in engineering using laboratories, equipment, and engineering design techniques. Given at various international universities and institutes.

475 Special Topics in International Engineering

Fall, Spring, Summer. 1 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. R: Open to juniors or seniors or graduate students in the College of Engineering.

Topics selected to supplement regular courses. Given at various international universities and institutes.

480 Information and Communication Technologies for Development

Fall. 3(3-0) Interdepartmental with Telecommunication. Administered by Telecommunication. R: Open to students in the College of Engineering or in the Department of Telecommunication, Information Studies and Media or in the Information and Communication Technology for Development Specialization.

Role of information and communication technologies in facilitating social, political, economic, and environmental change in developing nations.

488 Information and Communication Technology Global Corps Field Study (W)

Spring, Summer. 3 to 6 credits. A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Telecommunication. Administered by Telecommunication. P: Completion of Tier I Writing Requirement R: Open to students in the College of Engineering or in the Department of Telecommunication, Information Studies and Media or in the Information and Communication Technology for Development Specialization.

Implementation of an information and communication technology project in a developing country, rural region of the U.S., or low-income urban area. Includes on-campus preparation followed by field work on location.

490 Independent Study (W)

Fall, Spring, Summer. 1 to 4 credits. P: Completion of Tier I Writing Requirement R: Open to juniors or seniors in the College of Engineering. Approval of college.

Individualized reading, research, and/or project.

811 Foundations of Engineering Education

Fall. 3(3-0) RB: Teaching experience (e.g. TA) and interest in becoming a higher education faculty member as a career. R: Open to graduate students in the College of Engineering. Approval of department.

Introduces the theoretical foundations of engineering education, student learning theories, educational research, and instructional design. Students will learn how to effectively teach, manage, and assess student performance.

891 Selected Topics

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 9 credits in all enrollments for this course. R: Open to graduate students in the College of Engineering.

Selected topics in engineering.