

**921. Advanced Topics in Digital Circuits and Systems (MTC)**

Fall, Spring. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Interdepartmental with Computer Science. Topics vary each semester. Topics such as testable and fault-tolerant digital systems, embedded architectures.

**925. Advanced Topics in Power (MTC)**

Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. Topics vary each semester. Topics such as advanced stability and control of power systems, power system planning, or advanced machine drives.

**929. Advanced Topics in Electromagnetics (MTC)**

Fall, Spring. 3 to 4 credits. A student may earn a maximum of 10 credits in all enrollments for this course. Topics vary each semester. Topics such as planar waveguides and circuits, antenna theory, geometrical theory of diffraction.

**931. Advanced Topics in Electronic Devices and Materials (MTC)**

Fall, Spring. 1 to 4 credits. A student may earn a maximum of 12 credits in all enrollments for this course. Topics vary each semester. Topics such as VLSI technology, microdevices and microstructures, properties of semiconductors.

**932. Advanced Topics in Analog Circuits (MTC)**

Spring of odd-numbered years. 3(3-0) A student may earn a maximum of 3 credits in all enrollments for this course. Topics vary each semester. Topics such as advanced circuit analysis.

**960. Advanced Topics in Control (MTC)**

Fall. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Topics vary each semester. Topics such as adaptive control, or nonlinear control.

**963. Advanced Topics in Systems (MTC)**

Fall, Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. Topics vary each semester. Topics such as system identification and adaptive filtering, robot dynamics and control, or learning in artificial neural networks.

**966. Advanced Topics in Signal Processing (MTC)**

Fall, Spring. 3(3-0) A student may earn a maximum of 9 credits in all enrollments for this course. Topics vary each semester. Topics such as discrete time processing of speech signals, multidimensional signal processing, or detection and estimation theory.

**989. Advanced Topics in Plasma (MTC)**

Fall of odd-numbered years. 3(3-0) A student may earn a maximum of 6 credits in all enrollments for this course. Topics vary each semester. Topics such as plasma processing for IC fabrication, plasma diagnostic techniques.

**999. Doctoral Dissertation Research**

Fall, Spring, Summer. 1 to 24 credits. A student may earn a maximum of 72 credits in all enrollments for this course.

**ENGINEERING**

**College of Engineering**

**160. Minority Engineering Education Seminar**

Fall. 2(2-0)  
R: Open only to freshmen in the College of Engineering and to freshmen no-preference students. Issues relevant to underrepresented engineering minority groups. Diversity in engineering. Transitional problems. Communication skills. Career options.

**200. Technology, Society and Public Policy**

Fall. 2(2-0)  
P: 2 courses in mathematics or engineering or science.  
R: Not open to freshmen. Description and analysis of certain technologies and their consequences. Development of techniques for assessing consequences as an aid to formulation of public policy.

**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: Students in College of Engineering, approval of department. Independent undergraduate research in engineering.

**291. Selected Topics**

Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course.  
R: Open only to freshmen, sophomores. Experimental course development or special topics appropriate for freshmen and sophomores.

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

**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 only to juniors, seniors, and 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 only to juniors, seniors, and graduate students in the College of Engineering. Topics selected to supplement regular courses. Given at various international universities and institutes.

**EGR**

**ENGLISH**

**Department of English  
College of Arts and Letters**

**ENG**

**090A. Intensive English for Non-Native Speakers**

Fall, Spring. 0 credit. [12(20-0) See page A-2, item 3.]  
R: Approval of English Language Center. Explanation and intensive practice of English skills. Focus on beginning grammar, speaking, listening, reading, and writing.

**090B. Intensive English for Non-Native Speakers**

Fall, Spring. 0 credit. [12(20-0) See page A-2, item 3.]  
R: Approval of English Language Center. Explanation and intensive practice of English skills. Focus on intermediate grammar, speaking, listening, reading, and writing.

**090C. Intensive English for Non-Native Speakers**

Fall, Spring. 0 credit. [12(20-0) See page A-2, item 3.]  
R: Approval of English Language Center. Explanation and intensive practice of English skills. Focus on advanced grammar, speaking, listening, reading, and writing.

**091. English Structure for Non-Native Speakers**

Fall, Spring. 0 credit. [3(3-0) See page A-2, item 3.]  
R: Approval of English Language Center. Explanation and practice of advanced grammatical structures of English in relation to written communication. Emphasis on editing skills.

**092. Academic Oral Skills for Non-Native Speakers of English**

Fall, Spring. 0 credit. [3(3-0) See page A-2, item 3.]  
R: Approval of English Language Center. Intensive speaking and listening practice of spoken academic English. Lecture-listening and note-taking strategies. Oral communication skills improved through discussions and classroom presentations.

**093. Academic Reading and Writing Skills for Non-Native Speakers of English**

Fall, Spring. 0 credit. [6(6-0) See page A-2, item 3.]  
R: Approval of English Language Center. Integrative reading and writing strategies for academic purposes. Vocabulary development, intensive and extensive reading, and critical reading skills. Academic writing style and editing strategies.

**094. Academic Reading Skills for Non-Native Speakers of English**

Fall, Spring. 0 credit. [3(3-0) See page A-2, item 3.]  
R: Approval of English Language Center. Intensive and extensive reading skills. Vocabulary development, pre-reading strategies, reading for comprehension, and critical reading skills.

**095. Academic Writing Skills for Non-Native Speakers of English**

Fall, Spring. 0 credit. [3(3-0) See page A-2, item 3.]  
R: Approval of English Language Center. Writing, editing, and revision of journals, essays and research papers.