MICHIGAN ENGINEERING | COLLEGE ADMINISTRATION, 1221 BEAL AVENUE, ANN ARBOR, MI 48109-2102
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Electrical Engineering and Computer Science Courses

100 Level Courses

EECS 101. Thriving in a Digital World
Prerequisite: none. (4 credits)
From mobile apps to bitmaps, this course explores computational technologies and how they impact society and our everyday lives. Topics include: social networks, creative computing, algorithms, security and digital privacy. Traditional computer programming is not a primary focus. Instead, mobile applications will be created using a novel visual programming environment.

EECS 183. Elementary Programming Concepts
Prerequisite: none. (Credit for only one: EECS 183, ENGR 101) (4 credits)
Fundamental concepts and skills of programming in a high-level

language. Flow of control: selection, iteration, subprograms. Data structures: strings, arrays, records, lists, tables. Algorithms using selection and iteration (decision making, finding maxima/minima, searching, sorting, simulation, etc.) Good program design, structure and style are emphasized. Testing and debugging. Not intended for Engineering students (who should take ENGR 101), nor for CS majors in LSA who qualify to enter EECS 280.

200 Level Courses

EECS 203 (CS 203). Discrete Mathematics
Prerequisite: MATH 115. (4 credits)
Introduction to the mathematical foundations of computer science. Topics covered include: propositional and predicate logic, set theory, function and relations, growth of functions and asymptotic notation, introduction to algorithms, elementary combinatorics and graph theory and discrete probability theory.

EECS 215. Introduction to Electronic Circuits
Prerequisite: MATH 116, ENGR 101, Corequisite PHYSICS 240 (or 260). Cannot receive credit for both EECS 314 and EECS 215. (4 credits)
Introduction to electronic circuits. Basic Concepts of voltage and current; Kirchhoff's voltage and current laws; Ohm's law; voltage and current sources; Thevenin and Norton equivalent circuits; DC and low frequency active circuits using operational amplifiers, diodes, and transistors; small signal analysis; energy and power. Time- and frequency-domain analysis of RLC circuits. Basic passive and active electronic filters. Laboratory experience with electrical signals and circuits.

EECS 216. Introduction to Signals and Systems
Prerequisite: EECS 215 or EECS 314 or BIOMEDE 211, preceded or accompanied by MATH 216. (4 credits).
Theory and practice of signals and systems engineering in continuous and discrete time. Continuous-time linear time-invariant systems, impulse response, convolution. Fourier series, Fourier transforms, spectrum, frequency response and filtering. Sampling leading to basic digital signal processing using the discrete-time Fourier and the discrete Fourier transform. Laplace transforms, transfer functions, poles and zeros, stability. Applications of Laplace transform theory to RLC circuit analysis. Introduction to communications, control and signal processing. Weekly recitations and hardware/Matlab software laboratories.

EECS 230. Electromagnetics I
Prerequisite: MATH 215, PHYS 240 (or 260), EECS 215. (4 credits)
Vector calculus. Electrostatics. Magnetostatics. Time-varying fields: Faraday's Law and displacement current. Maxwell's equations in differential form. Traveling waves and phasors. Uniform plane waves. Reflection and transmission at normal incidence. Transmission lines. Laboratory segment may include experiments with transmission lines, the use of computer-simulation exercises, and classroom demonstrations.