E E 100. Introduction to Electrical Engineering
4 Credits (3+3P)
Introduction to analog (DC) and digital electronics. Including electric component descriptions and equations, Ohm's law, Kirchhoff's voltage and current laws, ideal op-amp circuits, Boolean algebra, design of combinational and sequential logic circuits and VHDL or VERILOG.
Prerequisite(s): C- or better in MATH 190.

E E 109. The Engineering of How Things Work
4 Credits (3+3P)
This class provides Integrated Learning Community students with an introduction to various aspects of engineering.

E E 112. Embedded Systems
4 Credits (3+3P)
Introduction to programming through microcontroller-based projects. Extensive practice in writing computer programs to solve engineering problems with microcontrollers, sensors, and other peripheral devices.
Prerequisite(s): C- or better in E E 100.

E E 161. Computer Aided Problem Solving
4 Credits (3+3P)
Introduction to scientific programming. Extensive practice in writing programs to solve engineering problems. Items covered will include: loops, input and output, functions, decision statements, and pointers.
Pre/corequisite(s): MATH 190G.

E E 162. Digital Circuit Design
4 Credits (3+3P)
Design of combinational logic circuits based on Boolean algebra. Introduction to state machine design. Implementation of digital projects with hardware description language.
Prerequisite(s): C or better in E E 161 and MATH 190G.

E E 200. Linear Algebra, Probability and Statistics Applications
4 Credits (3+3P)
The theory of linear algebra (vectors and matrices) and probability (random variables and random processes) with application to electrical engineering. Computer programming to solve problems in linear algebra and probability.
Prerequisite(s): C- or better in E E 112 and MATH 192G.

E E 201. Electric Circuit Analysis
3 Credits
Electric component descriptions and equations. Kirchhoff's voltage and current laws, formulation and solution of RLC network equations using time domain concepts. For nonmajors only. Minimum 2.0 GPA.
Prerequisite(s): C or better in MATH 192G.

E E 212. Introduction to Computer Architecture and Organization
4 Credits (3+3P)
Introduction to computer architecture and performance analysis techniques. Design and optimization of systems such as personal mobile devices and cloud computing systems.
Prerequisite(s): C- or better in E E 112 and MATH 190G.

E E 230. AC Circuit Analysis and Introduction to Power Systems
4 Credits (3+3P)
Electric component descriptions and equations; complete solutions of RLC circuits; steady-state analysis of AC circuits; introduction to frequency response techniques; introduction to power systems in the steady-state. May be repeated up to 4 credits. Restricted to: E E majors.
Prerequisite(s): C- or better in E E 100, PHYS 215G and MATH 192G.

E E 240. Multivariate and Vector Calculus Applications
3 Credits
Vector algebra, cylindrical and spherical coordinates, partial derivatives, multiple integrals. Calculus of vector functions through electrostatic applications. Divergence, gradient, curl, divergence theorem, Stokes’s theorem, Coulomb’s Law, Gauss’s Law, electric field, electric potential. Applications in Matlab.
Prerequisite(s): C or better in MATH 192G and E E 112.

E E 260. Embedded Systems
4 Credits (3+3P)
Applications of microcontrollers, FPGAs, interfaces and sensors. Introduction to Assembly language programming.
Prerequisite(s): C or better in E E 162.

E E 280. DC and AC Circuits
4 Credits (3+3P)
Electric component descriptions and equations; Kirchhoff’s voltage and current laws; formulation and solution of network equations for dc circuits; ideal op-amp circuits. Complete solutions of RLC circuits; steady-state analysis of ac circuits, ac power; introduction to frequency response techniques.
Prerequisite(s): C or better in MATH 192G and PHYS 216G.