ELECTRICAL AND COMPUTER ENGINEERING (ECSE)

ECSE 230 - Instrumentation with Lab
This course covers theoretical analysis and implementation of common instruments common in engineering and industrial processes. Other topics include measurement system design and error propagation methods. This course has an integral laboratory component in addition to lecture sections.

Prerequisite: PHYS 217[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Fall Terms

ECSE 310 - Circuit Analysis II
Continuation of ENGR 250 covering steady-state and transient AC circuits, poly-phase AC circuits, semiconductor devices, and integrated circuit devices/fabrication.

Prerequisites: ENGR 250[D] and ENGR 251[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Fall Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

ECSE 320 - Electrical Circuit Design
Modeling, design, and analysis of electrical circuits and printed circuit boards using CADD tools, and circuit modeling software. In the lab section students will develop and produce their own printed circuit boards.

Prerequisite: ECSE 310[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Spring Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

ECSE 340 - Processor Design and Structure
Structure and design of modern processors including fabrication, logic control, interfacing, memory design, parallel computing, and programming in appropriate languages.

Prerequisite: CPSC 246[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Spring Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

ECSE 350 - Signals and Systems
Analysis of continuous-time and discrete time signals and modeling of linear time-invariant systems. Programing tools, such as MATLAB and analytical methods will be used to simulate or analyze signals. Context is routed in engineering and physics topics related to controls, communications, and signal processing.

Prerequisites: MATH 301 (may be taken concurrently)[D] and MATH 232[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Fall Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

ECSE 360 - Engineering Electromagnetics
Study of electricity and magnetism using Maxwell's equations in the context of engineering systems. Topics include electromechanical devices, transmission, antennas, radiation, and use of simulation software.

Prerequisites: PHYS 217[D] and MATH 231[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Fall Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

ECSE 410 - Energy Conversion
Course on the conversion of electrical energy into different forms with emphasis on electromechanical energy, rectifiers, inverters, and power systems applications.

Prerequisite: ECSE 310[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Spring Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

ECSE 420 - Wireless Communication
Foundations of wireless communication systems with theory and modern practice/implementation. Topics include: frequency allocations, modulation, multiplexing, architectures, bandwidths, signal coding/decoding algorithms, and multiple access systems.

Prerequisite: ECSE 350[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Spring Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

ECSE 430 - Digital Signal Processing
Theory and methods used to process, design, and implement digital signals and filters. Topics include: quantization, z-transforms, FFT's, filters, and signal sampling.

Prerequisite: ECSE 350[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Spring Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.

ECSE 440 - Electric Power Systems
Design, modeling, and analysis of modern electrical power generation, distribution systems, and their components. Students will be using SCADA for real-time monitoring and control of power generation systems.

Prerequisite: ECSE 410[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Fall Terms
Students with a semester level of Junior 1, Junior 2 or Senior 1 may **not** enroll.

ECSE 460 - Capstone Design I
Capstone Design course is the culmination of the educational experience in Electrical and Computer Engineering. The courses require students to draw upon all previous coursework and cultivate new skills in order to solve complex design problems associated with an assigned multidisciplinary group project. This is the first course of a year-long design experience.

Credits: 3
Term(s) Typically Offered: Offered Fall Terms
Enrollment limited to students with a semester level of Senior 1 or Senior 2.
Enrollment is limited to students with a program in Electrical& Computer Engineer.

ECSE 461 - Capstone Design II
Capstone Design course is the culmination of the educational experience in Electrical and Computer Engineering. The courses require students to draw upon all previous coursework and cultivate new skills in order to solve complex design problems associated with an assigned multidisciplinary group project. This is the second course of a year-long design experience.

Prerequisite: ECSE 460[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Spring Terms
Enrollment limited to students with a semester level of Senior 1 or Senior 2.
Enrollment is limited to students with a program in Electrical& Computer Engineer.

ECSE 470 - Applied Digital Systems
Course addressing theory and practical implementation of digital systems such as programable logic devices, and FPGAs using the HDL programing language.

Prerequisites: CPSC 246[D] and ECSE 310 (may be taken concurrently)[D]
[D] Requires minimum grade of D.
Credits: 3
Term(s) Typically Offered: Offered Fall Terms
Students with a semester level of Freshman 1, Freshman 2 or Sophomore 1 may **not** enroll.