EE 3601: Electric Machines

4 Credit Hours

Prerequisite: EE 2301 and Engineering Standing

The study of the fundamentals of electro-mechanical energy conversion, magnetic circuits and electromagnetic devices, theory of operation and operating characteristics of transformers, DC machines, AC induction and synchronous machines and stepper motors.

EE 3602: Electric Power Systems

3 Credit Hours

Prerequisite: EE 2302, and Engineering Standing

This course introduces students to topics such as: AC power systems, power system networks, power flow analysis; short-circuit analysis, transient stability analysis, and computer simulation of power systems. Moreover, field trip(s) will be made to centers operated by utilities and/or power-related companies.

EE 3603: Electronic Power Conversion

3 Credit Hours

Prerequisite: Engineering Standing and EE 2302

This course introduces students to the following: Power electronic devices; Power electronic circuits; Applications; Modeling, analysis and simulation using various software. Students will also perform experiments on various power converters to learn practical skills, and relate theory to real-world practice.

EE 3605: Electromagnetics

3 Credit Hours

Prerequisite: PHYS 2212, PHYS 2212L and MATH 2203 and Engineering Standing

An advanced treatment of static electric and magnetic fields and their sources, Poisson and Laplace equations and boundary value problems, time-varying electromagnetic fields and Maxwell's equations. Plane wave propagation in free space and in materials is examined.