ECE 4343: Introduction to Power Systems

Credit / Contact hours: 3 / 3

Course coordinator: Michael Giesselmann

Textbook(s) and/or other required material: Glover and Sarma, Power System Analysis and Design with Personal Computer Applications, PWS Publishers, 1987.

Catalog description: Electrical power transmission and distribution systems; power generation systems, system modeling, planning, management and protection.

Pre-requisite(s) or co-requisites: ECE 3341.

Designation: Required

Course learning outcomes: Upon completion of this course, students should be able to do the following:

1. Analyze electrical power distribution systems.
2. Design electrical power distribution systems.

Student outcomes addressed: a, c, e, and k.

Topics covered

Electric power system description – 2 hours
Transmission and distribution line modeling – 4 hours
Symmetrical components – 5 hours
Polyphase transformers and connections – 5 hours
Alternator models – 2 hours
Network representation – 2 hours
System load flow – 6 hours
Economic operation of systems – 4 hours
Short circuit studies – 4 hours
Relays – 4 hours
Tests and reviews – 4 hours