

Elective Course:	ECE 43201 Elementary Power Systems Engineering
Credit and contact hours:	3 credits; 3 hours per week.
Course description:	Fundamental concepts of power system analysis, transmission line parameters, basic system models, steady state performance, network calculations, power flow solutions, fault studies, symmetrical components, operating strategies and control.
Prerequisite or corequisite:	P or C: ECE 32100 or A- or better in ECE 20100
Prerequisites by topic:	Familiarity with techniques of electric circuit calculations, fundamental concepts of electromagnetic fields, and use of the phasor representation in ac circuit calculations.
Textbook:	J. D. Glover, M. S. Sarma, T. Overbye, <i>Power System Analysis and Design</i> , 5th Edition, CL Engineering, 2011. ISBN-13: 9781305887732
Coordinator:	Dr. Steven Rovnyak, Associate Professor of Electrical and Computer Engineering.
Goals:	To give students an understanding of the problems encountered in the design and operation of electric power systems.
Outcomes:	Upon successful completion of the course, students should have <ol style="list-style-type: none"> 1. An understanding of the functions of the main components in a power system, and the basis of their circuit models. [a,k] 2. An ability to build a system representation from components' circuit models and to apply solution techniques to certain operational needs [a,c,e,k]
Topics:	Basic concepts (2 weeks) Transmission line parameters (2 weeks) Transmission line representations (1 week) System modeling (2 weeks) Network calculations (1 week) Power flow solutions and control (2 weeks) Three-phase faults (1 week) Symmetrical components (2 weeks) Unsymmetrical faults (1 week) Economic operation (1 week)
Computer usage:	Some homework programs involve Matlab
Laboratory projects:	None
Evaluation methods:	Two midterm exams, 26 homework assignments, and final comprehensive exam.
ABET category:	Engineering science 100%, engineering design 0%.
Prepared by:	Steven Rovnyak
Date:	January 27, 2019