

Course Topics

EEE 598: Operations Research Applied to Electric Power Systems

Prerequisites: This advanced specialty topics course is designed as a course both for upper level graduate students in electric power engineering and upper level graduate students in industrial engineering. You must have a strong graduate level background in either electric power engineering (EEE 577 or EEE 598 (Electric Energy Markets)) or you must have a strong graduate background in optimization (IEE 574, IEE 620, or APM 523).

Catalog Course Description: Optimization models in power systems operations and planning; operations research

Course Topics:

Electric power engineering topics:

Security constrained optimal power flow
Security constrained unit commitment
Reliability unit commitment
Contingency analysis
Hydro scheduling
Transmission expansion planning
Generation expansion planning
Large-scale power systems optimization problems

Operations research topics:

Valid inequalities
Mixed integer programming
Stochastic optimization
Lagrangian relaxation
Benders' decomposition
Progressive hedging