

Fundamentals of Power Systems Analysis (EECE 471)

Outline

Basic Concepts of Generation, Transmission and Distribution. Power system components and modeling. Power flow analysis. Economic Load Dispatch. Fault Analysis.

Course Information

Course description

- Introduction (Ch. 1) – 1 lecture
- Fundamentals (Ch. 2) – 2 lectures
- Transformers (Ch. 3) – 4 lectures
- Transmission Line Parameters (Ch. 4) – 3 lectures
- Transmission Lines: Steady-State Operation (Ch. 5) – 3 lectures
- Generator Models and Capability Curves (Additional) – 2 lectures
- Power Flows (Ch. 6) – 5 lectures
- Economic Load Dispatch (Sec. 11.4) – 3 lectures
- Symmetrical Faults (Ch. 7) – 4 lectures

Course date September 26, 2011 to January 14, 2012

Prerequisites Electric Machines and Power Fundamentals (EECE 370)

Evaluation Policy

Mid Term: 40 % - Date: Monday 21 November 2011

Assignments: 15 %

Attendance: 5%

Final Exam: 40 %

Textbooks

Textbook *Power Systems Analysis and Design*, J.D. Glover, M.S. Sarma, and T.J. Overbye, 4th Edition, Thomson 2008

Recommended Reading *Power Systems Analysis*, Arthur Bergen & Vijay Vittal, 2nd Edition, Prentice Hall, 2000

Electric Power Systems, Weedy and Cory, John Wiley and Sons, 4th Edition

Professor

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Biography Dr. Karaki is professor of electrical engineering at the American University of Beirut (AUB), Lebanon. He joined AUB in 1991 and teaches courses in computer programming, digital design, electronics, and power systems. He obtained his BE from AUB in 1975 and his Ph.D. from the University of Manchester Institute of Science and Technology, UK, in 1980. His main research interests are in power system operation and planning, power electronics, renewable energy systems, and optimization methods in power systems applications.