



E4233 Jan 3:0

Computer Control of Power Systems

Instructor

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Teaching Assistant

Email:

Department: Department of Electrical Engineering

Course Time: Tue, 10-11.30AM

Lecture venue: Room No.302/303, Dept of Electrical Engineering

Detailed Course Page:

Announcements

Brief description of the course

This course is a basic course for understanding large power systems operation & control. Any master student who want to learn various aspects of power system operation can take this course.

Prerequisites

Knowledge of power system steady state analysis like Power flow, short circuit analysis is desired but not compulsory.

Syllabus

State transition diagram, Security oriented functions, Data acquisition, SCADA/EMS system, State estimation,

Load forecasting, Security assessment

Automatic Generation Control (AGC)

Reactive power/voltage control

Security oriented economic load despatch

Preventive and restorative controls

Course outcomes

This course is targeted for giving thorough understanding of how an operator does planning, analysis & operation of day to day scenarios in large scale power systems. Students will learn various mathematical techniques, steady state models & control center functions. They get ability to design & implement various control center functionalities in basic programming languages like C, C++ & fortran. Through a group project they will learn 100% implementation of a IEEE transactions paper by properly identifying the tasks, various implementation stages, gathering concepts, exchange of concepts, etc..,

Grading policy

Assignments 10%

Coding Exercise 20%

Best of Two Internal Tests 15%

Internal project presentation 5%

External Test 25%

Final Project 25%

Assignments

Resources

Wood A J, and Wallenberg B F, Power Generation, Operation and Control, John Wiley and Sons, 1984

Russel B D, and Council M E, Power System Control and Protection, Academic press, 1978

Miller T J E, Reactive Power Control in Electrical Power System, John Wiley, USA

Prabha Kundur, Power System Stability and Control, McGraw Hill Inc., 1983

Kusic G L, Computer Aided Power System Analysis, Prentice Hall of India Pvt. Ltd, 1989