



**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