POWER SYSTEM DYNAMICS, CONTROL AND MONITORING

ELECTRICAL ENGINEERING

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TYPE OF COURSE : New| Core | UG/PG
INTENDED AUDIENCE : Electrical Engineering
PRE-REQUISITES : Power System Analysis (UG)

COURSE DURATION : 12 weeks (28 Jan'19-19 Apr'19)
EXAM DATE : 28 April 2019

INDUSTRIES APPLICABLE TO : NTPC, DVC, BHEL, Powergrid, NHPC

COURSE OUTLINE :

This course is both for undergraduate and postgraduate Electrical Engineering students. This course will introduce and explain the concepts of synchronous machine modeling, reference frame transformation, automatic voltage regulation, power system stabilizer, transient stability for multimachine system, automatic generation control under deregulated environment, state estimation, eigenvalue and participation factor analysis. By the end of the course, the students should be able to gather high-quality knowledge on stability, operation and control of power systems.

ABOUT INSTRUCTOR :

Debapriya Das obtained his B.E. degree from Calcutta University (B.E. College (Presently known as IIEST), Shibpur, Howrah, WB), M.Tech. from I.I.T. Kharagpur and Ph.D. from I.I.T., Delhi. He has nearly thirty years of experience in teaching and research. For more information, one can visit his I.I.T KGP website. or https://scholar.google.co.in/citations?user=yZj2uFYAAAAJ.

COURSE PLAN :

Week 01 : Basic concepts of power system stability and synchronous machine
Week 02 : Synchronous machine modeling
Week 03 : Synchronous machine modeling in d-q reference frame
Week 04 : Per unit system for Synchronous machine
Week 05 : Steady state analysis : Voltage, current and flux linkage relationships
Week 06 : Generator representation by classical model, swing equation and block diagram development
Week 07 : Automatic voltage regulator (AVR) and Power system stabilizer (PSS)
Week 08 : Eigenvalue and participation factor analysis
Week 09 : Transient stability analysis
Week 10 : AGC under deregulated environment
Week 11 : AGC under deregulated environment
Week 12 : State Estimation