

NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

Department of Electrical and Electronics Engineering

COURSE OUTLINE TEMPLATE			
Course Title	Power system operation and control		
Course Code	EE602	No. of Credits	3
Department	EEE	Faculty	S Arul Daniel
Pre-requisites Course Code			
Course Coordinator(s) (if, applicable)			
Other Course Teacher(s)/Tutor(s) E-mail		Telephone No.	0431-2503256
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
COURSE OVERVIEW			
<p>Power systems had expanded geographically to a large proportion and areas are getting inter-connected to form large power pools. This course aims to give a handle for graduate students to learn the state-of-the art techniques in operating the power system economically by (a) scheduling the generation of the power plants, (b) energy interchange between areas (c) reactive power support (d) security control.</p>			
COURSE OBJECTIVES			
<ol style="list-style-type: none"> 1. To understand the economic operation of a power system with thermal and hydro units. 2. To realize the requirements and the methods employed for real and reactive power control in a power system. 3. To be familiar with secure operation of power system and contingency studies. 			
COURSE LEARNING OUTCOMES (CO)			
Course Outcomes	Aligned Programme Outcomes (PO)		
Upon completion of the course, the students will be able to			
1. Develop generation dispatching schemes for thermal and hydro units	1, 4		
2. Apply control and compensation schemes on a power system.	5		
3. Carry out contingency analysis to improve the security of the power system	2,		

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1.	Weeks 1 to 3	Introduction to economic operation, Economic dispatch, various techniques.	Lecture and simulation
2.	Weeks 4 to 6	Hydro thermal scheduling	Lecture and simulation
3.	Weeks 7 and 9	Generation control	Lecture and simulation
4.	Weeks 9 and 11	VAR control	Lecture and Simulation
5.	Weeks 11 and 13	Power System Security	Lecture

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1.	CT 1	5 th week	1 hour	20%
2.	CT 2	10 th week	1 hour	20%
3.	Seminar	11 th week		10%
4.	Group Project			20%
4.	End Semester			30%

ESSENTIAL READINGS :

1. Allen J. Wood and B.F. Wollenberg, 'Power System Operation and Control', Wiley India Edition, 2009
2. Abhijit Chakrabarti and Sunita Halder, 'Power System Analysis – Operation and Control, PHI, 3rd Edition.

COURSE EXIT SURVEY

Shall be obtained at the end of the course

COURSE POLICY

Copying will result in disqualification.

ADDITIONAL COURSE INFORMATION

eg.: Queries may also be emailed to the Course Coordinator directly daniel@nitt.edu

Course Faculty _____

CC-Chairperson _____

HOD _____

Handwritten signature

Handwritten signature and date: 02.01.17

Handwritten signature