

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING
NATIONAL INSTITUTE OF TECHNOLOGY, TIRUCHIRAPPALLI

COURSE PLAN – PART I			
Course Title	Power Systems Laboratory		
Course Code	EE608	No. of Credits	02
Pre-requisite subject(s)	Power System Analysis, Transmission and distribution, Switch gear and protection and FACTS		
Session	Jan. 2018	Section (if, applicable)	---
Name of Faculty	M Jaya Bharata Reddy	Department	EEE
Email	jbreddy@nitt.edu	Telephone No.	0431-2503270
Name of Course Coordinator(s) (if, applicable)	---		
E-mail	---	Telephone No.	---
Course Type	<input checked="" type="checkbox"/> Core course <input type="checkbox"/> Elective course		
Laboratory Experiments			
1. POWER FACTOR CONTROLLER (MANUAL) 2. D.C. NETWORK ANALYSER 3. MEASUREMENT OF A, B, C, D CONSTANTS OF A TRANSMISSION LINE 4. MICROPROCESSOR BASED STATIC VAR COMPENSATOR (SVC) 5. COMPLETE PROTECTION SCHEME FOR GENERATOR 6. MICROPROCESSOR BASED THYRISTOR CONTROLLED SERIES CAPACITOR (TCSC) 7. MICROPROCESSOR BASED POWER FACTOR CONTROLLER 8. STUDY OF POWER TRANSFER THROUGH A SHORT TRANSMISSION LINE 9. OPERATION OF MICROPROCESSOR BASED NUMERICAL OVER CURRENT RELAY 10. NUMERICAL DISTANCE PROTECTION RELAY/TESTING OF DIFFERENT TYPES OF RELAYS ESSENTIAL READINGS : Text Books: 1. DP Kothari and IJ Nagrath, 'Power System Engineering', Tata McGraw-Hill, 2nd Edition, 2008.			

2. John. J, Grainger & Stevenson. W.D., 'Power System Analysis', McGraw-Hill, 1st Edition, 2003.
3. Hadi Saadat, 'Power System Analysis', Tata McGraw-Hill Education, 2nd Edition, 2002.
4. Hingorani, L.Gyugyi, 'Concepts and Technology of Flexible AC Transmission System', IEEE Press New York, 2000 ISBN-078033 4588.
5. P. M Anderson, 'Power System Protection', IEEE Press, 2012.

COURSE OBJECTIVES

To understand and analyze different concepts of the power system which includes generation, transmission and distribution through the hardware setup as well as computer simulations.

COURSE OUTCOMES (CO)

Course Outcomes

1. Develop computer programs for power system studies.
2. Design, simulate and analyze power networks using simulation packages.
3. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.

Aligned Programme Outcomes (PO)

CO no.	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14
1	H	H	H	M	H	M	M	M	M	L	L	M	M	L
2	H	H	H	M	H	M	M	M	M	L	L	M	M	L
3	H	H	H	M	H	M	M	M	M	L	L	M	M	L

COURSE PLAN – PART II

COURSE OVERVIEW

Power System Lab helps the students to understand and analyze different concepts of the power system through the hardware setup as well as computer simulations.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week 1 (6 contact hours)	POWER FACTOR CONTROLLER (MANUAL)	Simulation Analysis
			Experimental Analysis
2	Week 2 (6 contact hours)	D.C. NETWORK ANALYSER	Simulation Analysis
			Experimental Analysis
3	Week 3	MEASUREMENT OF A, B, C, D	Simulation Analysis

	(6 contact hours)	CONSTANTS OF A TRANSMISSION LINE	Experimental Analysis
4	Week 4 (6 contact hours)	MICROPROCESSOR BASED STATIC VAR COMPENSATOR (SVC)	Simulation Analysis
			Experimental Analysis
5	Week 5 (6 contact hours)	COMPLETE PROTECTION SCHEME FOR GENERATOR	Simulation Analysis
			Experimental Analysis
6	Week 6 (6 contact hours)	MICROPROCESSOR BASED THYRISTOR CONTROLLED SERIES CAPACITOR (TCSC)	Simulation Analysis
			Experimental Analysis
7	Week 7 (6 contact hours)	MICROPROCESSOR BASED POWER FACTOR CONTROLLER	Simulation Analysis
			Experimental Analysis
8	Week 8 (6 contact hours)	STUDY OF POWER TRANSFER THROUGH A SHORT TRANSMISSION LINE	Simulation Analysis
			Experimental Analysis
9	Week 8 (6 contact hours)	OPERATION OF MICROPROCESSOR BASED NUMERICAL OVER CURRENT RELAY	Simulation Analysis
			Experimental Analysis
10	Week 10 (6 contact hours)	NUMERICAL DISTANCE PROTECTION RELAY/TESTING OF DIFFERENT TYPES OF RELAYS	Simulation Analysis
			Experimental Analysis

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	A1 (Continuous Assessment)	1 st to 10 th week	Assessment will be carried out along with the course	60
2	A2 Take Home/ Team Task/Mini Project	12 th Week (Work will be carried out along with the course)	60 Minutes	20
3	A3 End Semester Experimentation (Experimental/Simulation)	13 th week	120 Minutes	20

Note:

1. Attending all the assessments (Assessments 1 to 3) are MANDATORY for every student.
2. Students who are absent for regular laboratory sessions have to take steps to REDO the particular experiments by their own efforts and no extra laboratory sessions would be arranged.

COURSE EXIT SURVEY

Shall be obtained at the end of the course.

COURSE POLICY

ATTENDANCE & COMPENSATION ASSESSMENT

1. Attendance will be taken by the faculty in all the contact hours. Every student should maintain minimum 75% physical attendance in these contact hours to attend the end semester examination.
2. Gradings are assigned as per the institute rules and regulations.

ACADEMIC HONESTY & PLAGIARISM

Copying in any form during assessments is considered as academic dishonesty and will attract suitable penalty.

FOR APPROVAL

Course Faculty _____

CC-Chairperson _____

HOD _____

