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

COURSE PLAN – PART I			
Name of the Programme and Specialization	B. Tech - EEE		
Course Title	Power Systems Laboratory		
Course Code	EELR17	**No. of Credits**	02
Pre-requisite subject(s)	EEPC25		
Session	Jan 2022	**Section**	B
Name of Faculty	Dr. M Jaya Bharata Reddy	**Department**	EEE
Email	jbreddy@nitt.edu	**Telephone No.**	0431-2503270
Course Type	✓ **Core course** ☐ **Elective course**		

Laboratory Experiments

1. Real and Reactive Power Computation
2. Transmission Line Parameter Calculation
3. Bus Admittance Matrix Formulation
4. Load Flow Analysis
5. Z-bus Formation
6. Symmetrical Fault Analysis
7. Unsymmetrical Fault Analysis

and Mini-Project

COURSE OBJECTIVES

To enhance the analysing and problem-solving skills of the students in the area of power systems through computer programming and simulation

COURSE OUTCOMES (CO)

Upon completion of the course, the student will be able to

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

Aligned Programme Outcomes (PO)

CO no.	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PO 13	PO 14
1	H	H	M	M	H	H	M	H	M	L	L	M	M	L
2	H	H	M	M	H	H	M	H	M	L	L	M	H	L
3	M	M	M	M	M	M	M	H	M	L	H	M	H	L

COURSE PLAN – PART II

COURSE OVERVIEW

This course deals with development of computer programs for power system studies and perform power system studies employing simulation packages. Students gain experience in implementing the mathematical concepts and numerical algorithms that they learn in Power System Analysis course through computer programs.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	Week 1 (2 hour 30 mins)	Real and Reactive Power Computation in Single Phase System	Simulation Analysis
2	Week 2 (2 hour 30 mins)	Real and Reactive Power Computation in Three Phase System	Simulation Analysis
3	Week 3 (2 hour 30 mins)	Transmission Line Parameter Calculation	Simulation Analysis
4	Week 4 (2 hour 30 mins)	Bus Admittance Matrix formulation	Simulation Analysis
5	Week 5 (2 hour 30 mins)	Bus Impedance Matrix formulation	Simulation Analysis
6	Week 6 (2 hour 30 mins)	Load Flow Analysis – Gauss Seidel Method	Simulation Analysis
7	Week 7 (2 hour 30 mins)	Load Flow Analysis – Newton Raphson Method & Fast Decoupled Method	Simulation Analysis
8	Week 8 (2 hour 30 mins)	Symmetrical Fault Analysis	Simulation Analysis
9	Week 9 (2 hour 30 mins)	Unsymmetrical Fault Analysis – LG & LLG	Simulation Analysis
10	Week 10 (2 hour 30 mins)	Unsymmetrical Fault Analysis – LL	Simulation Analysis

COURSE ASSESSMENT METHODS

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	A1 (Continuous Assessment)	1st to 5th week	Assessment will be carried out along with the course	25
2	A2 (Continuous Assessment)	6th to 10th week	Assessment will be carried out along with the course	25
3	A3 (Mini Project Assessment)	12th Week		20

3	A4 End Semester Experimentaion (Experimantal/Simulation)	13th week	120 Minutes	30

Note:

1. Attending all the assessments (Assessments 1 to 4) 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** Approved By HOD _____

(M.Jaya Bharata reddy) (Dr.S.Mageshwari)