



COURSE PLAN – PART I			
Name of the Programme and Specialization	M.Tech. – Power Systems		
Course Title	POWER SYSTEMS LABORATORY		
Course Code	EEPC26	No. of Credits	02
Course Code of Pre-requisite subject(s)	EEPC25		
Session	JANUARY 2021	Section (if, applicable)	NA
Name of Faculty	M. VENKATAKIRTHIGA	Department	EEE
Email	pspglab@gmail.com	Telephone No.	9629278427
Name of Course Coordinator(s) (if, applicable)	-		
Course Type	<input checked="" type="checkbox"/> Core course	<input type="checkbox"/> Elective course	
List of experiments			
<ul style="list-style-type: none">• ABCD parameter determination• Transmission line performance analysis• YBUS determination• ZBUS determination• Load Flow analysis - simulation• Load Flow analysis - programming• Short Circuit Analysis• Un-symmetrical fault analysis• Unit Commitment and Economic Load Dispatch• Power Quality improvement using FACTS device• HVDC system analysis• Demonstration of ABCD parameter determination• Demonstration of Numerical Relay• Demonstration of Complete Protection Analysis• Demonstration of SVC			
COURSE OBJECTIVES			
To give the students an exposure to experimentation of important topics in Power Systems. The list of experiments are formulated based on the basic requirements expected from a post graduate student specialised in Power Systems.			



COURSE OUTCOMES (CO)			
Course Outcomes			Aligned Programme Outcomes (PO)
Upon completion of the course the students would be able to			
1. Practical understanding of different types of electro mechanical and numerical relays.			1 - 14
2. Practical understanding about transmission line fault analysis, power flow and different types of compensations on transmission lines.			1 - 14
3. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.			1 - 14
COURSE PLAN – PART II			
COURSE OVERVIEW			
<p>Electrical power system operates at various voltage levels from 415 V to 400 kV or even more. Electrical apparatus used may be enclosed (e.g., motors) or placed in open (e.g., transmission lines). All such equipment undergo abnormalities in their life time due to various reasons.</p> <p>It becomes mandatory for every power engineer to get familiarised with the basic concepts of power systems even before they get placed in field. Hence this course is planned such that to enhance the practical understanding of the power system concepts.</p>			
COURSE TEACHING AND LEARNING ACTIVITIES			
S.No.	Week/Contact Hours	Topic	Mode of Delivery
1	III & IV weeks of January	Introduction to the course, course plan and introduction to MATLAB programming	Lecture C&T through MS Teams
2	I week of February	ABCD parameter determination	Experimentation by simulation through MS Teams
3	II week of February	Transmission line performance analysis	Experimentation by simulation through MS Teams
4	III week of February	YBUS determination	Experimentation by simulation through MS Teams
5	IV week of February	ZBUS determination	Experimentation by simulation through MS Teams



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6	I week of March	Load Flow analysis - simulation	Experimentation by simulation through MS Teams
7	II week of March	Load Flow analysis – Programming	Experimentation by simulation through MS Teams
8	III week of March	Short Circuit analysis	Experimentation by simulation through MS Teams
9	IV week of March	Un-symmetrical fault analysis	Experimentation by simulation through MS Teams
10	I week of April	Unit Commitment and Economic Load Dispatch	Experimentation by simulation through MS Teams
11	II week of April	Power Quality Improvement through FACTS device	Experimentation by simulation through MS Teams
12	III week of April	HVDC System Analysis	Experimentation by simulation through MS Teams
13	IV week of April	Demonstration experiments	Experimentation by simulation through MS Teams
14	I week of May	Assessment – III Mini – project	Demonstration by students through MS Teams
15	II week of May	ASSESSMENT - IV	Final assessment through MS Teams

COURSE ASSESSMENT METHODS (shall range from 4 to 6)

S. No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	Continuous Assessment	Throughout the semester	Two sessions of 3 hrs each in a week	40
2	Report for continuous assessment	Twice in the semester	---	10
3	Mini – project	I week of May	---	20
4	Final examination	II week of May	---	30



COURSE EXIT SURVEY (mention the ways in which the feedback about the course shall be assessed)

- Feedback from the students during class committee meetings
- Anonymous feedback through questionnaire (Mid of the semester & End of the semester) end semester feedback on Course Outcomes

COURSE POLICY (preferred mode of correspondence with students, policy on attendance, compensation assessment, , academic honesty and plagiarism etc.)

MODE OF CORRESPONDENCE (email/ phone etc)

1. All the students are advised to check their NITT WEBMAIL regularly. All the correspondence (schedule of classes/ schedule of assessment/ course material/ any other information regarding this course) will be done through their webmail only.
2. Queries (if required) to the course teacher shall only be emailed to pspglab@gmail.com / mvkirthiga@nitt.edu

ATTENDANCE

- At least 75% attendance in each course is mandatory.
- A maximum of 10% shall be allowed under On Duty (OD) category.
- Students with less than 65% of attendance shall be prevented from writing the final assessment and shall be awarded 'V' grade.

COMPENSATION ASSESSMENT

1. Attending all the assessments are **MANADATORY** for every student.
2. One Compensation Assessment (CPA) will be conducted for those students who are being physically absent for the continuous assessment and mini-project.
3. At any case, CPA will not be considered as an improvement test.
4. Relative grading will be adopted for the course.

ACADEMIC HONESTY & PLAGIARISM

- Possessing a mobile phone, carrying bits of paper, talking to other students, copying from others during an assessment will be treated as punishable dishonesty.
- Zero mark to be awarded for the offenders. For copying from another student, both students get the same penalty of zero mark.
- The departmental disciplinary committee including the course faculty member, PAC chairperson and the HoD, as members shall verify the facts of the malpractice and award the punishment if the student is found guilty. The report shall be submitted to the Academic office.



ADDITIONAL INFORMATION

The faculty is available for consultation at times as per the intimation given by the faculty.

Queries may also be emailed to the Course Coordinator directly at pspglab@gmail.com / mvkirthiga@nitt.edu

FOR APPROVAL

Course Faculty

[M. VENKATAKIRTHIGA]

CC-Chairperson

[Dr. NAVEEN YELLA]

Approved by Mail

HOD / EEE

[Dr. V. SANKARANARAYANAN]