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

COURSE PLAN-PART I				
Name of the programme and specialization	III Year B.Tech, EEE			
Course Title	POWER SYSTEM ANALYSIS			
Course Code	EEPC18		**No. of Credits**	04
Pre-requisites Course Code	MAIR32, EEPC11			
Session	July 2023		**Section**	B
Faculty	Dr. M Jaya Bharata Reddy		**Department**	EEE
Email	jbreddy@nitt.edu		**Telephone No.**	0431-2503270
Pre-requisites of Course Code	Knowledge on the electrical transmission and distribution, besides numerical methods to solve electrical problems.			
Course Type	✓	**Core course**		**Elective course**

Syllabus (approved in BoS)

- Modeling of power system components - single line diagram –per unit quantities – bus impedance and admittance matrix
- Power flow analysis methods - Gauss- Seidel, Newton-Raphson and Fast decoupled methods of load flow analysis
- Fault studies - Symmetrical fault analysis, Analysis through impedance matrix, Current limiting reactors
- Fault analysis -Unsymmetrical short circuit analysis- LG, LL, LLG; Fault parameter calculations – Open circuit faults
- Stability studies - Steady state and transient stability – Swing equation - Equal area criterion – multi-machine stability analysis

COURSE OBJECTIVES

To model various power system components and carry out load flow, short-circuit and stability studies

COURSE OUTCOMES (CO)

Course Outcomes	Aligned Programme Outcomes (PO)												
Upon completion of the course, the students will be able to 1. Carry out load flow study of a practical system. 2. Simulate and analyze fault. 3. Study the stability of power systems.	CO	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
	1	H	H	M	M	H	L	L	L	H	L	L	L
	2	H	H	H	H	H	L	L	L	H	L	L	L
	3	H	H	M	H	H	L	L	L	H	L	L	L

COURSE PLAN-PART II

COURSE OVERVIEW

Students are exposed to model the various power system components and analyze the performance of the power system under different power system disturbances.

COURSE TEACHING AND LEARNING ACTIVITIES

S.No.	Week	Topic	Mode of Delivery
1	Weeks 1 to 3 (10 contact hours, including four contact hours for problem solving)	Modelling of power system components	Lecture/Tutorial
2		Numerical examples/Problem solving	Group work (exercise)
3			
4	Weeks 4 to 6 (10 contact hours, including four contact hours for problem solving)	Power flow analysis methods	Lecture/Tutorial
5		Numerical examples/Problem solving	Group work (exercise)
6		Assessment 1	Written test
7	Weeks 7 to 9 (10 contact hours, including four contact hours for problem solving)	Fault studies(Symmetrical fault analysis)	Lecture/Tutorial
8		Numerical examples/Problem solving	Group work (exercise)
9			
10	Weeks 10 to 12 (10 contact hours, including four contact hours for problem solving)	Fault analysis (Unsymmetrical fault analysis)	Lecture/Tutorial
11		Numerical examples/Problem solving	Group work (exercise)
12		Assessment 2	Written test
13	Weeks 13 to 15 (10 contact hours, including four contact hours for problem solving)	Stability studies	Lecture/Tutorial
14		Numerical examples/Problem solving	Group work (exercise)
15			
16	Weeks 16 to 17	Compensation Assessment (CPA)	Written test
17		End Semester Examination	Written test

Mode of Assessment

S.No.	Mode of Assessment	Week/Date	Duration	% Weightage
1	1st Mid Semester Examination (Written test)(1st and 2nd Units)	6th Week	60 Minutes	25
2	2nd Mid Semester Examination (Written test)(3rd and 4th Units)	12th Week	60 Minutes	25
3	Take Home / Team Task	3rd to 13h week	Work will be carried out along with the course	20
4	Compensation Assessment	14th week	60 Minutes	25
5	End Semester Examination (Written test)	16th week	180 Minutes	30

ESSENTIAL READINGS :

1. John .J. Grainger & Stevenson.W.D., 'Power System Analysis', McGraw Hill, 1st Edition, 2003.
2. D P Kothari, I J Nagrath 'Modern Power System Analysis', 3rd Edition, 2011.
3. Hadi Saadat, 'Power System Analysis ', Tata McGraw-Hill Education, 2nd Edition, 2002.

COURSE EXIT SURVEY

Feedback from the students during class committee meetings.

COURSE POLICY

COMPENSATION ASSESSMENT POLICY

If any student is not able to attend I and / or II Cycle test(s) due to genuine reasons with prior permission, student is permitted to attend the compensation assessment (CPA) with 25% weightage (25 marks).

ATTENDANCE POLICY

- 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.

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.

The above policy against academic dishonesty shall be applicable for all the programs.

FOR APPROVAL

Course Faculty:_____ **CC-Chairperson:**_____ **HOD:**_____ 11/08/23