

ANNAI MATHAMMAL SHEELA ENGINEERING COLLEGE
COURSE DELIVERY PLAN

Name of the Department: EEE

Name of the Staff: N.Suthakar, AP/EEE

Sub Code & Name: EE2402 PROTECTION AND SWITCHGEAR Year / Sem: IV / VII

UNIT-1 INTRODUCTION

Lect. no	Date Planned	Topics to be covered	Time required (periods)	Teaching Methods	Teaching Aids	Books/Journals Referred
1	22.06.15	Importance of protective schemes for electrical apparatus and power system.	1	L	CB	1,2
2	23.06.15	Qualitative review of faults and fault currents	1	L	CB	1,2
3	24.06.15	Relay terminology – definitions -	1	L	CB,PP	1,2
4	24.06.15 25.06.15	Essential qualities of protection.	1	L	CB	1,2
5	25.06.15	Protection against over voltages due to lightning and switching	1	L	CB	1,2
6	26.06.15	Arcing grounds - Peterson Coil -	1	L	CB	1,2
7	27.06.15	Ground wires	1	L	CB	1,2
8	27.06.15	Surge absorber and diverters Power System earthing –	1	L,TT	CB,	1,2
9	29.06.15	Neutral Earthing - basic ideas of insulation coordination.	1	L	CB,PP	1,2

UNIT - II OPERATING PRINCIPLES AND RELAY CHARACTERISTICS

Lect. no	Date Planned	Topics to be covered	Time required (periods)	Teaching Methods	Teaching Aids	Books/Journals Referred
1	30.06.15	Electromagnetic relays	1	L,TT	CB	1,3
2	01.07.15	Over current relay	1	L	CB	1,3

3	02.07.15	Non-directional relay	1	L,TT	CB,PP	1,3
4	02.07.15	Directional relay	1	L,TT	CB	1,3
5	04.07.15	Distance relay	1	L,TT	CB,PP	1,3
6	04.07.15	Negative relay	1	L,TT	CB	1,3
7	07.07.15	Sequence,differential	1	L,TT	CB	1,3
8	08.07.15	Under frequency relay	1	L	CB	1,3
9	08.07.15	Introduction to static relay	1	L,TT	CB	1,3

UNIT - III APPARATUS PROTECTION

Lect. no	Date Planned	Topics to be covered	Time required (periods)	Teaching Methods	Teaching Aids	Books/Journals Referred
1	09.07.15	Main considerations in apparatus protection	1	L,TT	CB	1,2
2	09.07.15	Transformer protection	1	L	CB	1,2
3	11.07.15	Generator protection	1	L,TT	CB,PP	1,2
4	11.07.15	Motor protection -.	1	L,TT	CB	1,2
5	15.07.15	Protection of busbars	1	L,TT	CB,PP	1,2
6	16.07.15	Transmission line protection -	1	L,TT	CB	1,2
7	16.07.15	Zones of protection.	1	L,TT	CB	1,2
8	16.07.15	CTs and PTs and.	1	L	CB	1,2
9	20.07.15	Their applications in protection schemes	1	L	CB	1,2

UNIT - IV THEORY OF CIRCUIT INTERRUPTION

Lect. no	Date Planned	Topics to be covered	Time required (periods)	Teaching Methods	Teaching Aids	Books/Journals Referred
1	22.07.15	Physics of arc phenomena and	1	L	CB	3,5
2	22.07.15	Arc interruption.	1	L	CB	3,5
3	23.07.15	DC and AC circuit breaking -	1	L	CB	3,5
4	23.07.15	Restriking voltage and recovery voltage	1	L	CB	3,5
5	25.07.15	Rate of rise of recovery voltage- -	1	L,TT	CB,PP	3,5
6	25.07.15	Resistance switching	1	L,TT	CB	3,5
7	28.07.15	Current chopping -	1	L,TT	CB	3,5

8	29.07.15	Interruption of	1	L,TT	CB	3,5
9	29.07.15	Capacitive current.	1	L,TT	CB	3,5

UNIT – V CIRCUIT BREAKERS

Lect. no	Date Planned	Topics to be covered	Time required (periods)	Teaching Methods	Teaching Aids	Books/Journals Referred
1	30.07.15	Types of circuit breakers – air blast, ,	1	L	CB	1,6
2,3	30.07.15 & 01.08.15	Air break circuit breakers	2	L	CB	1,6
4	01.08.15	Oil circuit breakers	1	L	CB	1,6
5	04.08.15	SF ₆ circuit breakers	1	L,TT	CB	1,6
6	05.08.15	Vacuum circuit breakers	1	L,TT	CB,PP	1,6
7	05.08.15	Comparativemerits of different circuit breakers	1	L,TT	CB	1,6
8	06.08.15	Comparativemerits of different circuit breakers	1	L,TT	CB	1,6
9	06.08.15	Testing of circuit breakers	1	L,TT	CB	1,6

Teaching Aids : Video Film (VF), Power Point Presentation (PP), Demo (D) , Models (M) , Over Head Project (OHP), Chalk Board (CB).

Teaching Methods: Lecture (L), Group Discussion (GD) , Quiz (Q), Seminar (S), Team Teaching (TT) , Lab Visit (LV) ,Industrial Visit.

TEXT BOOKS:

1. M.L. Soni, P.V. Gupta, V.S. Bhatnagar, A. Chakrabarti, 'A Text Book on Power System Engineering', Dhanpat Rai & Co., 1998. (For All Chapters 1, 2, 3, 4 and 5).
2. R.K.Rajput, A Tex book of Power System Engineering. Laxmi Publications, First Edition Reprint 2007.

REFERENCES:

1. Sunil S. Rao, 'Switchgear and Protection', Khanna publishers, New Delhi, 1986.
2. C.L. Wadhwa, 'Electrical Power Systems', Newage International (P) Ltd., 2000.
3. B. Ravindranath, and N. Chander, 'Power System Protection & Switchgear', Wiley Eastern Ltd., 1977.
4. Badri Ram, Vishwakarma, 'Power System Protection and Switchgear', Tata McGraw Hill, 2001.
5. Y.G. Paithankar and S.R. Bhide, 'Fundamentals of Power System Protection', Prentice Hall of India Pvt. Ltd., New Delhi–110001, 2003.