

Branch Name:	Electrical Engineering
ProgramCode:	ET213
CourseName:	Modern Power System Protection Practical
CourseCode:	2ET2130203P
Pre-requisiteCourse:	Fundamentals of Power System Protection

Course Objectives:

1. To understand the working, analysis and control digital relays.
2. To identify relay coordination and understand link net structure.
3. To understand new algorithm and advance technology for protection of system.

Teaching and Examination Scheme:

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								
					Theory (Marks)				Practical (Marks)				Total (Marks)
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
1	-	-	2	2	-	-	-	-	10	25	10	25	50

Course Contents:

Sr. No.	Detail of Practical	Content Hours
1	Study of digital relays with detailed description of each component of the schematic diagram of digitalrelay.	04
2	Setting up IDMT relays for a radialfeeder.	04
3	Setting up IDMT relays for a power system using link netstructure.	04
4	Study of auto-reclosing with relateddetails.	04
5	Study of system response during severe upset and power systemrestoration.	04
6	Study of load shedding schemes with all relateddetails.	04
7	Study of protection of transmission line which is compensated by fixed seriescapacitors.	04

Reference Books:

1. BhaveshBhalja, R. P. Maheshwari and N. G. Chothani, Protection and Switchgear, Oxford University Press, 1st Edition,2011
2. P. M. Anderson, Power System Protection, IEEE Press, New York,1999.
3. J. L. Blackburn, "Applied Protective Relaying," Westinghouse Electric Corporation, New York,1982.
4. Van C. Warrington A. R. "Protective Relays: Their Theory and Practice," Vol 1, Chapman & Hall Ltd, London, 1962.
5. A. G. Phadke and J. S. Thorp, "Computer Relaying for Power Systems," Research study press Ltd, John Wiley & Sons, Taunton, UK,1988.

Course Learning Outcomes (CLO): On completion of this course, the students will be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Analyze the tripping characteristics of various relays and its applications.	4 Analyze
CLO2	Design inductors and transformers for power electronic converters.	6 Creating
CLO3	Understand the basics of load shedding and factors affecting on it.	2 Understanding
CLO4	Know about auto reclosing and its fundamental for relays.	1 Remembering
CLO5	To operate various static relays, set their parameters and also to confirm its operations.	3 Applying
CLO6	To operate various Numeric relays, set their parameters and also to confirm its operations.	3 Applying

Mapping of CLOs with POs & PSOs

Course Learning Outcomes	Program Outcomes (POs)												Program Specific Outcomes (PSOs)			
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	PSO4
CLO1			L		M			M		L		M		M	H	
CLO2	L		L		M					L		M		M	H	
CLO3				M			L				M		M			L
CLO4		L		H		M						M				L
CLO5	H				L	H		M				M	L		H	
CLO6	H				L	H		M				M	L		H	

H: High, M: Medium, L: Low