

Branch Name:	Electrical Engineering
ProgramCode:	ET213
CourseName:	HVDC & FACTS Practical
CourseCode:	2ET2130202P
Pre-requisiteCourse:	Interconnected Power System, Power Electronics

Course Objectives:

1. To understand the working, analysis and control of HVDC transmission lines.
2. To understand different concepts about reactive power and compensators.
3. To identify working, analysis, control and characteristics of various FACTS controllers.

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	Modeling of medium transmissionline in MATLAB.	02
2	Analysis of medium transmissionline in MATLAB.	04
3	Modeling of long transmissionline in MATLAB.	02
4	Analysis of long transmissionline in MATLAB.	04
5	Simulation ofSTATCOM in MATLAB Programming.	02
6	Analysis ofSTATCOM in MATLAB Programming.	04
7	Simulation ofSVC in MATLAB Programming.	02
8	Analysis ofSVC in MATLAB Programming.	04
9	Simulation of HVDCline in MATLAB Programming.	02
10	Analysis of HVDCline in MATLAB Programming.	04

Reference Books:

1. Reactive Power Control in Electric Systems: T J E Miller, JohnWiley.
2. Power System Stability and Control, PrabhaKundur, TataMcGrahill.
3. Understanding FACTS, N.G.Hingorani and L.Gyugyi, Standard Publishers, Delhi,2001.
4. FACTS Controllers in Power Transmission & Distribution: Padiyar K R, New Age International (P)Limited.

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

CLO	Description	Bloom's Taxonomy Level
CLO1	Understand regarding the different compensating systems that affect the performance of the system.	2 Understanding
CLO2	Understand the basic construction and applications of HVDC transmission lines.	2 Understanding
CLO3	Know about the analysis and requirement of reactive power in power transmission.	1 Remembering
CLO4	Analyze the function and requirement of different FACTS controllers.	4 Analyze
CLO5	Know about characteristics of static var compensator.	1 Remembering
CLO6	Acquire the knowledge of FACTS devices modelling for the improvement of performance of the system.	1 Remembering 2 Understanding

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				M			L				M		M			L
CLO2	M			M			L				M		M			L
CLO3				L		H			M			M				L
CLO4	L		L		M			M		L		M		M	H	
CLO5		M		L		H			M			M				L
CLO6				L		H	L		M		M	M	M			L

H: High, M: Medium, L: Low