

## HVDC TRANSMISSION

PEC-I: EPS																																
Course Code	Category	Hours / Week			Credits	Maximum Marks																										
BPSB03	Elective	L	T	P	C	CIA	SEE	Total																								
		3	-	-	3	30	70	100																								
<b>Contact Classes: 45</b>	<b>Tutorial Classes: Nil</b>	<b>Practical Classes: Nil</b>			<b>Total Classes: 45</b>																											
<b>I. COURSEOVERVIEW:</b> This subject deals with the importance of HVDC transmission, analysis of HVDC Converters, Harmonics and Filters, Reactive power control and Power factor improvements of the system. It also deals with basic FACTS concepts, static shunt and series compensation and combined compensation techniques.																																
<b>II. COURSE OBJECTIVES:</b> <b>This course should enable the students to:</b> <ol style="list-style-type: none"> <li>I. Understand state of the art HVDC technology.</li> <li>II. Learn the Methods to carry out modeling and analysis of HVDC system frontier-area power flow regulation.</li> </ol>																																
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Converter mal-operations, commutation failure, starting and shutting down the converter bridge, converter protection.

**UNIT-V**

**REACTIVE POWER MANAGEMENT**

**Classes: 09**

Smoothing reactor and DC Lines, reactive power requirements, harmonic analysis, filter design, power flow analysis in AC, DC systems, modeling of DC links, solutions of AC, DC Power flow.

**Text Books:**

1. JArrillaga, "High Voltage Direct Transmission", Peter Peregrinus Ltd. London, 1<sup>st</sup>Edition,1983.
2. K R Padiyar, "HVDC Power Transmission Systems", Wiley Eastern Ltd., 1<sup>st</sup> Edition,1990.

**Reference Books:**

1. E. W. Kimbark, "Direct Current Transmission", Vol. I, Wiley Interscience, 1<sup>st</sup>Edition,1971.
2. Erich Uhlmann, "Power Transmission by Direct Current", B.S. Publications, 1<sup>st</sup> Edition,2004.
3. SNSingh, "ElectricPowerGeneration,TransmissionandDistribution,PHI,NewDelhi,2<sup>nd</sup>Edition,2008.
4. V Kamaraju, "HVDC Transmission" Tata McGraw-Hill Education Pvt Ltd, New Delhi, 2<sup>nd</sup> Edition,2011.

**Web References:**

1. <https://www.rceroorkee.in/pdf/pdfo/tee033.pdf>
2. <https://www.books.google.com/books?id=e24fndv2aroc>
3. <https://www.nptel.ac.in/syllabus/108108033/>

**E-Text Books:**

1. <https://www.site.uottawa.ca>
2. <https://www.galerybooks.com>
3. <https://www.jntubook.com/>