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| **Name of the Faculty: Expert Lecturer****Discipline : Electrical Engineering****Semester : 6th****Subject : HVDC & FLEXIBLE AC TRANSMISSION SYSTEMS** **Duration : 15 weeks(from 20 January 2025 to 02 May 2025)****Work load (Lecture/Practical) per week (in Hours):Lecture-03,Practical -00** |
| **Week** | **Lecture Day** |  |
| **I** | **1** | **Introduction of the Subject:** HVDC & FLEXIBLE AC TRANSMISSION SYSTEMS |
| **2** | **HVDC Transmission**  |
| **3** | 1.1 Introduction to HVDC transmission  |
| **II** | **1** | 1.2 Comparison of AC and DC transmission.  |
| **2** | 1.3 Application of DC transmission system,  |
| **3** | 1.4 Equipment of HVDC transmission systems  |
| **III** | **1** | 1.5 Modern trends in D. C. transmission |
| **2** | **Assignment No.01** |
| **3** | Test No.01 |
| **IV** | **1** | **HVDC System Control**  |
| **2** | 2.1 Principles of dc link control  |
| **3** | 2.2 Types of dc Link |
| **V** | **1** | 2.3 Starting and Stopping of dc link, |
| **2** | 2.4 Power control  |
| **3** | 2.5 Harmonics and Filters:, Effects of Harmonics |
| **VI** | **1** | Sources of harmonic generation, |
| **2** | Types of filters |
| **3** | **Flexible AC Transmission Systems (FACTS)** |
| **VII** | **1** | 3.1 Objective of FACTS  |
| **2** | Concept of FACTS |
| **3** | 3.2 Control of power flow in transmission lines, |
| **VIII** | **1** | 3.3 Application. |
| **2** | **FACTs Controller** |
| **3** | 4.1 Need for compensation |
| **IX** | **1** | 4.2 Classification of FACTS controllers  |
| **2** | 4.3 Shunt Compensation:  |
| **3** | Objectives of shunt compensation, |
| **X** | **1** | Methods of controllable VAR generation, |
| **2** | Static VAr Compensator (SVC), STATCOM. |
| **3** | 4.4 Series Compensation:  |
| **XI** | **1** | Objectives of series compensation,  |
| **2** | GCSC, TSSC, TCSC and SSSC. |
| **3** | **Combined Controllers Compensation** |
| **XII** | **1** | 5.1 Unified Power Flow Controller: |
| **2** |  Principles of operation, |
| **3** | comparison with other FACTS controller |
| **XIII** | **1** | 5.2 Interline Power Flow Controller  |
| **2** | Principles of operation, |
| **3** | comparison with other FACTS controller |
| **XIV** | **1** | **Assignment No. 03** |
| **2** | Test No.03 |
| **3** | Revison of 1st Unit |
| **XV** | **1** | Revison of 2nd and 3rd Unit |
| **2** | Revison of 4th and 5th Unit |
| **3** | **Previous year Question Papers** |