**"Transformer Tapping"**

Transformer এ Tapping খুব গুরুত্বপূর্ণ একটি টার্ম। Transformer Tap Changer দিয়ে Transformer Tapping করা হয়।।। এটার কাজ ভোল্টেজ স্টাবিলাইজার এর মতন।অর্থাৎ, একটা নির্দিষ্ট ভোল্টেজ সর্বদা মেইনটেইন করার জন্য এই Tapping টা করা হয়। এখন প্রশ্ন হলো Tapping টা আমরা কোন সাইডে করব এবং কেন করব????? উত্তর টা আমি দিচ্ছি। আমরা জানি Transformer এ দুইটা সাইড থাকে। একটা হলো LT(Low Tension/Low Voltage) Side এবং অন্যটা হলে HT(High Tension/High Voltage) Side। LT Side এ Voltage Low থাকে এবং Current High থাকে। HT Side এ Voltage High থাকে এবং Current Low থাকে। Current যেখানে কম থাকে সেইটা আমরা খুব সহজেই Control করতে পারি। অর্থাৎ, আমরা দেখতে পাচ্ছি যে, HT Side এ Current কম থাকে। আমরা HT Side কে সহজেই Control করতে পারবো।তাই আমরা HT Side এই Tap Changer ব্যবহার করব।

**Dept.of Electrical and Computer Engineering, North South University**

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| **Course Title: Power System Protection Course Code: EEE 462 Credit Hours: 3 credits** | |
| Prerequisite: EEE-362 | Contact hours: 3 hours/week |
| **Course Objective:** Switchgear basic information and different protector details. | |

**Course Contents:**

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| **Midterm (Total Mark: 20)** | | |
| **Segments** | **Course contents** | **Marks** |
| Seg-1 | 1. **INTRODUCTION TO SWITCHGEAR**.    1. **Introduction(V.K Mehta-Pdf-387)**    2. **Definition of Switchgear**    3. **Essentialities of Switchgear protection**   **+ Figure 1.1 (S. Rao)**   * 1. **Essential Features of Switchgear(V.K Mehta-Pdf-388)**   2. **Switchgear Equipment(V.K Mehta-Pdf-388,389,390)**   3. **Short Circuit(V.K Mehta-Pdf-393)**      + 1. **Causesofshort-circuitV.K Mehta-Pdf-394)**        2. **Effectsofshort-circuitV.K Mehta-Pdf-394)**        3. **Importance of short circuit current analysis**  1. **PROTECTIVE RELAYING**    1. **Introduction(V.K Mehta-Pdf-497)**    2. **Protective Relays(V.K Mehta-Pdf-498)**    3. **Functions of Protective Relaying Fundamental Requirements of Protective Relaying (V.K Mehta-Pdf-498,499,500)**    4. **Types of Protection(V.K Mehta-Pdf-519)**       * 1. **Primary Protection**         2. **Backup Protection**    5. **Types of Basic Relays(V.K Mehta-Pdf-519 + MTA Sheet**   **“Protective Relaying – Art. 1.8.1-1.8.7”/**  **Bakshi-28-30)**   1. **INSTRUMENT TRANSFORMER ( “Protective Relaying – Art. 1.10 – 1.17”/ Bakshi-34-40)** | 10 |
| Seg-2 | 1. **ELECTROMAGNETIC ATTRACTION RELAYS**    1. **Electromagnetic Attraction Relays classification(V.K**   **Mehta-Pdf-500)**   * + - 1. **Attracted Armature Type Relay**   **+ (Fig.2.5 -Bakshi–53)**   * + - 1. **Solenoid Type Relay**   **+ (Fig.2.7Bakshi–55)**   * + - 1. **Balanced Beam Type Relay**   1. **Advantages of Electromagnetic Attraction Relays**   **(Bakshi –57-Art.2.3.4 )**   * 1. **Disadvantages of Electromagnetic Attraction Relays**   **(Bakshi-57-Art.2.3.5 )**   * 1. **Application of Electromagnetic Attraction Relays**   **(Bakshi–57-Art.2.3.5 )**   1. **INDUCTION RELAYS**    * 1. **Mathematical Derivation of Torque Equation (V.K**   **Mehta-Pdf-501,502)**   * + 1. **Shaded-pole type induction relay(V.K Mehta-Pdf-**   **502)**   * + 1. **Watt-hour-metertype induction relay(V.K Mehta-**   **Pdf-503)**   * + 1. **Induction cup type induction relay(V.K Mehta-Pdf-**   **503)** | 10 |
| Seg-3 | 1. **Relay Timing (V.K Mehta-Pdf-504,505)**    1. **Instantaneous relay**    2. **Inverse-time relay**    3. **Definite time lag relay** 2. **Terminologies Used in Protective Relaying[Bakshi-30-Art.1.9 + V.K Mehta-505 + Math-21.1(V.K.Mehta-507) +Math-2.1,2.2(Bakshi-67,68)]** 3. **Functional Relay Types**    1. **Induction Type Overcurrent Relay (non-directional)(V.K.Mehta- 508)**    2. **Induction Type Directional Power Relay(V.K.Mehta-509)**    3. **Induction Type Directional Overcurrent Relay(V.K.Mehta-**   **510)**   * 1. **Thermal relay(Bakshi-75-Art.2.8)** | 10 |