

Course code VA-BTI 05

Course Title: Basic LV - Switchgear and Motor in coordination with **Siemens**

TARGET GROUP: Users, Commissioning / Service /Maintenance Engineers of Instrumentation / Electrical / Electronics Engineering

DURATION: 40 hours

Course Objectives:

1. Making participants familiar with SIEMENS Switchgear & motor system, Key features of the product

Course Outcomes:

1. Students will be able to do testing and fault diagnostics.

Training Methodology: Explanation, demonstration and hands-on practice.

COURSE CONTENTS:

Module	Details
1	Switchgear: Introduction to ACB + MCCB + SDF , Basic Concepts of fault level, current carrying capacity etc. Equipments used in LV network , Standards Definitions, · ACB – Concept, Rating, Fault Capacity, Protection , MCCB – Concept, Fault Capacity, Protection, SDF – Concept, Fault Capacity, Protection
2	Product Information : Where to use ACB / MCCB / SDF – Selectivity / Discrimination, Principle of selectivity and cascading Siemens range, ACB -3WL / 3WT , Range Overview, ETU Overview, Cubicle Bus, BSS , DI/DO , ZSI etc MCCB -3VL , Range Overview , ETU Overview, Cubicle Bus SDF -Range Overview , ·Installation guidelines of ACB, MCCB and SDF, Maintenance guidelines for ACB, Replacement, cleaning of contacts of ACB, · Modification and retrofitting accessories ACB , Fault Diagnosis, Troubleshooting ACB, Hands On Training ACB, Application example, Accessory Fitment ACB , Setting of ETU, Fitment ACB , Do's and Don'ts of ACB
3	Motor protection circuit breaker- why MPCB needs to be used Soft starter- overview of soft starter use · MCB · RCCB · Pushbutton & Indication Lamps
4	Motor Definition, meaning, History regarding invention, onstruction: Description of various parts & their significance in motor operation, operation, working principle & basic equations, · Speed Torque Characteristics, Effects of supply variations over , the motor performance, Transformer equivalent circuit of induction motor,

	<p>Efficiency of induction motor-Variou losses in the induction motor, Types of insulating materials used & their temperature ranges, Product spectrum of Siemens motor, Comparison of normal & inverter driven motor. Comparison of normal and energy efficient motor, Various reasons of high starting current of an induction motor & their effects on supply system.</p>
5	<p>Starters- DOL & star delta etc. · Soft starter – brief verview, VFD – brief overview, Advance control of induction , motor-SIMOCODE overview, Installation & commissioning guidelines, Maintenance guidelines, General faults in the induction motor & their countermeasures i.e. Leads Overheating, Vibration, Abnormal sound etc</p>