

DEVELOPMENT OF A SINGLE PHASE MOTOR
CONTROL INSTRUCTIONAL TRAINER

Design Project

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CONTROL INSTRUCTIONAL TRAINER**

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ABSTRACT

CONSTANTE, JOSHUA P. and MERCADO, NIKKO BRYAN L. Development of a Single Phase Motor Control Instructional Trainer. Undergraduate Designed Project, Bachelor of Industrial Technology, major in Electrical Technology. Cavite State University, Indang Cavite. May 2017. Adviser: Prof. Danielito R. Escaño.

One of the core field studies of Bachelor of Industrial Technology major in electrical technology students is the motor control, it is practiced in industries nowadays. Motor control topic is hard to learn and teach when there is lack of equipment and facilities to be used in demonstration. In this case learning process can be limited in this field. Motor winding also plays an important role in academic growth and excellence of the students.

This study aimed to create solution on the lack of equipment and facilities in the Electrical Technology Section of the Department of Industrial Engineering and Technology (DIET), to help instructors to deliver their lessons easy, to satisfy the needs of the student in information and give a practical demonstration and explanation of how motor control and winding works together.

The general objective of the study was to develop a single phase motor control instructional trainer for the benefits of Electrical Technology of Cavite State University. Specifically, it aims to design of a single phase motor control instructional trainer, construct a single phase motor control instructional trainer that will enhance the knowledge of electrical technology students, test and evaluate the developed single phase motor control instructional trainer for functionality, workability and efficiency, provide

laboratory manual and activities for the users and conduct cost and computation of the design project.

The study was constructed and developed in Sabang, Dasmariñas City, Cavite and Department of Industrial Engineering and Technology from February to March 2017 and evaluated at Electrical Technology Section under the College of Engineering and Information Technology.

The materials that used in the project design was canvassed and checked through online shopping. The researchers do search for the needed materials, and check its availability for the design project. The materials to be used were considered and analyzed where to buy the needed materials. Electrical and electronics supplies was bought directly from Raon St. Quiapo and Soler St. Sta. Cruz, Manila for a much cheaper cost. Electrical supplies were generated from other cheaper but reputable suppliers. The frame of the prototype was constructed in Pala-Pala, Dasmariñas City, Cavite. Angular bars was used of different dimension for the frame and marine plywood for the electrical components of the design project. The binding post, push-buttons, voltmeter, ammeter pilot lamps, magnetic contactor, overload relay and other related components was installed through soldering, use of bolts and knots for the stability of the components. Wiring connections of the motor uses properly installed to function correctly.

The operation of the project was basically included start and stop control with the connection of motor coil and winding. Voltmeter was needed to read the voltage was used in the motor. It is inserted in both line of main source of power on the board. Ammeter was used to measure the current running in the motor, it was placed between the beginning and ending of each winding. The start push-buttons actuates the coil of

magnetic contactor to make it functioning. When the stop push button was pressed it cuts the current of electricity that is flowing to the coil of the magnetic contactor to deactivate it.

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