

DEVELOPMENT OF AN ELECTRICAL CIRCUIT BOARD INSTRUCTIONAL TRAINER WITH COMMON TOOLS

Design Project

CEDIE A. CALDONA
BRYAN RICK P. PEÑALBA

College of Engineering and Information Technology

CAVITE STATE UNIVERSITY

Indang, Cavite

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**DEVELOPMENT OF AN ELECTRICAL CIRCUIT BOARD
INSTRUCTIONAL TRAINER WITH COMMON TOOLS**

Undergraduate Design Project
Submitted to the Faculty of the
College of Engineering and Information Technology
Cavite State University
Indang, Cavite

In partial fulfilment
of the requirements for the degree
Bachelor of Industrial Technology
Major in Electrical Technology



*Development of an electrical circuit board
instructional trainer with common tools*
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ABSTRACT

CALDONA, CEDIE A. and PEÑALBA, BRYAN RICK P. Development of an Electrical Circuit Board Instructional Trainer with Common Tools. Undergraduate Design Project, Bachelor of Industrial Technology Major in Electrical Technology, Department of Industrial Engineering and Technology, College of Engineering and Information Technology, Cavite State University, Indang, Cavite. Adviser: Mr. Danielito R. Escaño

The Electrical Circuit Board Instructional Trainer was designed to develop a training device that will be used by students and the instructors. One of the field of study of Bachelor of Industrial Technology major in Electrical Technology is the building wiring installation. The problem nowadays is the lack of equipment and limited knowledge in the field especially on the freshmen students that no knowledge about the connection and basic theory. The building wiring connection also plays an important role in academic role and to enhance the skills of the students.

The materials used in the design project was canvassed and checked through internet research because it has no idea on the price of the component and devices. 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 to choose were to buy the needed materials. Electrical and electronics supplies was bought directly from Raon St. Quiapo Manila. The frame of the prototype was constructed in Brgy. Harasan Indang Cavite using mainly of marine plywood for the different dimensions of the frame that is to be installed with electrical components and devices. Installation of the binding post, circuit breaker, pilot lamps, single switch, three way switch, four way switch and other related components installed through soldering, and use of bolts and knots for the durability of the components. Wiring connection of the switch devices and

lights will be properly installed for the correct function and operation of the circuit in the system.

The operation of the project is based on the basic connections of Building Wiring Installation, These are; Three way switch connection and Four way switch connection with one LED bulb and the theory of Series and Parallel connections with four Pilot lamps, using banana jack and banana plug to connect the terminals of the switches through the supply to make it functioning, it also have a indicator lamp when the circuit board trainer is energized to identify whenever the supply is on.

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Bryan Rick P. Peñalba

An undergraduate design project submitted to the Faculty of the Department of Industrial Engineering and Technology, College of Engineering and Information Technology, Cavite State University, Indang, Cavite in partial fulfilment of the requirements for the degree of Bachelor of Industrial Technology, major in Electrical Technology with contribution number CEIT-2016-17-2- 95 . Prepared under the supervision of Mr.Danielito R. Escaño

INTRODUCTION

New technologies for electrical wiring require new training systems. Innovations like the increasing use of planning software, bus technologies and networking are only some examples of how this profession is changing. Due to the utmost high demands placed on electrical trainees nowadays, there is a need for modern, practically oriented training systems. Giving trainees the ability to work on their own and in professional fashion is one of the key aims of any training. The new aspects involved in an electrical career and the change in orientation of the topics to be learned mean that more weight is being given to the practical side of training. The combination of new teaching media and experiment systems is also playing an ever-more important role, since self-guided learning via project work based on authentic practice gives the best grounding for teaching practical skills that will stay with students throughout their careers.