



TECHNICAL REPORT
ON
STUDENT INDUSTRIAL WORKEXPERIENCE SCHEME
(SIWES)
HELD AT

AL-BAR'KAH ELECTRICAL AND ELECTRONIC SERVICE
Shop 1, Little Beginner Preparatory School Lubcon Junction,
Ilorin Kwara State

BY

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SUBMITTED TO
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DEDICATION

I gratefully dedicate this SIWES report to Almighty God, the most awesome and merciful who gave me the uncountable opportunity to participate in the program. I also dedicate it to special people such as my parents Mr. and Mrs. Abdullahi.

ACKNOWLEDGMENT

I thank God Almighty for his mercy and grace that kept me all through my SIWES period. I am greatly indebted to my parents, Mr. & Mrs. Abdullahi for their morally, spiritually and financially, word of encouragement and prayer given to me, who make my SIWES programme successful and also my relatives and sibling.

PREFACE

The student industrial work experience scheme (SIWES) helps in exposing students to the practical application of their course and to get used to equipments and machines used in the factory. The SIWES was established to promote student skill in industrial practice and pre-expose them to working experience in industrial setting.

It is a partial fulfillment of a two year academic programme to obtain an OND certificate in Engineering. The report explains the description of work done.

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CHAPTER ONE

1.0 INTRODUCTION

The practical background of the Engineering Student industrial work is purposely set up in partial fulfillment of the requirement for the award of National Diploma (N.D) in Electrical/Electronic engineering. I fulfill my compulsory four months industrial training at International Institute Tropical of Agriculture.

The report comprises of my experience, knowledge and my involvement in the job during the course of my SIWES.

1.1 Definition of Siwes

SIWES means student industrial work experience scheme. It is a course by which students are exposed to practical training in their respective field of study. SIWES is the acceptable skill training programmes set up as the requirement for the award of National Diploma (ND) Certificate for studying engineering and applied science. Its effort is to bridge the gap existing between theory and practical aspect of engineering and some applied science.

1.2 Aims and the Objectives of Siwes

The following are the aims of student industrial work experience scheme (SIWES).

- It prepares student about the future work themselves

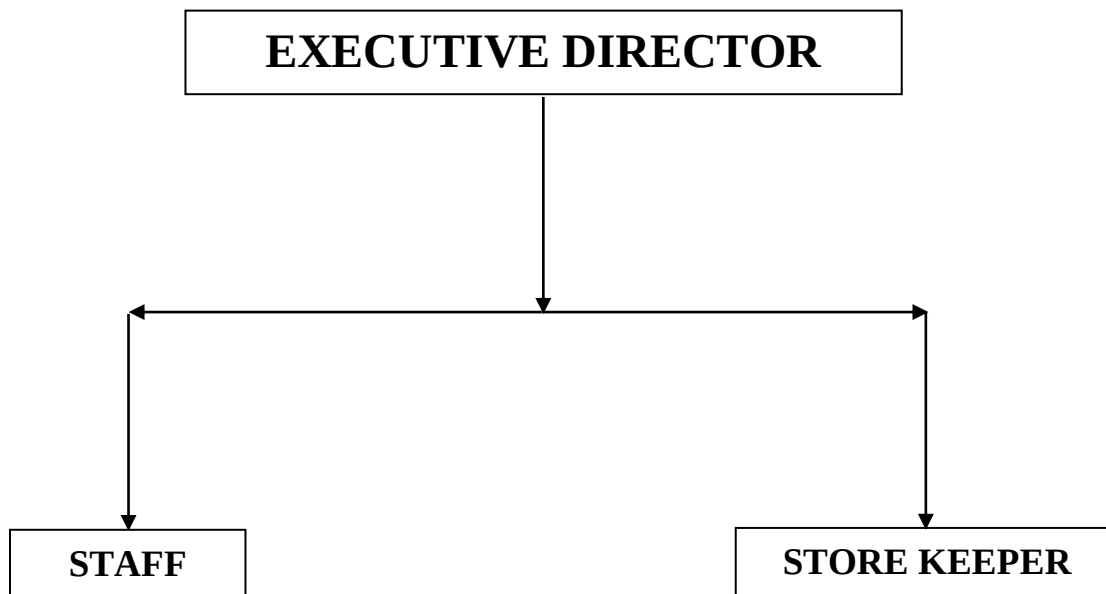
- It gives the experience and additional opportunity to know much about their field of study
- To make student to be practically oriented
- To provide a venue for student to acquired practical experience of their field
- To make student to know how to handle various machines and instrument that are not are available in their schools
- It prepares student towards the challenges they likely encounter in their field of study

CHAPTER TWO

2.0 Brief History of the Company

Al-Bar'kah Electrical And Electronic Service Shop 1, Little Beginner Preparatory School Lubcon Junction, Ilorin Kwara State, was established in January 13, 2018 till date the company deals with electrical installation, wiring of the house and solar panel both surface and conduit sales and installation of wooden and concrete pole.

2.1 Organization Structure Chart



CHAPTER THREE

EXPERIENCE GAIN DURING THE SIWES PROGRAM

3.0 What is a Rechargeable Lamp

In fact, a lamp is said to be rechargeable because it works thanks to a battery which must be responsible by an external power supply. Once fully charged, the lamp can be used without remaining connected to the power supply. Rechargeable lamps come in a variety of shapes and sizes.

3.1 What is the function of lamp in electrical?

A lamp is an energy converter. Although it may carry out secondary functions, its prime purpose is the transformation of electrical energy into visible electromagnetic radiation. There are many ways to create light. The standard method for creating general lighting is the conversion of electrical energy into light. Lamp, device for producing illumination, originally a vessel containing a wick soaked in combustible material and subsequently such other light-producing instruments as gas and electric lamps.

3.1.1 What are the 5 Key Elements of Lamp?

Components of LAMP™

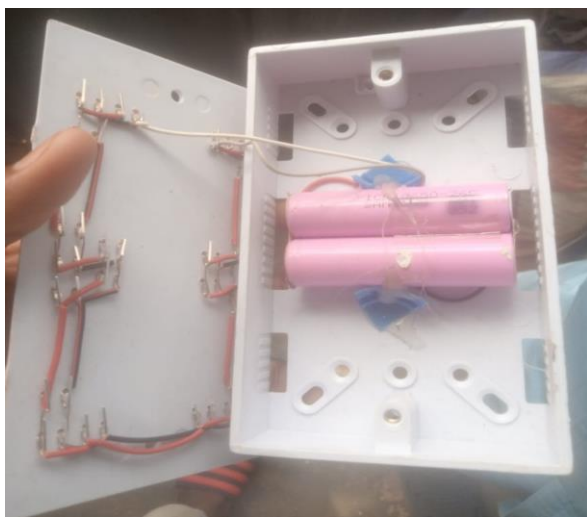
- Readiness to Learn. In order to learn, an individual must be in an arousal state compatible for attending and learning. ...
- Joint Engagement. ...
- Consistent and Unique Motor Patterns. ...
- Auditory Signals. ...
- Natural Consequences.



Image Switch of Lamp



12 Faces of 5mm Led Bulb Lamp



**Inner Connection of Lamp with Aid
using 3.7 Volt Battery, Diode 1Kv Resistor**



**Connection of 5mm Led Bulb with Naked
Wire**

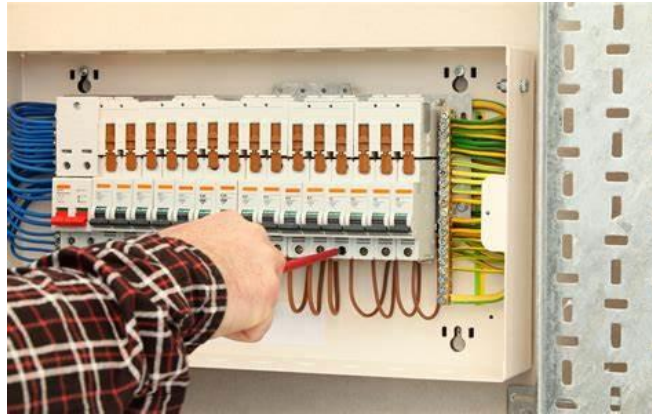
3.2 What is an example of a distribution board?

Distribution boards are used for different purposes in a building. For example, the main breaker panel is used for a residential or commercial unit. It is located downstream from the meter cable. In this configuration, the main breaker panel indicates the circuit amperage rating.

3.2.1 Types of Electrical Distribution Boards:

Here are several electrical distribution boards (also known as electrical panel boards) to pick from, depending on the appliance and requirements:

- **Fuse Boxes:** The first kind of DB board is a fuse box. A fuse box is a consumer unit that controls and distributes all of the electricity. It's important to know where your fuse box is situated in your home since, in the case of an accident, you'll need to quickly find it and switch it off to prevent a disaster. The key switch, circuit breakers, and residual current unit are the three components.



3.3 What is a Wire House?

Wirehouse is an anachronistic term used to describe large broker-dealers and securities houses. The term refers to a time when brokerage firms relied on dedicated telegraph (the wire) and telephone lines to make financial transactions and to monitor market prices.

How to Wire a House: Step by Step

1. Step 1: Locate and Mark Box Locations. ...
2. Step 2: Place Box on Your Frame. ...
3. Step 3: Drill Bore Holes for Running Your Cables. ...
4. Step 4: Thread the Cable Through the Holes. ...
5. Step 5: Cut the Cable to Length at the Box. ...
6. Step 6: Run Cables to Your Main Circuit Panel.

3.3.1 What are the Methods of House Wiring?

Types of Electrical Wiring for Your Home

- Casing & Capping Wiring. Casing and capping wiring, once widely used in older homes, involves running wires through a wooden or PVC casing with a cap on top. ...
- Conduit Wiring. ...
- Low Voltage Wiring. ...
- Cleat Wiring.

3.3.2 Introduction to the Lighting with 1.5mm² Single Wire Can you use 1.5 mm cable for lighting?

Lighting circuits are generally run in 1mm² two-core-and-earth cable, but particularly long circuits can use 1.5mm² cable to compensate for the drop in voltage experienced on long cable runs.

3.3.3 What amps can 1.5 mm cable take?

This is an important aspect of any wiring system because it determines the maximum load that can be connected to the circuit. For instance, a 1.5mm² wire has a standard current capacity rating of 10 amps (but it can carry up to 20 amps).

3.3.4 How much load can 1.5 mm wire take?

1.5 sq mm 3 Core Copper Cable Current Carrying Capacity:

These cables can safely handle 20A per conductor at a temperature of 30°C and have a 10A rating under normal operating conditions.

3.3.5 What is 1.5 mm wire used for?

The table below shows the current carrying capacity of 1.5mm twin and earth cable. This cable is mainly used for larger domestic lighting circuits rated at 10 AMP, This is also a common cable to use in shop and office lighting.



3.3.6 Why use 1.5 mm cable?

As well as occupying less space and costing less, 1.5mm makes it clear on inspection which cables are for mains, and which are for lighting. You would never need to use 1.5 square millimeter. The general rule is that if the breaker is 10 A you can use 1.5 square mm but if it is 16 A you need to use 2.5 mm²



CHAPTER FOUR

4.0 Safety in Electrical Installation

❖ Personal Safety

- i. Wear safety equipment like protective shoe, Goggle etc.
- ii. Wear glove when handling rough materials
- iii. Keep hair short or wear cap.

❖ Safety tools

- i. Use the correct tools for the job
- ii. Use a tools box for carrying the tools
- iii. Keep tools in boxes when not use

4.1 Electrical Tools that Every Beginner and Pro Electrician Needs

If you're a professional electrician you're probably on the lookout for the latest and greatest tools that can provide great results fast for all your electrical jobs. Most tools are easily available, but if you're in the electrical trade, you know that there are some **top quality branded tools** that can last for decades and other cheaper tools commonly known as 'throw away tools' that need to be replaced over and over again.

More often than not quality always prevails over price and choosing the right tools wisely, even if you're just starting out or want to build an electrical kit for home use will save you much time and headache in the long run. In this post we'll help you select some of the top tools that every home user, beginner or pro electrician needs in their tool-bag:



1. TAPE MEASURE

A must-have for beginners and pro electricians alike, a tape measure is essential for measuring heights for switch and outlet placement, centering lighting fixtures and so much more. For under \$15 we recommend **Lufkin self-centering tape**, clear-coated blade protection for more durable markings and designed to fit comfortably in hand.



2. MULTIMETER

Checking voltages and current is critical to any electrical job. A **multimeter** is an important all-in-one tester used to measure voltages, current and resistance in an electrical circuit and can help you locate power fluctuation causes like shoddy wiring. Klein Tools offers some budget and pro multimeters to suit your needs. For serious electricians we recommend the **Klein Tools MM5000 Electrician's TRMS Multimeter**.



3. SOLDERING IRON

A soldering iron uses high temperatures, usually generated by electricity, to heat metal alloys to their melting point, allowing the operator to join two pieces of metal to each other. Typically made from tin, this joining metal is referred to as solder.



4. PLIER

Pliers come in many types depending on what needs to be done. For example, side-cutting or diagonal pliers are specially designed for wire cutting. Their cutting edge goes to the tip of the pliers and comes in handy to trim wires in tight spaces. You'll also need a quality set of do-it-all pliers. These can cut wire, twist wires together using their squared off tip and grip and pull wire. We carry a **wide range of pliers** for any job at hand.



5. WIRE CRIMPER

Electrical issues are often difficult to trace down and quite often the issue might be intermittent and the result of a poor connection. A **wire crimp tool** is one of the best ways to repair wires causing faulty circuit connections. Investing in a good quality crimp tool ensures a long-lasting seal and will give you decades of reliable use.



6. SCREWDRIVERS

A quality **set of screwdrivers** can last forever. You'll need different types like the Phillips screwdriver for Phillips head screws, and a set of straight blade screwdrivers. There are a ton of options available including **electronic screwdrivers, magnetic**

screwdrivers for better grip, **mutli-tip screwdrivers** with interchangeable tips, **precision screwdriver sets**, pocket **clip-style screwdrivers** and more.

7. HAND DRILLING MACHINE

A small portable drilling machine resembling a breast drill but designed to be held and operated by hand. 2. : a primitive drill consisting of a shaft carrying a point of stone, bone, shell, or metal and revolved usually by the palms of the hands.



8. PATTRESS BOX

A pattress or pattress box or fitting box (in the United States and Canada, electrical wall switch box, electrical wall outlet box, electrical ceiling box, switch box, outlet box, electrical box, etc.) is the container for the space behind electrical fittings such as power outlet sockets, light switches, or fixed light



4.2 Types of Wire their Uses

- 1.5MM-lightening
- 2.5MM-lightening,sockets
- 4MM-cooker control unit
- 6MM-Air condition (AC), cooker control unit
- 10MM-supply to the Building

CHAPTER FIVE

5.0 CONCLUSION

The student industrial work experience scheme (Siwes) is an interesting and programmed that adds more value to students view and objectives of their field of studies.

More so, it adds advancement to the student experience on the theoretic aspect of their course, since they are exposed to the real practical aspect during the programmed.

Furthermore, it widens the horizon of student, because it makes them understand the rules and regulations governing their field of studies. This would guide them when they establish on their own

5.1 To the Suggestion and Recommendation Organization and Polytechnic Concerning the Siwes Program

SIWES coordinator and the polytechnic authority should try to stop the habit of rejecting students for SIWES program by the industry. The institution Supervisor should make it a priority to visit their designated students in the various organizations to update the student's log book.

Finally, they should resist the habit of staying in school and wait for their wards to finish the SIWES program only for them to sign their training log book and award them grade of the choices without checking the performance of the student in the field.