STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME [SIWES] INDUSTRIAL TRAINING REPORT

HELD AT

ADAM ELECTRICAL AND ELECTRONIC

WRITTEN BY

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MATRIC NO; ND/23/EEE/PT/0163

PRESENTED TO

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IN PARTIAL FULFILLMENT TO THE AWARD OF THE NATIONAL DIPLOMAL [ND] IN ELECTRICAL AND ELECTRONICS ENGINEERING

MARCH 2024

DEDICATION

This report is dedicated to Almighty God the creator and the finisher of our faith, the one who strengthen and spare my life to complete my SIWES programme. May his name be glorified forever? And to my lovely parent in person of Mr and Mrs folakan for their spiritual moral and financial support towards the completion of the programme.

ACKNOWLEDGEMENT

My gratitude and sincere appreciation goes to Almighty God for his guidance and protection over my family, also for the strength and wisdom granted to me throughout my SIWES programme.

I wish to express my profound gratitude to my SIWES supervisor and other lecturers in the Electrical and Electronics department.

I also give thanks to the Adam crew, starting from the owner of the company, Engineer Adam and my other colleagues.

I also appreciate the effort of my parent of Mr and Mrs folakan over me. I pray God will keep blessing them.

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CHAPTER ONE

INTRODUCTION

1.0 BRIEF HISTORY OF STUDENTS WORK EXPERIENCE SCHEME (SIWES)

SIWES is the accepted skill training programme which forms part of the approved minimum academic standards in the various degree programmes for all the Nigerian universities. It is an effort to bridge the gap existing between theory and practical of engineering and technology, science, agriculture, media management and other professional education programme in the Nigerian tertiary institutions.

The Students Industrial Work Experience Scheme (SIWES) was initiated in 1973 by the Industrial Training Fund (ITF). This was in response to the mandate given to the ITF through decree 47 of 1971, charging it with the responsibility of promoting and encouraging the acquisition of skills in the industry and commerce with the view to generating a pool of trained indigenous manpower sufficient to meet the need of the nation's economy. The Industrial Fund (ITF) introduced the scheme for employers to be involved in the entire educational process of preparing student for employment in our various industries with the vision "To be the foremost skills training and development organization in Nigeria and one of the best in the world" and mission "To set and regulate training standards and offer direct training interventions in industrial and commercial skills training and development, using a corps of highly competent professional staff, modern techniques and technology" The scheme is a tripartite programme involving the students, the universities and industries (employers of labor). It is funded by the Federal government of Nigeria and jointly coordinated by the industrial training fund (ITF) and the National Universities Commission (NUC)

1.1 AIMS AND OBJECTIVES OF SIWES:

The aim of SIWES is to put students through the labour market for them to apply and incorporate their classroom knowledge into the working practice of engineering and technology and other fields.

The objectives of SIWES programme include:

- The opportunity of being familiarized and exposed to the mode of work, handling of
- To impact practical method of performing professional functions to undergraduate of the tertiary institutions
- Provision of an enabling environment where student can develop personal attributes such as critical thinking, creativity, leadership, time management, presentation skills and interpersonal skill and other.
- It make student appreciate the roles of their professions which enable them be a creators of change and contribute to grow of the economy and national development.
- It make student to be aware of the work related problems and enable them to see how they can solve the difficulties them all them selves

1.2BENEFITS AND CHALLENGES OF SIWES

A. BENEFITS OF THE SCHEME (SIWES)

- It's gives opportunity for student to be in direct contract with junior, immediate and senior professional staff in the industry.
- There are several benefits derived from SIWES, some of which are:

- Its gives student opportunity of getting employment if such student if such student prove himself worthy of getting employed, and for the industries to evaluate the prospective employers.

- Successful SIWES operation provides the government the opportunity of reducing the importation of expatriate Engineers and professional personnel.

B. CHALLENGES OF THE SCHEME

i. Inadequate funding for the maintenance of the scheme by the Federal Government of Nigeria.

ii. Inadequate and ineffective supervision of students on attachment by staff of institutions and ITF either due to lack of mobility or delays in payment of supervision allowance to both the staff and students.

iii. Growing number of Higher Institutions increases the number of eligible courses and hence students while the relevant industries are either shutting down or lack the capacity to accept such numbers.

iv. Acceptance of students to institution only based on vacancy.

CHAPTER TWO

2.0 HISTORICAL BACKGROUND OF THE ORGANIZATION

Adam electrical and Electronic is located at no 17 Balogun area Abeokuta Ogun state

The organization was established in the year 1996 own by Engineer Adam Owoyemi

2.1 UNIT OF THE ORGANIZATION AND THEIR SPECIFICATION

i. Electrical installation

ii. Air conditional

2.2 TOOLS USED IN ELECTRICAL INSTALLATION AND THERE USES

FIXING TAPE: It is used to pull standard or solid wire through mutual PVC conduit

TAPE MEASURE: it is used to measure height for switches and outlets.

HAMMER: it is used to secure boxes equipped with nail on brackets studs in a home. Its also used to clip down wires in surface wiring.

VOLTMETER: it is used to check voltages and verify that circuits are indeed "live"

GLOVES: it is used to guide against electrical and mechanical damages to the body.

ALLEN KEYS SETS: it is used to lighted Allen headed screws in electrical works.

BLADE/KNIFE: it is used to cut the installation off the insulated wire.

STAR SCREWDRIVER OR (PHILLIPS SCREWDRIVER): it has a blade for installing star head screw. The tips look like a plus sign.

TESTER: it is a tool used to detect the flow of current in the system or in a cable and it comprises of three components inside which are the bulb, insulators and lead.

SOLDERING IRON: it is used for soldering of a panel with the use of the soldering bit.

PLIER: it is used for cutting, disconnecting or for remover of installation material like rubber from the conductor, it can also be used to hold material firmly in order to couple the material together. There are various types of pliers which are the Long Nose Pliers and Cutting Pliers.

2.3 ACCESSORIES USED IN ELECTRICAL INSTALLATION

Accessory is any device other than a lighting fitting associated with the wiring and current using appliance of an installation

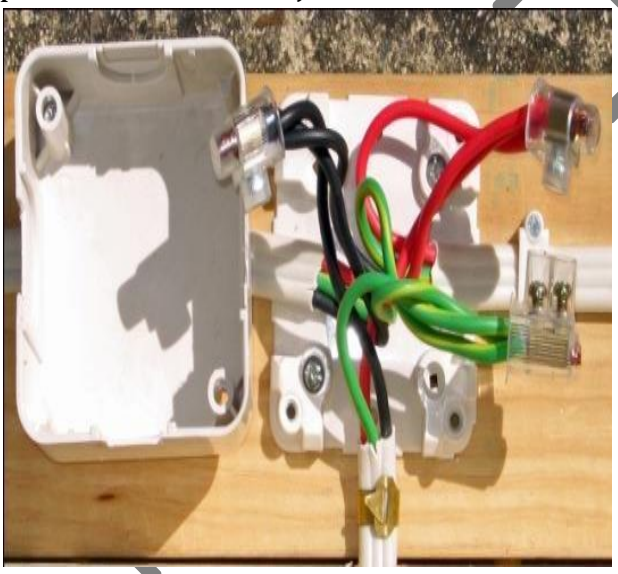
SWITCH: it's a device other than a fuse or circuit breaker for closing and opening a circuit. They are various types of switch they are one gang way switch, two gang one way switch, three gang one way switch, two gang two way switches etc.

LIGHTING FITTING: It is a device that contains a lamp or lamps together with any holder, shade or reflector, for example wall bracket fitting, lamp holder, a fluorescent.

JOINT BOX: it is a box connecting two or more length of conduit duct and trunking example T joint, U joint, Through box, etc.

CIRCUIT BREAKRS: It is a mechanical device for making and breaking a circuit both under normal and abnormal condition, such as those of a short circuit, the circuit being broken automatically.

JUNCTION BOX: It is a forming part of a wiring of an installation (usually surface) provided to contain joints in the conductor.



DISTRIBUTION BOARD: It is a device that all breakers switches are inside or device where all mains from each destination are being taped into.

SOCKET: It is a device that connect a plug or electronics device to electric circuit examples are, 13 amp socket, 15 amp socket etc.

CHANGE OVER SWITCH: It is a device that changes electrical supply from one main to other.

2.4 CABLES USED IN ELECTRICAL INSTALLATION

It is a length of insulated single conductor (solid or stranded) or two or more such conductor, each provided with its own insulation which are laid up together. The insulated conductor may or may not be provided with all overall covering for mechanical protections.

1.5mm (3029) wire: - this is used for lighting

2.5mm wire: - it is used for 13amp socket outlet

4mm wire: - it is used for AC and cooker socket outlet

10mm wire: - it is used for connection of meter or change over to distribution board

16mm wire: - it is used for connection of power supply from the electric pole to the meter.

CHAPTER THREE

3.0 ELECTRICAL WIRING SYSTEM

It is the installation of electrical wire from the mains [source] to the final consumer for utilization. This consists of conductor, insulator, and mechanical protection accessories and some of the various electrical power accessories used in the installation such as ceiling rose, socket switch etc.

When choosing a system of wiring for building there are some factors which are needed to be considered before the execution, such as :

- The neatness of the job
- Time required to complete the wiring
- The durability of the installation
- Future extension and alternation
- Damage to the building by cut away
- Cost of installation
- Special considered like dampness, flammable etc.

In electrical wiring system all the cables used should be well protected and insulated. All joints should be well twist and taped well to avoid partial contact.

3.1 TYPES OF WIRING SYSTEM

There are three types of wiring system commonly used in Nigeria. Namely:

1. Surface wiring system
2. Conduit wiring system
3. Trunking wiring system

3.2 SURFACE WIRING SYSTEM

This type of wiring system involve the use of PVC insulated cable which consist of 1,2 and 3 core cable laid up in flat formation with a close covering of through PVC as mechanical protection sense there is no metal sheet, a base conductor as in twin and earth cable will enclosed in the PVC sheet to serve as the earthling continuity conductor.

In surface wiring cables are always hold with clip and brass nail to the wall so as to hold the cable firmly to the wall. All wires that are coming from the distribution board meet in the junction box. Plastics pattress will be used for both sockets and switches so as to hold them to the wall.

3.3 ADVANTAGES OF SURFACE WIRING

1. It is less expensive
2. When fault occur, it can easily be trace.

3.4 DISADVANTAGES OF SURFACE WIRING

1. It is not neat
2. It can easily get damaged

3.5 CONDUIT WIRING SYSTEM

A conduit can be simply be defined as a tube or channel in which electrical wire are being passed to their destination.

3.6 TYPES OF CONDUIT WIRING SYSTEM

There are two [2] types of wiring system namely;

I. Full conduit

II. Half conduit

3.7 FULL CONDUIT

It is the type of conduit wiring system whereby PVC pipe are laid inside the wall and on the ceiling.

3.8 ADVANTAGES OF FULL CONDUIT

I. It is save

II. Full wire security

III. Shows a pleasing appearance when properly installed

3.9 DISADVANTAGES OF FULL CONDUIT

I. It is expensive

II. It is not easy to install

III. Too much wire expense

IV. Not easy to detect fault when faulty

3.10 HALF CONDUIT

It is the type of conduit wiring system whereby PVC pipes are only laid inside the wall, and there is explosive of cables inside the ceiling without a PVC pipe.

3.11 ADVANTAGES OF HALF CONDUIT

I. It is not expensive

II. It is easy to install

III. It is easy to detect fault when faulty

3.12 DISADVANTAGES OF HALF CONDUIT

I. Lots of wire are scattered on the ceiling

II. It is not reliable

3.13 TRUNKING WIRING SYSTEM

This is a system of conduits for cables or ventilation. It is also the use of the arrangement of trunk lines.

3.14 ADVANTAGES OF TRUNKING

I. A considerable numbers of cables can be run in it

II. It is expensive, but not up to conduit III.

It is Easy to install.

3.15 DISADVANTAGES OF TRUNKING

I. It is expensive than surface wiring

II. It is not suitable for flammable situation

CHAPTER FOUR

4.0 ELECTRICAL MAINTENANCE

Electrical maintenance is the upkeep and presentation of equipment and system that supplies electricity to a residential, industrial or commercial building. It may perform by the owner or the manager of the site or by an outside contractor. The work is commonly on schedule based on the building, the complexity of the electrical system or on as needed basis.

The main areas of the general electrical maintenance commonly include the power outlet and the surge protectors, generators, and lighting system. These supply sources are checked for the structural integrity as well as internal stability. The maintenance plan normally includes regular replacement of the burned out fluorescent and incandescent lights. Many building managers in recent years have refilled their light with energy saving bulbs and elements.

There are two types of maintenance in used, which are;

- PREVENTIVE MAINTENANCE
- CORRECTIVE MAINTENANCE

4.1 PREVENTIVE MAINTENANCE

This is also a general part of a building upkeep. This plan ordinarily includes the schedule inspection of large system and equipment by the technician. The purposes of this periodic assessment is to fix periodic wiring problem before they result into larger ones. This is particularly important in hospitals and factories that heavily rely on preventive systems for daily operations.

Electrical generators, switches and circuit breakers are regularly checked at fixed intervals to avoid operational failure but if flaws are discovered, technicians normally makes repairs, depending on the installation conditioned, the repairs are typically made by splicing wire together. In some situation, they are encased in metal tubing called conduit to protect them from wear.

These preventive methods are necessary to guarantee uninterrupted power suppl. They typically use a variety of hand tools, including hand drills, pillars wire cutters,

screw driver, knives, conduit bender [bending spring]. Voltage, ampere, ohm meter are commonly used in maintenance operations.

If these are specific areas of concern in a building electrical system, the maintenance crew may use specialized testing method and the equipment to isolate the problem.

4.2 CORRECTIVE MAINTENANCE

This is a maintenance task performed to identify, isolate and rectify a fault so that the failed equipment, machine or system can be restored to an operation condition within the tolerance or limits established for in-service operation.

Corrective maintenance also is a maintenance carried out after failure direction and is aimed at restoring an asset to a condition in which it can perform its intend function. it can also be sub-divided into immediate corrective maintenance in which work is destroyed in conformance to a given set of maintenance rules

4.3 SOME SAFETY PRECAUTION IN ELECTRICAL WORKSHOP

- Do not use pliers as hammers and screwdrivers as chisels
- Always use correct tools for the right job as incorrect tools used can result in accident
- Always keep your tools clean and neat after use
- Never toy or play with life wire for any reason
- Test the conductor polarity by means of a tester not by touching it ordinarily.

CHAPTER FIVE

5.0 CONCLUSION

The student industrial work experience scheme (SIWES) had contributed to my exposure and training in the field of electrical and electronic engineering.
The programme had also enabled me to put into practice the knowledge gained in the classroom with the actual industrial experience and to develop a critical and realistic approach to problems and their solutions in the electric field.

5.1 RECOMMENDATION

The Student Industrial Work Experience Scheme (SIWES) is very interesting and planned. This programme gives me more practical experience of what we have been taught in class because it deals with practical aspect of the field in which I specialized. Moreover, am using this medium to advice government to establish more company and pass the student to this company on their own.

Finally, industrial experience should be given priority by the government.