A TECHNICAL REPORT

STUDENT INDUSTRIAL WORKING EXPERIENCE SCHEME

(SIWES)

Held at

KWARA STATE MINISTRY OF ENERGY

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INSTITUTE OF TECHNOOLOGY

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INPARTIAL FULFILLMENT OF THE AWARD OF THE REQUIREMENT OF THE AWARD OF NATIONAL DIPLOMA IN ELECTRICAL AND ELECTRONIC ENGINEERING

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DEDICATION

I dedicate this technical report to the Almighty God, the giver of knowledge, wisdom and who is rich in mercy.

ACKNOWLEDGEMENT

To God be the glory for the great things he hath done. I acknowledge and give my profound gratitude to God the author and the finisher of author for the completion of my project work.

I appreciate my parent Mr. & Mrs. Odeon, and to all those who has helped me during my SIWES programme. The blessings, help and guidance given by them, time to time has carry me so his far and shall carry on the journey of life on which I am about to embark.

I also use this opportunity to express a deep sense of gratitude to compliment my mentor and supervisor for their cordial support valuable information and guidance which helped me in completing my SIWES through various stages.

REPORT OVERVIEW

This is a report of Industrial attachment (SIWES) programme carried out at MINISTRY OF ENERGY situated at 1, LAJORIN STREET, ILORIN Within the period of Four months. The report comprises the background of SIWES, the description of the organization, its aims and objectives, the experiences gained as an industrial training student and the summary, conclusions and recommendations. It has a total of 5 chapters with sub-chapters. It also has the preliminary pages, such as the title page, report overview and table of contents, Summary of the experiences gathered during the training, Problems faced and recommendations on the improvement of scheme.

TABLE OF CONTENTS

CHAPTER ONE

1.1 SIWES INTRODUCTION

The Students' Industrial Work Experience Scheme (SIWES) is an accepted skill training program which forms part of the approved minimum academe standard in various programs for all Institutions in Nigeria. It is an effort to bridge the gap in between theory and practical or Engineering and Technology, Science, Agriculture, Management and other professional educational program in the Nigeria Institutions.

1.2 GENERAL BACKGROUND OF SIWES

SIWES Was established by Industrial Training Fund (I.T.F) in 1973 to solve the problem of lack of adequate practical skills. SIWES is funded by Federal Government of Nigeria and operated by I.T.F, the coordinating Agencies; Nigeria Universities Commission (N.U.C), National Council for Colleges of Education (N.C.C.E), National Board for Technical Education (N.B.T.E). The beneficiaries of SIWES include; Undergraduate students of Agric Technology, Engineering, Environmental Sciences, Education, Medical Sciences, Pure and Applied Science. The duration for the program varies, thus: 4 months for Polytechnics & Education and 6 months for Universities.

1.3 OBJECTIVES OF SIWES

The Industrial Training Fund's Policy Document No 1 of 1973 outlined the following objectives;

- Provide an avenue for students in institutions of higher learning to acquire industrial skills and experience in their course of study.
- Prepare students for the industrial work situation they are to meet after graduation.
- Expose students to work methods and techniques in handling equipment and machinery that may not be available in their institutions.
- Make the transition from school to the world of work easier, and enhance students contact for later job placement.

CHAPTER TWO

2.1 LOCATION AND BRIEF HISTORY OF THE ESTABLISHMENI

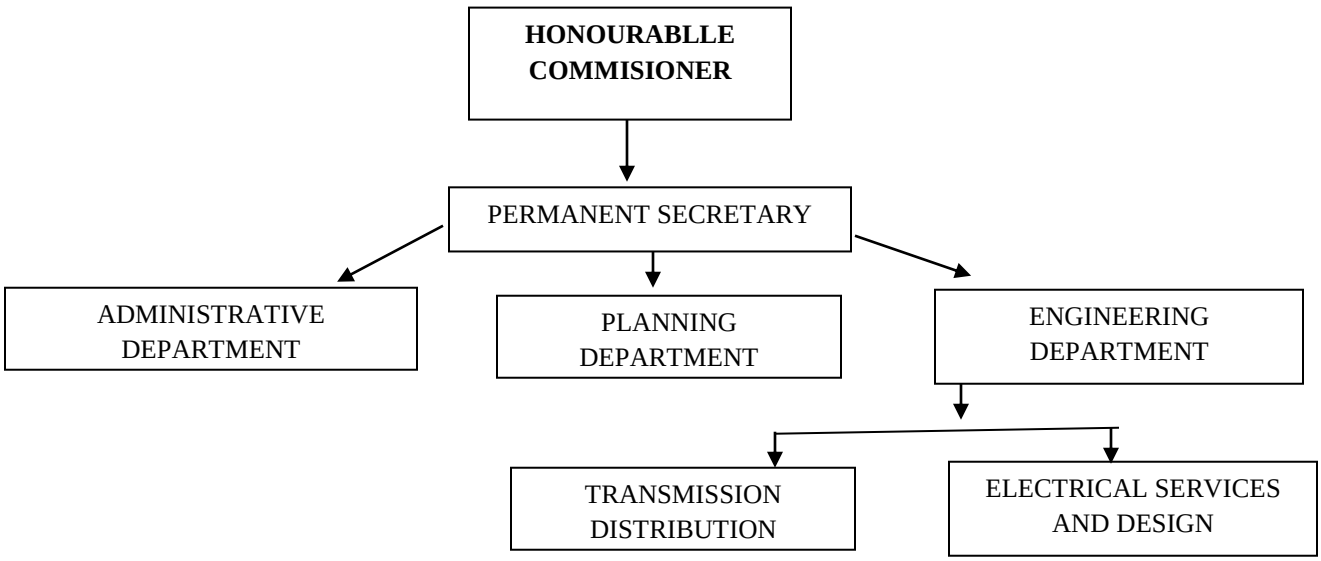
Kwara state ministry of energy is located at 1, Lajorin Street, Ilorin. It is the state government ministry, charged with the responsibility to plan, devise and implement the state policies on Energy. It manages, develop and conducts energy-related research The person in charge of such a department is known as Commissioner of energy.

The Ministry is in charge of conceptualizing. advocating, and establishing sustainable policies for energy planning in order to ensure that all Kwara citizens have access to reliable electricity.

2.2 AIMS/OBJECTIVES OF THE ESTABLISHMENT

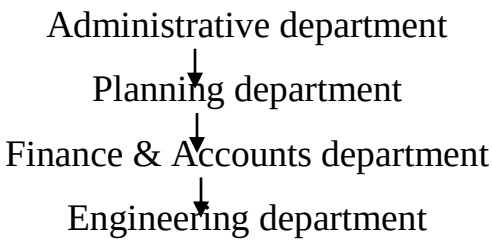
- To secure energy supply and address energy poverty ensure the affordability of energy for the public and energy security in Kwara state.
- To ensure reliable, adequate and sustainable exploration, management and utilization of energy and mineral resources in Kwara State.
- Strategise, promote and develop sustainable policies for energy planning to ensure access to and availability of reliable energy for all residents in the state

2.3 ORGANIZATIONAL STRUCTURE



2.4 FUNCTIONS OF VARIOUS DEPARTMENTS/UNIT

The station's departments are as follows:



Administrative Department: This is the department saddled with the responsibility of handling all administrative functions in the organization. It has the response of all the staff of the establishment, as well as keeping of files and document, welfares, organizing and supervising.

Department of Planning, Research and Statistics (PRS): is one of the common services Department and its mandates is to Coordinate and ensure implementation of Policies, Programmes and Projects of the Ministry are in line with the policy direction of Government.

Finance and Accounts department: The Department of Finance and Accounts is one of the core departments of an organization. It is responsible for the receipt, recording, custody and disbursement of the funds and for the maintenance of proper books of Accounts as well as preparation of the establishment Budget. The Department also exercises financial controls and management of the resources of the station to ensure internal checks and Fiscal discipline.

Engineering department: In this department they perform operations like Fabrication of Mechanical tools, products, poles etc., Production of Foundry items. Design, Construction and Rehabilitation of Street Lights, Relocation and Re- alignment of Power Transmission and Distribution Lines, and Transformer Sub-station

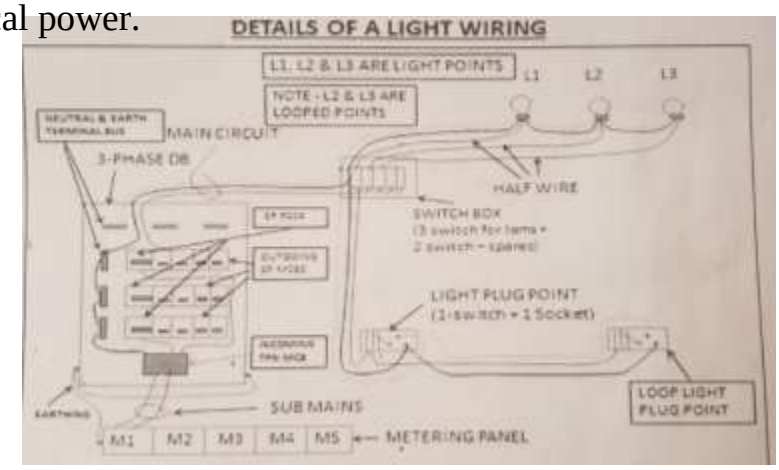
CHAPTER THREE

3.1 EXPERIENCES GATHERED DURING THE ATTACHMENI

INTRODUCTION TO ELECTRICAL SERVICES

It was really a remarkable occurrence to have conducted the SIWES Program at the Ministry. Adeguate lectures and practical exposure on Electrical services held at the Kwara State Ministry of Energy.

Electrical service refers to the conductors, materials, and equipment that transfer power from the utility system to the wiring system that supplies the subject property with electrical power.

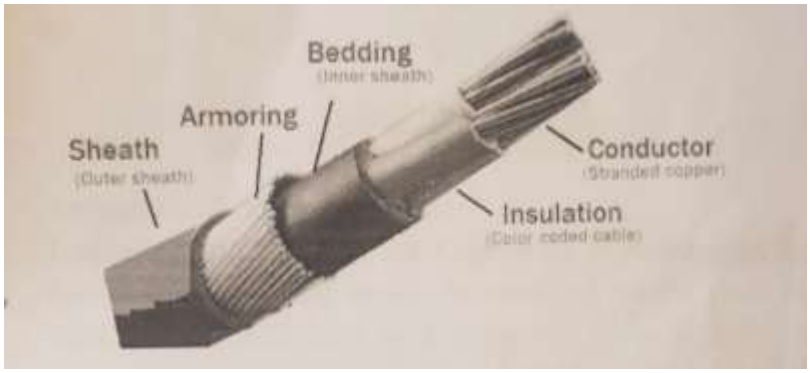


Part of the activities carried out during the stay at the Ministry is the identification of electrical cables, types.

An electrical cable: is an assembly of one or more wires running side by side or bundled, which is used as an electrical conductor. An electrical cable has the purpose of transporting electrical energy from one point to another. Depending on their final application, cables can have different configurations, always basing their design on national and international regulations.

Armoured cables: Good exposure to a cable type known as Armoured cables held at the Ministry; Cables with aluminium or steel reinforcement for installations with risk of mechanical aggression. It is also common to find armoured cables in places risk of

where rodents are present, as well as in installations in premises with a fire and explosion (ATEX)



TYPICAL IMAGE OF ARMOURED CABLE

The SIWES Supervisor delved into Electrical switches during the programme.

Electrical sockets and light switches are essential electrical components which is relevant to appliances connectivity in homes, industry, real estate, and offices. I was assigned to fix some damaged electrical switches, sockets in the ministry and this has become part of the knowledge the SIWES provided.

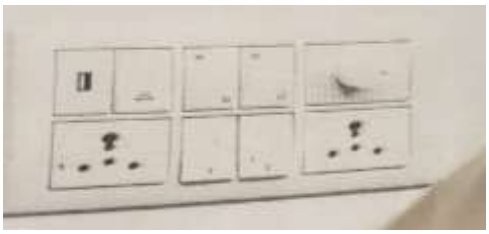


IMAGE OF A SOCKET

During the period of the Industrial training at the Ministry, I participated in the erection of wooden and Concrete poles for electrical distribution in a particular community.

CONNECTION OF DISTRIBUTION BOARD;

I equally participated in the Connection of distribution board; A distribution board (also known as panel board, breaker panel, electric panel, fuse box or DB box) is a component of an electricity supply system that divides an electrical power feed into subsidiary circuits while providing a protective fuse or circuit breaker for each circuit in a common enclosure.

It was learnt that Distribution board ensures the safety of occupants of the house by welcoming the protective element and cutting electrical circuits

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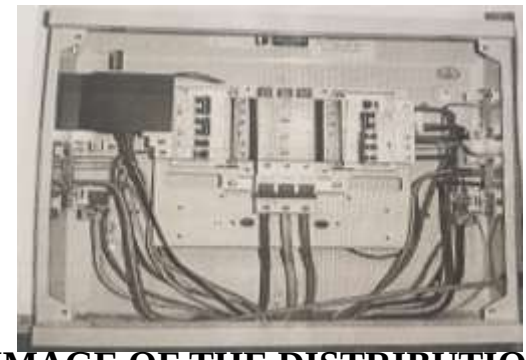

IMAGE OF THE DISTRIBUTION BOARD

TRANSFORMER

The Supervisor engaged me on transformer installation, illustration on how to step down high voltage in a transformer. I had a visit to a substation in the Ministry for a proper illustration. Also, a practical exposure on distinguishing between a STEP UP or STEP DOWN transformer. In electrical engineering, a transformer is a passive component that transfers electrical energy from one electrical circuit to another circuit, or multiple circuits. A varying current in any coil of the transformer produces a varying magnetic flux in the transformer's core, which induces varying electromotive force (EMF) across any other coils wound around the same core.

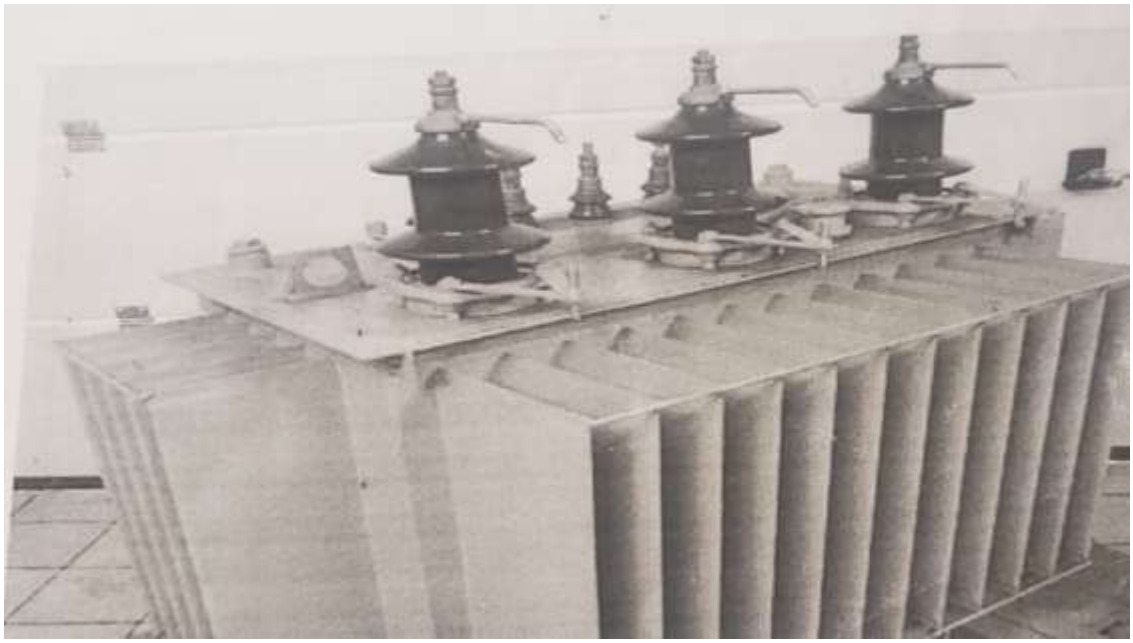

IMAGE OF A TRANSFORMER

CHAPTER FOUR

4.1 LESSON LEARNT DURING THR PROGRAMME

Conducting my SIWES program the Ministry of Energy has been an interesting experience as I was exposed to important thing.

I was introduced to different type of transformers such as step up and step down. I also learnt about the types in size which are 500kva, 300kva, and 100kva which depends on its application and load requirements. I learnt about how to determine the needed size of the transformer at which I also learnt that the transformer has two sides, which are the primary and the secondary side. I learnt about the two steps to be taken when mounting a transformer

I learnt about the feeder pillar which are of different size of 200A, 300A and 600A. I also get to know about the types of cable which are income and uprise cable and their connection and different sizes. From that, I learnt about Voltage and condition that must be met during connection.

I learnt about the high tension network which are of two types, 33kv and 11kv and also about the various material necessary To be used such as channel iron, stay, silicon pin. Insulator and tie strap pole. I learnt also about the channel angle iron and its types. I learnt about Earthing, how to put together the material for Earthing which are charcoal, animal dogs. Salt and water.

I learnt about seasoning which is about stabilizing the balance in current which involves two poles. I learnt about how it plays an important role in the operation, control ane safety of electrical power system. I also learnt about fault management and about how to identify issues quickly.

Furthermore, I learnt about CCTV installations, such as the meaning, material needed for installations which are Camera, power cord, cables, Cisco Switch Port, Power pouch UPS, Internet facilities and distances it could cover.

Also, I learnt about cabling, distribution boards and its phases. I learnt about switches connection and the different gangs it has for various connection methods

Lastly, I participated in carrying out repair and maintenance of damaged cables through digging and retrieving of burnt armoured cables and replacing them

CHAPTER FIVE

5.1 SUMMARY

With no doubt, an indelible experience has so far been gotten from the Students' Industrial Work Experience Scheme (SIWES), which has exposed me to the practical aspect of Electrical services, Light wiring, Various electrical cables, switches, sockets, : I have also seen the real setting of a Transformer and components attached.

Additionally, I have gotten adequate knowledge on Electrical distribution board.

Finally, the motive of the Industrial Training Fund for establishing SIWES had been satisfactorily met.

5.2 PROBLEMS ENCOUNTERED DURING THE PROGRAM

The success of my training is undisputed, but it was not devoid of rough edges. I experienced some challenges, among these are:

Problem of transportation; because my place of attachment was very far from my residence and I had to take different cabs before reaching the-destination without remuneration and also exposure to environmental hazard due to lack of safety gears

5.3 SUGGESTIONS FOR IMPROVEMENT OF THE SCHEME

1. Seminars should be organized for establishments to acquaint them with their roles towards students on training..
2. The government should ensure that token amount is being paid to the student in order to motivate and release the burden to transport fare being complained by students.
3. Government should participate fully in the provision of equipment at the placement centers.