A TECHNICAL REPORT ON

STUDENT INDUSTRIAL WORK EXPERENCE SCHEME (S.I.W.E.S)

UNDERTAKEN

MINISTRY OF AGRICULTURAL RURAL, KWARA STATE ILORIN DEVELOPMENT

BY

DAUDA MUTIAT MOTUNRAYO

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DEPARTMENT OF AGRICULTURAL AND BIO ENVIRONMENTAL ENGINEERING

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF NATIONAL DIPLOMA (ND) IN AGRICULTURAL AND BIO ENVIRONMENTAL ENGINEERING

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PREFACE

The industrial training experience is organized to introduce student to the practical aspect of their chosen course of study in their profession.

This programme is of immense importance to engineer student because it will give them a foresight of what will be encounter in their various investment in future, it is the moral aspect, creativity, level of attitude to work, relationship with other student, industrial work experience take care of all these.

DEDICATION

This report is dedicated foremost to God Almighty for his favor, mercy and grace upon my life especially during my 4 month SIWES programme at Ministry of Agricultural rural Kwara State Ilorin, Kwara State

I would also like to dedicate this report to my Parent **Mr. & Mrs. DAUDA** and My siblings for their love and support and everyone else that contributed towards making my siwes training fun and successful one.

ACKNOWLEDGMENT

I will like to give my profound appreciation and gratitude goes to Almighty God for his special love mercy over me, also the strength, power and prosperity given to me throughout the period of this training.

I will also extent my greeting to my industrial based supervisor and host of all staff in Agricultural and Bio Environmental Engineering and for the help of training given to me during the course of my training God bless you all (Amen).

I pray for almighty God to give you long life in order for me to be beneficent to you in future. (Amen)

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CHAPTER ONE

1.0 INTRODUCTION

This report is a conscious attempt in partial fulfillment of the requirement for the award of the National diploma. The aim is to know good material to be used for any construction project and the normal scale for any Agric And Bio Environmental Engineering.

It will tell us more about project execution and the material to be used, this will automatically make us to know whether to rely totally or partially on any executing project years ago, constructed building are easily and quickly goes out of existence (loose it standard) many structures collapse due to the fact that poor/bad materials used workmanship, earth movement of settlement of foundation.

The problems were said to have been caused by things, but the major cause of this problems is due to bad materials used and workmanship.

It has been discovered that this problems facing most of construction on project can be solve if our Engineers/constrictors can used quality not quantity of materials and supervised the workmanship very effective. It affords student of tertiary institutions the opportunity of being familiarized and exposed to the needed experience in handling machinery and equipment which are not available in the educational sector.

The industrial Training Fund (ITF) was set up under act No 47 of 1971 (as amended up to date) to promote and encourage the acquisition of the skills in industrial of the commerce with a view to generate a pool of indigenous trained manpower sufficient to meet of the economy.

Participation of SIWES has become a mandatory precondition for the award of diploma and degree certificates in specific disciplines in most Institutions with the education policy of government operator. The ITF, the coordinating agencies (NUC, NCCE,NBTE). Employers of labour and the institutions

I. **Funding:** The Federal Government of Nigeria.
II. **Benefiaries:** Under graduate students of the following Agriculture, Engineering, Technology, and Environment Scheme. Education, Medical Science and pure and applied Science

1.1 DEFINITION OF SIWES

Students Industrial Work Experience Scheme (SIWES) can be defined as the practical experience of student in order to have quality control and satisfactory performance, when in the field. 'SIWES' can be interest in a particular subject which is connected with the people and activities involves in producing a particular. Thing (industrial) by involving in a hard physical work rather than office work (work) in order to gain knowledge and skill through the job undergo for a period of time (Experience) under a system of organizing things (scheme).

1.2 HISTORY OF SIWES

Student industrial work experience established by industrial Training Fund (ITF) in 1993 to solve the problem the lack of adequate practical skills preparatory for employment on Nigeria industries.

The scheme exposes student to industrial based skill necessary for a smooth transition from classroom to the word of work.

Duration: Four months for polytechnic colleges of education and six month engineering students of the University.

1.3 OBJECTIVE OF SIWES

1. To improve the technology development of the country.
2. To help students to put into practice what they have learnt theoretically in school.
3. The scheme exposes students to industrial based skill necessary for a smooth transition from the classroom to the world of work.
4. To exposes the students and broaden their knowledge on the practical aspect of the course they are pursing in their various schools
5. To promote and encourage the acquisition of skills in industries and commerce with a view to generate a poor of indigenous trained manpower, sufficient to meet the needs of the economy.
6. To help to solve the problem of lack of adequate practical skill preparatory for employment in industries by Nigeria graduates of tertiary institutions.

CHAPTER TWO

COMPANY PROFILE (MINISTRY OF AGRICULTURAL RURAL KWARA STATE ILORIN DEVELOPMENT)

The Ministry of Agriculture and Rural Development in Kwara State, headquartered in Ilorin, is responsible for formulating and implementing agricultural policies aimed at enhancing food security, empowering farmers, and promoting sustainable agricultural practices within the state. The ministry focuses on providing rural farmers with access to modern agricultural innovations and resources to improve productivity. As of March 2025, Dr. Afeez Abolore serves as the Commissioner for Agriculture and Rural Development, leading initiatives to strengthen the state's agricultural sector. The ministry has launched programs such as the Kwara ADP Agro Input Fair to assist farmers in starting the planting season early and achieving successful harvests. In February 2025, the Kwara State Government established the Ministry of Livestock Development to focus specifically on livestock-related matters, indicating a strategic move to enhance governance and service delivery in this sector.

2.1 WORKS DEPARTMENT

The Ministry of Agriculture and Rural Development in Kwara State, Ilorin plays a crucial role in the development and implementation of policies aimed at enhancing agricultural productivity, food security, and rural development.

The Works Department at Ministry of Agriculture and Rural Development in Kwara State, consists of a team of Administration and Finance Team, Crop Production and Development Team, Livestock and Fisheries Team, Rural Infrastructure and Development Team, Forestry and Agroforestry Team.

Some of the key responsibilities of the Works Department at Ministry of Agriculture and Rural Development in Kwara State may include:

i. Construction and Maintenance of Rural Roads : Ensuring accessibility to farmlands and agricultural markets by constructing and maintaining rural roads, bridges, and pathways.
ii. Irrigation and Water Supply Systems : Developing and maintaining irrigation systems, boreholes, and water reservoirs to support farming activities and livestock rearing.
iii. Agricultural Infrastructure Development : Building and maintaining agricultural facilities such as storage warehouses, silos, processing plants, and farmers' markets.
iv. Maintenance of Farm Machinery and Equipment : Overseeing the repair and servicing of tractors, harvesters, and other agricultural machinery to ensure efficient farm operations.

v. Electrification of Rural Areas : Facilitating the installation and maintenance of electricity in rural farming communities to support mechanized farming and agro-processing industries.

The Works Department at Ministry of Agriculture and Rural Development in Kwara State plays a vital role in supporting the overall mission of the institution by providing and maintaining quality infrastructure that enhances the teaching, learning, and research environment for students and staff.

CHAPTER THREE

3.0 REPORT ON SIWES TRAINING

I. Land Survey
II. Irrigation And Drainage
III. Tractor Part
IV. Farm Power
V. Rice Productor And Uses Of Manual Method
VI. Component Of Tractor
VII. Component OF Bull Dozer
VIII. Water Application Method Under the irrigation system
IX. Measuring Type

i. Land Survey: Land surveying is the process of measuring and mapping a specific piece of land to determine its boundaries, features, and elevation. It is crucial for construction, real estate, land disputes, and legal documentation. A land survey ensures proper land division, prevents encroachments, and helps in planning infrastructure projects. Conducting a land survey involves several steps, including research, fieldwork, data collection, mapping, and documentation. The first step in conducting a land survey is research and preparation. Before heading to the field, surveyors must gather relevant documents, such as title deeds, land records, previous survey maps, and government regulations. Understanding legal requirements is essential to ensure compliance with local land laws. The purpose of the survey should be clearly defined, whether it is for determining boundaries, topography, construction planning, or legal disputes. Once the necessary information is gathered, the next step is reconnaissance and field inspection. The surveyor visits the land to identify existing boundary markers, natural landmarks, and physical features. This step helps in planning the best approach for data collection. Advanced surveying tools, such as GPS receivers, total stations, and theodolites, may be used for high-accuracy measurements. Control points are established to ensure that

the survey remains consistent and accurate throughout the process. Data collection is one of the most critical aspects of land surveying. It involves measuring distances, angles, and elevations using specialized instruments. In modern surveying, GPS technology is widely used to determine precise coordinates. Total stations, which combine electronic distance measurement with angle measurement, help in mapping large areas. Drones are also increasingly used for aerial surveys, providing detailed topographic information. For boundary surveys, property lines are carefully measured and compared with existing records. In topographic surveys, land features such as hills, rivers, roads, and buildings are documented.

ii. Irrigation And Drainage: Irrigation and drainage are essential agricultural practices that help in the management of water resources for optimal crop growth. Irrigation refers to the artificial application of water to the soil to support plant growth, especially in regions with insufficient rainfall. Drainage, on the other hand, involves the removal of excess water from the soil to prevent waterlogging and ensure optimal soil conditions for plant roots. Both practices are crucial for improving agricultural productivity, maintaining soil health, and managing water efficiently.

iii. Tractor Part: A tractor is a powerful agricultural machine used for plowing, tilling, planting, and hauling. It consists of several key components that work together to ensure efficient operation. Below are the major tractor parts and their functions

- Engine - The heart of the tractor, responsible for generating power to drive the machine.
- Transmission System - Transfers power from the engine to the wheels and other attachments.
- Clutch- Essential for controlling power transfer and stopping the tractor.
- Hydraulic System- Uses hydraulic fluid and pumps to lift or lower implements.
- Power Take-Off (PTO) - A rotating shaft that transfers power from the engine to external equipment like harvesters and mowers.
- Axles - Rear axles are usually stronger to handle heavy loads.
- Wheels and Tires - Designed for stability and efficiency on different terrains
- Braking System- Ensures controlled stopping and safety.
- Steering System - Helps maneuver the tractor easily.

- Fuel System - Stores and delivers fuel to the engine.
- Cooling System- Prevents the engine from overheating.
- Electrical System- Powers lights, ignition, and other electronic components.
- Exhaust System - Removes combustion gases from the engine.
- Hitch System - Allows attachment of trailers, plows, and other equipment.
- Operator's Cabin- Operator's Cabin - Provides a comfortable space for the driver.

iv. Farm Power : Farm power refers to the energy sources used to perform agricultural operations such as plowing, planting, irrigation, harvesting, and transportation. It plays a crucial role in modernizing agriculture by improving efficiency and productivity. Farm power can be classified into different sources based on its origin and application.

v. Rice Productor And Uses Of Manual Method : Rice production using manual methods is a traditional farming practice that relies on human labor and simple tools to cultivate, harvest, and process rice. While mechanized methods have improved efficiency, many small-scale farmers in developing regions still use manual techniques due to cost constraints and land accessibility.

vi. Component Of Tractor: A tractor is a powerful agricultural machine designed to perform various farming tasks, including plowing, tilling, planting, and hauling. It consists of several key components that contribute to its functionality and efficiency.

vii. Component OF Bull Dozer : A bulldozer is a heavy-duty earthmoving machine used in construction, mining, agriculture, and land clearing. It is designed to push, lift, and move large amounts of soil, debris, or other materials. The main components of a bulldozer include:

- Engine - Provides power to move the bulldozer and operate its attachments.
- Transmission System - Transfers engine power to the tracks or wheels.
- Tracks - Use continuous tracks for better stability and traction on rough terrain.
- Blade - The large metal plate at the front, used to push materials.
- Ripper - A claw-like attachment at the rear used to break up hard soil or rocks

viii. Water Application Method Under the irrigation system : Water application methods in irrigation refer to techniques used to distribute water efficiently to crops. These include surface irrigation, where water flows over the soil by gravity, making it suitable for

crops like rice and wheat. Drip irrigation delivers water directly to plant roots, minimizing wastage and improving efficiency. Sprinkler irrigation mimics rainfall by spraying water over crops, benefiting vegetables and cereals. Subsurface irrigation supplies water through underground pipes, reducing evaporation. Manual irrigation, using buckets or hoses, is labor-intensive but useful for small farms. The choice of method depends on soil type, crop needs, and water availability.

ix. Measuring Type : Measuring types refer to various methods and tools used to determine dimensions, volume, weight, and other physical properties in different fields. Common measuring types include linear measurement (using rulers, tapes, or calipers for length and distance), volumetric measurement (using measuring cylinders or containers for liquid and solid volumes), weight measurement (using scales and balances), and temperature measurement (using thermometers and infrared sensors). In land surveying, total stations, GPS devices, and theodolites help measure distances and angles accurately. Each measuring type is chosen based on precision requirements and the nature of the object or parameter being measured.

CHAPTER FOUR

4.0 Images Showing Practical Work and Steps on Site

IRRIGATION AND DRAINAGE

FARM POWER

COMPONENT OF TRACTOR

4.1 Impression about the organization

An impression about an organization is based on its structure, efficiency, and impact. A well-organized institution fosters professionalism, productivity, and a positive working environment. If the organization has clear goals, effective leadership, and good employee engagement, it leaves a strong impression of reliability and success. Additionally, organizations that prioritize innovation, teamwork, and customer satisfaction tend to be more reputable and well-regarded. Transparency, ethical practices, and community involvement further enhance the perception of an organization, making it a model for others in its industry.

4.2 Personal relationship with the organization

A personal relationship with an organization can be defined by experiences, interactions, and level of engagement within the institution. If you have worked, interned, or collaborated with the organization, your relationship may be professional, based on roles, responsibilities, and contributions. Positive relationships often involve mutual respect, learning opportunities, and professional growth, while challenges may arise due to management styles, policies, or work environment. A strong personal relationship with an organization can lead to career development, networking opportunities, and a deeper understanding of its goals and operations.

CHAPTER FIVE

5.0 CONCLUSION

This program has brought improvement to my field of study. The experience gained through this program is majorly based on substructure and superstructure works on a four bedroom- bungalow, this program has inspired me to have technical knowledge and practical aspect of what I have learnt in school.

I hereby forward my appreciation to the Rector and Director of the Institute, HOD of my Department, and Professional Lectures in my department including my colleague in training, friends and every member of my family for their support both moral and financial.

My prayer to you all is for God in his infinity mercy bless you and reward every of your endeavor abundantly .

5.1 RECOMMENDATION

As a result of difficulties experience during the Four months SIWES program, I will like to recommend the following changes;

- The Industrial Training Fund should make monthly allowance available for students, so as to put end to financial difficulties that may arise as a result of transportation problems.
- The Institution must confirm that each student partake in the Industrial Training program, by making sure that they pay every student a visit before the end of the program.
- The Institution and Industrial Training Fund should help the student to get the place of attachment, so that the program will commence as planned.
- Students on SIWES program should be posted or deployed to the Organizations, Department or Firms that are relevant to their Course of study, so that the sole aim of SIWES can be achieved.