A TECHNICAL REPORT ON STUDENT INDUSTRIAL TRAINING EXPERIENCE SCHEME [SIWES]

UNDERTAKEN AT:

AREE SURVEY NIGERIA LIMITED is located at:

ONIPETU OF IPETU PALACE, KWARA STATE

PRESENTED

By

OLANREWAJU BOLUWATIFE ADURAMIGBA

ND/23/SGI/FT/0067

SUBMITTED TO THE DEPARTMENT OF SURVEYING AND GEO- INFORMATICS

FACULTY OF ENVIRONMENTAL STUDIES, KWARA STATE POLYTECHNIC. ILORIN KWARA STATE.

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AN ORDINARY NATIONAL DIPLOMA (OND) IN SURVEYING AND GEO- INFORMATICS.

MARCH, 2025

CERTIFICATION

I, **OLANREWAJU BOLUWATIFE ADURAMIGBA**

with Matric number **ND/23/SGI/FT/0067** hereby certify that the information contained in this SIWES report were obtained as a result of my experiences during my 4 month SIWES programme at **AREE SURVEY NIGERIA LIMITED** in accordance with survey rule and regulations and departmental instructions. I therefore submit the report as a partial fulfillment of the requirements for the student work experience scheme requirements for KWARA STATE POLYTECHNIC ILORIN, KWARA STATE, student work experience scheme.

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DATE

(SIWES SUPERVISOR)

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DATE

(SIWES COORDINATOR)

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DATE

(HEAD OF DEPARTMENT)

SURV. A MAYOWA **DATE**

DIRECTOR, DIRECTORATE OF

INDUSTRIAL LIAISONS PLACEMENT

DEDICATION

This Siwes report is dedicated to my lovely supporter/guidance

MR & MRS OLANREWAJU

ACKNOWLEDGEMENT

Praises and thanks to the Almighty GOD for his showers of blessing throughout my Industrial Training period and for a successful completion. I would like to express my deepest and sincere gratitude to my training supervisor and management of **AREE SURVEY NIGERIA LIMITED** and other sectional heads in person of **SURV AREE MAYOWA.** . He has given me the opportunity to carry out this Industrial training; providing invaluable guidance throughout the training period. His supervision, vision, sincerity and motivation was deeply inspired me. I am extremely grateful for what he has offered me. I would also like to thank him for his friendship, empathy and great sense of humor.

Nevertheless, my profound acknowledgement will extend to my Head of Department of Surveying and Geo- informatics Kwara State Polytechnic and all other departmental lecturers for the advice, support and correction made to me while in the classroom, during practical and every time I need their assistance. I pray you all continuous to leave in good health and more promotion on your field sir and ma.

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CHAPTER ONE

1.0 INTRODUCTION

This report presents my experiences and achievements during my six-month industrial attachment at **AREE SURVEY NIGERIA LIMITED** The report provides an overview of the organization, its objectives, and the activities I was involved in during my attachment.

It also highlights the skills and knowledge I acquired during the period, including practical experience with surveying equipment, geospatial software, and project management techniques.

1.1 INCEPTION OF STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME

The Students Industrial Work Experience Scheme (SIWES) is a program that was established in Nigeria to bridge the gap between theoretical knowledge acquired in the classroom and practical skills required in the workplace. SIWES was initiated in Nigeria in 1973 by the federal government as a response to the need for practical exposure of students in higher institutions to real work environments. Its relevance in the education system cannot be over emphasized as it develops the student to become skilled and experience professionalism in the various disciplines. It enables students to appreciate the basic concept involved in their field of study. SIWES, which involves the university

authorities and the industrial sector, runs for 24 weeks for students in the fourth academic year in the universities. The scheme was organized by the federal Government and jointly coordinated by the Industrial Training Fund (ITF) and the Nigerian Universities Commission (NUC). The importance of the training scheme is justified as it is a research field, which enables students to be totally in- depth in finding the working culture, practice and tools in their various areas of specialization.

1.2 OBJECTIVES

The Students' Industrial Work Experience Scheme (SIWES) was created with the goal of fostering and supporting the development of skills in business and industry in order to create a pool of qualified native workers sufficient to meet the demands of the economy. Any industrial organization's most valuable resource depends on the technical proficiency of its workforce to operate and maintain its non- human assets and resources, which is why SIWES is required. According to the program's operational norms and guidelines, students are assigned to a structured environment (private or public), whose operations are related to their course of study. The purpose of this training time is to help students at different levels connect the theory they learn in class to real- world applications. According to the government's education policy,

CHAPTER TWO

2.0 DESCRIPTION OF THE ESTABLISHEMENT OF ATTACHMENT

AREE SURVEY NIGERIA LIMITED is a private surveying and geospatial services company located in Kwara State The company was established in 2020 with the aim of providing innovative and cutting-edge solutions in surveying, mapping, and geospatial consulting.

The company has a flat organizational structure, with a managing director at the helm. The managing director is supported by a team of experienced surveyors, geospatial analysts, and administrative staff.

Facilities and Equipment

AREE SURVEY NIGERIA LIMITED has a well-equipped office with state-of-the-art surveying and geospatial equipment, including:

- Total stations
- GPS receivers
- GIS software (ArcGIS, QGIS)
- Surveying software (Autodesk, Carlson)
- Computers and laptops

Services Offered

The company offers a range of services, including:

- Topographic surveys
- Boundary surveys
- GIS mapping
- Geospatial consulting
- Project management

2.1 LOCATION AND BRIEF HISTORY OF ESTABLISHMENT

AREE SURVEY NIGERIA LIMITED is located at:

ONIPETU OF IPETU PALACE, KWARA STATE

Brief History of Establishment

AREE SURVEY NIGERIA LIMITED was established in 2008 by **Surveyor AREE MAYOWA** a seasoned surveyor with Six (6) years of experience in the industry.

The company started as a small surveying firm providing services to local clients but has since grown to become a leading provider of surveying and geospatial services in [Kwara State]. Over the years, the company has built a reputation for delivering high-quality services and has worked on numerous high-profile projects in Industry

AREE SURVEY NIGERIA LIMITED is a private Survey firm. The company was established and legal registered under C.A.C corporate commission in the year 2019, the firm name has been in existences since seven year back. And the firm has fully involved in both government and privates survey job both in the state and outside the Lagos State.

The mandate of the ministry is primarily to formulate and implement the policies, programmes and projects of the Federal Government of Nigeria (FGN) with respect to road transport, highway construction and rehabilitation; highways planning and design monitoring and maintenance of federal roads and bridges nationwide.

2.3 OBJECTIVES OF ESTABLISHMENT

The primary objective of establishing **AREE SURVEY NIGERIA LIMITED** is to provide innovative and cutting-edge surveying and geospatial services to clients in various industries, including:

1. **Infrastructure Development** : To support the development of infrastructure projects, such as roads, bridges, and buildings, by providing accurate and reliable surveying and mapping services.
2. **Land Administration:** To assist in the management and administration of land resources by providing services such as land surveying, mapping, and GIS analysis.
3. **Environmental Monitoring**: To support environmental monitoring and management efforts by providing services such as GPS tracking, GIS analysis, and remote sensing.

4. **Professional Development** To provide training and development opportunities for surveying and geospatial professionals, promoting capacity building and skills development in the industry.

aims to become a leading provider of surveying and geospatial services in the region, known for its excellence, innovation, and commitment to delivering high-quality services.

Topographic Surveying

Geographic Information System Analysis

Digital Mapping and Street Guide Mapping

Drone Mapping and Analysis

Hydrographic Surveying

2.5 Departments and Units in the Firm

The following departments/section were operated and function well, they are:-

i Managing Director

ii. GIS Section

iii. Admin. Section

iv. Finance and Accounting Section

v. SIWES/IT Student Section

ORGANIZATION STRUCTURE

MANAGING DIRECTOR

↓

GIS SECTIONS

↓

ADMIN SECTION → FINANCIAL ACC.

↓

SIWES/ IT STUDENTS

CHAPTER THREE

Introduction to Setting Out in Surveying

What is Setting Out in Surveying?

Setting out in surveying is the process of transferring a design from drawings, plans, or digital models onto the ground, ensuring that construction elements are positioned accurately. It is a crucial step in civil engineering, building construction, and infrastructure development.

Surveyors use various techniques and instruments to mark key points, lines, and levels needed for foundations, roads, buildings, and other structures. Proper setting out ensures that the construction aligns precisely with the planned design, preventing costly errors and rework.

Importance of Setting Out

1. Accuracy and Precision: Ensures that all elements are correctly positioned according to the design.

2. Efficiency: Helps contractors work systematically, reducing delays.

3. Cost Reduction: Minimizes errors that could lead to costly modifications.

4. Structural Integrity: Ensures buildings and infrastructure are properly aligned, enhancing safety and durability.

5. Legal Compliance: Ensures construction adheres to regulatory requirements and property boundaries.

Basic Principles of Setting Out

Establishing Control Points: Permanent reference points (benchmarks) are set up using total stations, GPS, or traditional leveling instruments.

Marking Grid Lines: A grid is created on-site using pegs, ranging rods, or string lines to guide construction.

Checking and Verification: Frequent re-measurements are done to ensure accuracy.

Use of Coordinates: Surveyors use coordinate systems (e.g., UTM or local grids) to position elements correctly.

Common Methods and Equipment

Total Stations: For precise angle and distance measurements.

GPS Surveying: Used for large-scale projects requiring high accuracy.

Dumpy Levels & Theodolites: Used for height and angle measurements.

Measuring Tapes & Pegs: Traditional tools for marking positions.

Conclusion

Setting out is a fundamental process in surveying that bridges the gap between design and physical construction. By using precise instruments and techniques, surveyors ensure that projects are built accurately and efficiently. Proper planning, verification, and adherence to best practices are essential for successful setting out in any construction project.

AutoCAD and How to Use It

What is AutoCAD?

AutoCAD (Automated Computer-Aided Design) is a powerful software developed by Autodesk that is used for creating 2D and 3D drawings, designs, and blueprints. It is widely used by architects, engineers, designers, and drafters to create precise technical drawings for construction, manufacturing, and product design.

Key Features of AutoCAD

1. 2D Drafting and Drawing: Allows users to create floor plans, technical drawings, and schematics with high accuracy.

2. 3D Modeling: Enables the creation of 3D objects, surfaces, and solid models for visualization and analysis.

3. Layers and Annotation Tools: Helps organize drawings by using layers and adding dimensions, text, and symbols.

4. Block and Library Features: Users can create reusable symbols and import

libraries for efficiency.

5. Precision and Measurement Tools: Ensures accurate measurements with grid snapping, scaling, and coordinate input.

6. File Compatibility: Supports multiple file formats like DWG, DXF, PDF, and more for easy sharing and collaboration.

7. Customization and Automation: Users can create macros, scripts, and use AutoLISP for automated processes.

How to Use AutoCAD

1. Getting Started

Download and Install: Install AutoCAD from Autodesk's official website.

Launch the Software: Open AutoCAD and select the workspace (2D Drafting & Annotation or 3D Modeling).

Familiarize with the Interface: The AutoCAD interface includes the Ribbon, Command Line, Model Space, Layouts, and Toolbar.

2. Basic Drawing Commands

LINE (L): Creates straight lines between points.

CIRCLE (C): Draws circles by specifying the center and radius.

RECTANGLE (REC): Creates rectangular shapes.

POLYLINE (PL): Draws connected line segments.

ARC (A): Creates an arc between points.

3. Editing and Modifying Commands

MOVE (M): Moves objects from one location to another.

COPY (CO): Duplicates selected objects.

ROTATE (RO): Rotates objects around a base point.

SCALE (SC): Changes the size of objects.

OFFSET (O): Creates parallel copies of lines or shapes.

TRIM (TR): Cuts unwanted parts of objects.

EXTEND (EX): Extends lines to meet other objects.

4. Working with Layers and Annotations

LAYERS (LA): Helps organize objects by assigning colors and line types.

TEXT (T): Adds annotations and labels to drawings.

DIMENSION (DIM): Adds measurements for accuracy.

5. Saving and Exporting Drawings

SAVE (CTRL + S): Saves your work in DWG format.

EXPORT (PDF, DXF): Converts files for sharing or printing.

6. Introduction to 3D Modeling

EXTRUDE (EXT): Converts 2D objects into 3D.

REVOLVE (REV): Creates 3D objects by rotating a shape.

UNION / SUBTRACT: Combines or removes parts of 3D objects.

Summary of attachment activities

5.1 Problem Encounter during the program

The Student Industrial Work Experience Scheme (SIWES) is undoubtedly a crucial program for bridging the gap between classroom learning and practical experience. However, despite its many benefits, SIWES is not without its challenges. These challenges can significantly impact the overall effectiveness of the program and the experiences of the students involved.

Placement Issues

One of the most significant challenges of SIWES is securing relevant placements for all students.

This issue is particularly pronounced in regions with limited industrial activities or specific industries.

Students often struggle to find organizations that are willing to take them on for their industrial training. This can be a source of immense frustration and anxiety, especially for students who are eager to gain experience in their specific field of study.

Financial Constraints

Financial constraints pose another significant challenge for many students. The cost of transportation, accommodation, and other expenses during the industrial attachment can be burdensome. While some institutions or companies provide stipends, these are often insufficient to cover all expenses, leaving students to bear the additional costs.

5.2. Suggestions for the improvement of the scheme

5.3 Recommendation

The challenges of SIWES, from securing placements and ensuring quality training to financial constraints and inadequate supervision, can significantly affect the experiences and outcomes for students. These challenges highlight the need for better support systems, more effective collaboration between educational institutions and industries, and increased financial aid to ensure that students can fully benefit from the program. Addressing these issues can help make SIWES a more enriching and valuable experience, enabling students to gain the practical skills and confidence needed to excel in their