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

UNDERTAKEN AT:

THE OFFICE OF THE SURVEYOR GENERAL OF KWARA STATE iis located at: COMMISSIONER'S LODGE WAY,GRA ILORIN,KWARA STATE.

PRESENTED

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ND/23/SGI/FT/0081

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 AWARD OF ORDINARY

NATIONAL DIPLOMA (OND) IN SURVEYING AND GEO- INFORMATICS.

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CERTIFICATION

I, **OLANREWAJU ABDULSOMAD OLAWUNMI** with Matric number **ND/ 23/ SGI/ FT/ 0081** 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 **THE OFFICE OF THE SURVEYOR GENERAL OF KWARA STATE i**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 POLYTECHNICILORIN,KWARA STATE, student work experience scheme.

_____ _____

DATE

(SIWES SUPERVISOR)

_____ _____

__ DATE

(SIWES COORDINATOR)

_____ _____

___ DATE

(HEAD OF DEPARTMENT)

DEDICATION

This Siwes report is dedicated to my lovely parent

MR AND 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 **THE OFFICE OF THE SURVEYOR GENERAL OF KWARA STATE**

Nevertheless, my profound acknowledgement will extend to my Head of Department of Surveying and Geo- informatics, KWARA STATE POLYTECHNIC ILORIN 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

THE OFFICE OF THE SURVEYOR GENERAL OF KWARA STATE is a multi-disciplinary establishment, comprising of professionals and technical staff in surveying, Geo-information, Photogrammetary, Cartography, Printing, Photography, Carpentry and electrical works. It is responsible for the formulation and / or execution of policies and projects of the State on issues relating to Surveying, Mapping, Geo-Spatial information and General Land Administration and Management. It was upgraded and restructured into an Extra- Ministerial Department consisting of four (4) Departments namely; Mapping and Boundaries, Cadastral and Special Surveys, Geo-Spatial Information Systems and Administration and Finance in October 2009. The staff strength of the office is seventy made up of: Registered Professionals 07 Survey Officers 09 Technical Officers 19 Technical Assistants 02 Foremen (Chainmen) 10 Administration and Finance Personnel.

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 ESTABLISHMENT OF ATTACHMENT

In recognition of the role of surveying to all facets of human endeavors, the Kwara State Governor approved the upgrading and restructuring of the State Surveys Department of the former Ministry of Lands and Housing to an extra Ministerial Department as the Office of the Surveyor General of Kwara State in October 2009 in line with what obtains at the Federal level. The Department had earlier enjoyed Executive support of the State Government with the provision of the following among others; employment of several young graduates to boost the declining manpower situation of the Department; procurement of appropriate state of the art Digital Surveying Equipment and refurbishing of analog ones; establishment of a well furnished and equipped Geo Spatial Information Systems Labortory (GIS) in the Surveys Department; reconstitution of the Land Use and Allocation Committee with the Surveyors General as a member; production of Digital Topographic and other thematic Maps of Kwara State and acquisition of satellite imagery for three towns; fencing of the Premises of Surveys Department' renovation of the Office of the Surveyor General; purchase of a utility vehicle for Survey field operations and revision of State and Local Government Maps. It is hoped that the new status of the Department would enhance its performance, efficiency and service delivery.

Facilities and Equipment

The Office of the Surveyor General of Kwara State 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

THE OFFICE OF THE SURVEYOR GENERAL OF KWARA STATE is located at:

COMMISSIONER'S LODGE WAY,GRA ILORIN

Brief History Of Establishment

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

THE OFFICE OF THE SURVEYOR GENERAL OF KWARA STATE is a public Survey firm. The company was established and legal registered under C.A.C corporate commission in the year 2021, 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 Kwara 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.

2.2 OBJECTIVES OF ESTABLISHMENT

The primary objective of establishing **THE OFFICE OF THE SURVEYOR GENERAL OF KWARA STATE** 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

2.3 Departments and Units in the Firm

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

ii. Managing Director

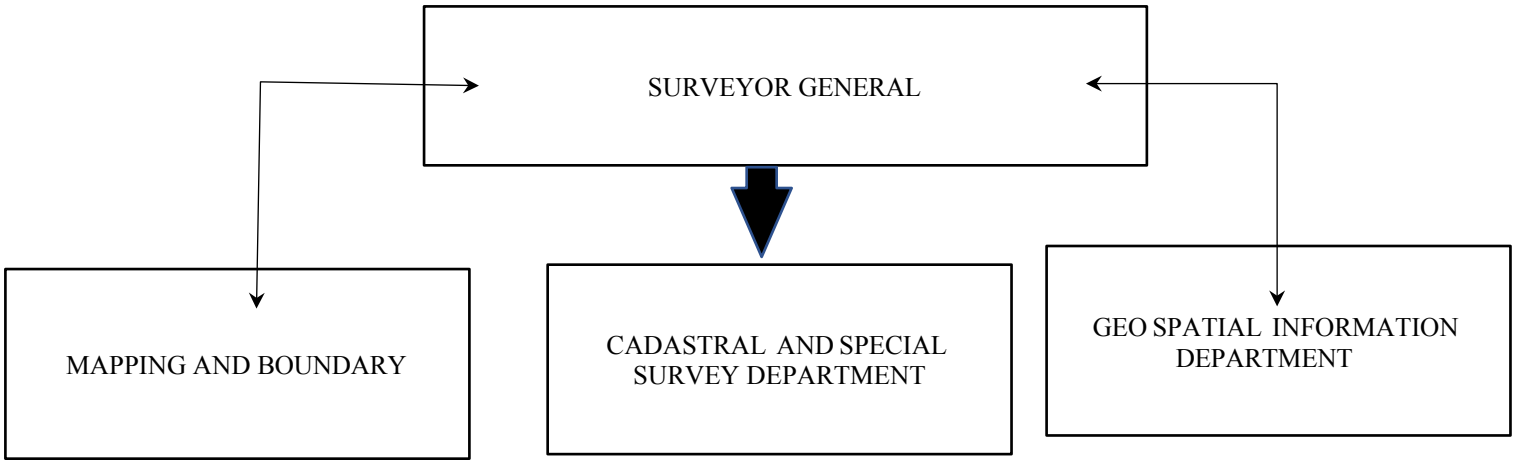
iii. GIS Section

iv. Admin. Section

v. Finance and Accounting Section

vi. SIWES/IT Student Section

ORGANOGRAM OF THE OFFICE OF THE SURVEYOR GENERAL OF KWARA STATE



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.

CHAPTER FOUR

INTRODUCTION TO AUTOCAD

What is AutoCAD?

AutoCAD is a computer-aided design (CAD) software used to create, edit, and view 2D and 3D models. In surveying, AutoCAD is used to create maps, plans, and drawings from survey data.

History of AutoCAD

AutoCAD was first released in 1982 by Autodesk, Inc. Since then, it has become one of the most widely used CAD software in various industries, including surveying.

Types of AutoCAD

1. AutoCAD: The standard version of AutoCAD used for 2D and 3D drafting and design.
2. AutoCAD Civil 3D: A specialized version of AutoCAD used for civil engineering and surveying applications.
3. AutoCAD Map 3D: A specialized version of AutoCAD used for mapping and geographic information systems (GIS) applications.

Uses of AutoCAD in Surveying

1. **Map Creation**: AutoCAD is used to create maps from survey data, including topographic maps, cadastral maps, and thematic maps.
2. **Plan Creation**: AutoCAD is used to create plans from survey data, including site plans, floor plans, and elevation plans.
3. **Drawing Creation**: AutoCAD is used to create drawings from survey data, including cross-sections, profiles, and details.
4. **Data Analysis**: AutoCAD is used to analyze survey data, including coordinate geometry, trigonometry, and spatial analysis.

Steps to Plot on AutoCAD

1. **Create a New Drawing**: Open AutoCAD and create a new drawing.
2. Set the Units: Set the units of measurement for the drawing.
3. **Create a New Layer:** Create a new layer for the survey data.
4. **Import the Survey Data**: Import the survey data into AutoCAD.
5. Create a New Block: Create a new block for the survey data.
6. Insert the Block: Insert the block into the drawing.
7. Scale and Rotate: Scale and rotate the block as necessary.
8. Add Text and Dimensions: Add text and dimensions to the drawing as necessary.
9. Plot the Drawing: Plot the drawing to a printer or plotter.

AutoCAD Tools and Commands

1. **Line Command**: Used to create lines in the drawing.
2. **Circle Command**: Used to create circles in the drawing.
3. **Arc Command**: Used to create arcs in the drawing.
4. **Polyline Command**: Used to create polylines in the drawing.
5. **Zoom Command**: Used to zoom in and out of the drawing.
6. **Pan Command**: Used to pan the drawing.
7. **Snap Command**: Used to snap to objects in the drawing.

AutoCAD Shortcuts

1. Ctrl+S: Save the drawing.
2. Ctrl+O: Open a new drawing.
3. Ctrl+N: Create a new drawing.
4. Ctrl+P: Plot the drawing.
5. Ctrl+Z: Undo an action.
6. Ctrl+Y: Redo an action.

Advantages of AutoCAD in Surveying

1. Improved Accuracy: AutoCAD improves the accuracy of survey drawings and maps.
2. Increased Efficiency: AutoCAD increases the efficiency of survey drafting and design.
3. Reduced Costs: AutoCAD reduces the costs associated with survey drafting and design.
4. Improved Collaboration: AutoCAD improves collaboration among surveyors, engineers, and architects.

Limitations of AutoCAD in Surveying

1. Steep Learning Curve: AutoCAD has a steep learning curve, requiring significant training and practice.
2. Software Costs: AutoCAD software can be expensive, especially for small surveying firms.
3. Hardware Requirements: AutoCAD requires powerful hardware, including high-performance computers and graphics cards.
4. File Compatibility: AutoCAD files may not be compatible with other CAD software.

AutoCAD Plotting Commands

1. PLOT: Plots the current drawing.
2. PLOTSTYLES: Manages plot styles.
3. PLOTTERMANAGER: Manages plotters and printers.
4. PLOTSCALE: Sets the plot scale.
5. PLOTPAPER: Sets the paper size.

AutoCAD Plotting Shortcuts

1. Ctrl+P: Plots the current drawing.
2. Ctrl+Shift+P: Opens the Plot dialog box.
3. Ctrl+Shift+S: Saves the plot as a PDF.

CHAPTER FIVE

5.0 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**

Based on my experience during the SIWES program, I propose the following suggestions to improve the scheme:

Better Supervision and Mentoring
- Assign experienced supervisors/mentors to guide students throughout the program.
- Regular meetings and feedback sessions to ensure students are meeting program objectives.

Enhanced Orientation Program
- Conduct a comprehensive orientation program for students before the commencement of the SIWES program.

5.3 Recommendation

There is no doubt that some students during their Industrial Training do not have the opportunity of being exposed or intentional do not attend SIWES PROGRAMED.Those external supervisors should be sent to the various industrial training attachment areas and centers to find out if the Industrial Training is suitable and functional.