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CHAPTER ONE

STUDENT'S INDUSTRIAL WORKSHOP EXPERIENCE SCHEME (SIWES)

INTRODUCTION

At the early stages of the development of education in Nigeria, there was a problem of the gap between theory and practical skills of students. Therefore, a need arose; the need to give students the opportunity to get real life work experience. It was created to give the students experience in addition to theoretical learning. The SIWES is a preliminary scheme of the Student Industrial Work Experience Scheme (SIWES). The program is working with such disciplines as engineering, medical science, natural science, technology, agriculture, education, environmental, applied science. It is very compulsory especially for those specializing in engineeri The Students Industrial Work Experience Scheme (SIWES) is a unit under the Rector. It was established in 2016. The Students Industrial Work Experience Scheme (SIWES) is a skills training programme designed to expose and prepare students of universities and other tertiary institutions for the Industrial Work situation they are likely to meet after graduation.

The Students Industrial Work Experience Scheme (SIWES), is the accepted training programme, which is part of the approved Minimum Academic Standard in the various degree programs for all Nigerian Universities. The scheme is aimed at bridging the existing gap between theory and practice of Sciences, Agriculture, Medical Sciences (including Nursing), Engineering and Technology, Management, Information and Communication Technology, and other professional educational programs in the Nigerian tertiary institutions. It is aimed at exposing students to machines and equipment, professional work methods, and ways of safeguarding the work areas and workers in industries, offices, laboratories, hospitals, and other organizations. It is a cooperative industrial internship program that involves institutions of higher learning,

industries, the Federal Government of Nigeria, the Industrial Training Fund (ITF), and the Nigerian Universities Commission (NUC).

HISTORY OF SIWES

SIWES was founded in 1973 by ITF (Industrial Training Funds) to address the problem of tertiary institution graduates' lack of appropriate skills for employment in Nigerian industries. The Students' Industrial Work Experience Scheme (SIWES) was founded to be a skill training programme to help expose and prepare students of universities, Polytechnics and colleges of education for the industrial work situation to be met after graduation. This system facilitates the transfer from the classroom to the workplace and aids in the application of knowledge. The program allows students to become acquainted with and exposed to the experience required in handling and operating equipment and machinery that are typically not available at their schools.

Prior to the establishment of this scheme, there was a rising concern and trend among industrialists that graduates from higher education institutions lacked appropriate practical experience for employment. Students who entered Nigerian universities to study science and technology were not previously trained in the practical aspects of their chosen fields. As a result of their lack of work experience, they had difficulty finding work. As a result, employers believed that theoretical education in higher education was unresponsive to the needs of labor employers. Thousands of Nigerians faced this difficulty till 1973. The fund's main motivation for establishing and designing the scheme in 1973/74 was launched against this context. The ITF (Industrial Training Fund) organization decided to aid all interested Nigerian students and created the SIWES program. The federal government officially approved and presented it in 1974. During its early years, the scheme was entirely supported by the ITF, but as the financial commitment became too much for the fund, it withdrew in 1978. The National Universities Commission (NUC) and the National Board for Technical Education (NBTE) were given control

of the scheme by the federal government in 1979. The federal government handed over supervision and implementation of the scheme to ITF in November 1984. It was taken over by the Industrial Training Fund (ITF) in July 1985, with the federal government bearing entire responsibility for funding.

OBJECTIVES OF SIWES

Provide an avenue for students in Institutions of higher learning to acquire industrial skills and experience in their respective courses of study.

Prepare students for the Industrial Work situation they are likely to experience after graduation.

Expose students to work methods and techniques of 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' networks for later job placements.

Provide students with an opportunity to apply their knowledge to real work situations, thereby bridging the gap between theory and practice.

Enlist and strengthen Employers' involvement in the entire educational process; thereby preparing the students for employment in Industry and Commerce.

CHAPTER TWO

Description of the establishment of attachment

Industrial attachment (also known as internship or field training) in Surveying and Geo informatics is an essential part of academic and professional training. It provides students and trainees with practical experience in the field, bridging the gap between theoretical knowledge and real-world application.

Industrial attachment is a structured program that allows students of Surveying and Geo informatics to gain hands-on experience in surveying firms, government agencies, or research institutions. The primary objectives are:

To apply classroom knowledge to real-world surveying and geospatial tasks.

To develop practical skills in land surveying, GIS, remote sensing, and geospatial data analysis.

To familiarize students with modern surveying equipment and software.

To enhance employability by providing exposure to industry standards and professional work environments.

Location and brief history of establishment

HISTORY OF JOL-MARKS COMPANY .

JOL-MARKS COMPANY is a survey company established and registered with C.A.C. in Sept. 2007 saddled with responsibility to carry out the business of Surveying & Geo informatics as professional practice. The company stated her operation office in 11, Muritala Mohammed Way, Ilorin as her Registered office. After the completion Post Office Over Head bridge, the company moved to 74, Gaa Akanbi Road, Ilorin, in 2009 due to lack of no available packing space for the our Clients again.

The Company is headed by a Registered Surveyor and Consultant, Surv. J. O. OPALEYE (Mnis) and has since involved in many survey contracts jobs including: Digital Mapping, Engineering Surveying, Cadastral Surveying, with many competent Staff ranging from Surveyors, Survey Assistants, Chainmen, Labourers, e.t.c.

We are equally assisting in Training some SIWES Students from various Universities and Polytechnics in Nigeria to-date. Some of our Equipment includes: DGPS, Total Station, Handheld GPS, Levels, Digital Theodolites, etc.

OBJECTIVE OF ESTABLISHMENT

The objective of establishment in Surveying and Geo informatics refers to the fundamental goals and purposes behind setting up surveying and geo informatics systems, institutions, or practices. It involves defining the reasons for conducting surveys, collecting geospatial data, and utilizing geo informatics technologies. Below are the full details of the objectives:

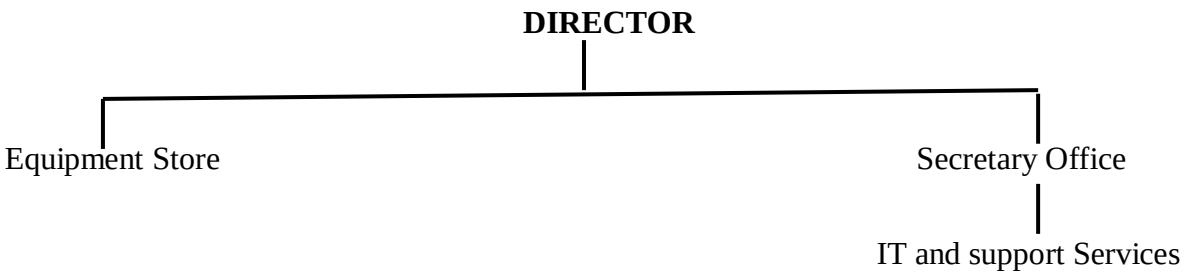
Accurate Determination of Positions

1. Establish precise locations of points on the Earth's surface using coordinate systems (latitude, longitude, elevation).
2. Provide reference points for mapping, engineering projects, and land management.

Land and Property Management

1. Support land administration, cadastral surveys, and property boundary delineation.
2. Aid in legal land ownership documentation and dispute resolution.

ORGANIZATIONS STRUCTURE (INCLUDING ORGANOGRAM) MANAGING



CHAPTER THREE

INTRODUCTION OF SURVEYING INSTRUMENT

Surveying instruments are essential tools used by surveyors, engineers, and construction professionals to measure and map land, structures, and other physical features. These instruments help in determining distances, angles, elevations, and coordinates accurately, making them crucial for land development, construction, mapping, and geospatial applications.

USES OF SURVEYING INSTRUMENTS

Surveying instruments are essential tools in various industries and applications where precise measurements are required. They are used to determine distances, angles, elevations, and coordinates for accurate mapping, planning, and construction.

Below are the key uses of surveying instruments:

1. **Land Surveying and Mapping**

   Used to create accurate topographic maps and boundary surveys.

   Helps in determining property boundaries for legal and ownership purposes.

   Assists in geospatial mapping for GIS (Geographic Information System).

2. **Construction and Infrastructure Development**

   Ensures accurate alignment and leveling of buildings, roads, and bridges.

   Helps in grading and excavation by measuring height differences.

   Used for structural monitoring, ensuring that buildings remain within safe limits.

3. **Road and Highway Construction**

Used to measure and set horizontal and vertical alignments for roads.

Helps in designing curves, slopes, and elevations for smooth road construction.

Ensures proper drainage system design by measuring ground levels.

TYPES OF SURVEYING INSTRUMENT

Measuring Tapes, Surveying Chains, Arrow, Peg, Ranging Rods, Plumb Bob, Spirit Level, prisms, Measuring Wheel, Surveying Chains, Arrow, Peg, Ranging Rods, Leveling Staff, Prismatic Compass, Surveyor's Compass, Theodolite, Total Station, GPS/GNSS,

SURVEYING INSTRUMENT

1. **Total Station**: This is an electronic/optical instrument used for measuring angles and distances. It integrates an electronic theodolite with an electronic distance measuring (EDM) device is a modern surveying instrument that integrates an electronic theodolite with an electronic distance meter.

2. **Theodolite**: A precision instrument for measuring angles in horizontal and vertical planes. It is commonly used in triangulation and leveling work. A theodolite uses a movable telescope to measure angles in both the horizontal and vertical planes.

3. **Level (Spirit Level or Dumpy Level):** Used to determine the height of points and to measure relative elevations. A theodolite can also be used as a leveling instrument.

4. **GPS (Global Positioning System):** Satellite-based technology that provides accurate location data for surveying over large areas. High-accuracy GPS receivers are used for geodetic surveying.

5. **Plumb Bob Laser**: Plumb Bob Laser Dot-plumb lasers are a type of laser level that projects a small dot onto a surface. These dots are used for transferring points from wall to wall or ceiling to floor. It's a handy tool for making sure a wall is plumb or even installing wall-to-wall.

6. **Prismatic Compass**: Prismatic Compass A prismatic compass is a navigation and surveying instrument which is extensively used to find out the bearing of the traversing and included angles between them, waypoints (an endpoint of the Closure) and direction.

7. **Prisms**: Prisms Optical Survey prisms are a specially designed retro reflector, specifically a corner reflector that is used to reflect the Electronic Distance Measurement (EDM) beam

from a total station. A survey prism reflects the EDM beam back to its source with both a wide angle of incidence and with high precision

8. **Leveling Staff**: A level staff, also called levelling rod, is a graduated feet and meter on aluminum rod, used with a levelling instrument to determine the difference in height between points or heights of points above a vertical datum. It cannot be used without a leveling instrument.

9. **Prism Pole**: Prism Pole A prism pole can be used to measure the elevation of a specific ground point by using a sight level, which is important if you want to get accurate results. You can find a survey pole in a variety of materials — from metal and fiberglass to a variety of composites.

10. **Tripod**: A tripod is a portable three-legged frame or stand, used as a platform for supporting the weight and maintaining the stability of some other object. It is used to give stability to other survey instruments as Total Station, Auto Level etc.

CHAPTER FOUR

CADASTRAL SURVEY

Introduction to Cadastral Surveying

Definition:-

Cadastral surveying is a branch of land surveying that deals with the establishment, re-establishment, subdivision, and documentation of land boundaries and property ownership. It provides accurate and legal records of land parcels to support land administration, property taxation, and land tenure systems.

PURPOSE OF CADASTRAL SURVEYING

Cadastral surveys serve several key purposes, including:

1. Defining Property Boundaries: Establishing precise land parcel limits for ownership and legal purposes.
2. Land Administration: Supporting land registration, title deeds, and property records.
3. Dispute Resolution: Resolving conflicts related to land ownership, encroachments, and boundary disputes.
4. Urban and Rural Development: Assisting in town planning, land use planning, and infrastructure development.
5. Taxation and Revenue Collection: Providing data for land valuation and property taxation

AIMS OF CADASTRAL SURVEYING

The primary aim of cadastral surveying is to accurately establish and define the boundaries of real property, including dimensions and areas, to legally document land ownership and facilitate property transactions by clearly delineating property lines between landowners, all while adhering to legal principles and respecting neighboring titles.

OBJECTIVE OF CADASTRAL SURVEYING

To determine the relative position of any objects or points on the earth.

To determine the distance and angles between various objects.

To prepare a map or plan to represent an area on a horizontal plane.

Involves determining existing and creating new property boundaries.

SCOPES OF CADASTRAL SURVEYING

Cadastral surveying encompasses the precise determination and mapping of property boundaries, including their dimensions and areas, to establish legal ownership and facilitate land transaction.

PROCEDURES OF CADASTRAL SURVEYING

A cadastral survey procedure involves: thoroughly reviewing existing documentation related to the land, locating all existing boundary markers and natural features, physically marking property boundaries on the ground using survey instruments, recording detailed measurements and data, and finally creating a cadastral map with precise property boundaries and legal descriptions to facilitate land ownership registration.

IMPORTANCE OF CADASTRAL SURVEYING

Cadastral surveying is crucial for effective land management as it provides precise information about property boundaries, ownership, and legal rights, enabling accurate land registration, property valuation, land taxation, and dispute resolution, ultimately facilitating smooth land transactions and minimizing land conflicts.

Key points about the importance of cadastral surveying:

Clear Property Boundaries: Accurately defines the exact boundaries of each land parcel, preventing disputes between landowners and ensuring clarity regarding property ownership.

Land Registration: Serves as the foundation for land registration systems, allowing for legal documentation of property titles and rights.

Property Valuation: Provides essential data for accurate property valuation, crucial for real estate transactions, taxation, and mortgage lending.

Land Taxation: Enables efficient collection of land taxes based on property size and location.

Urban Planning: Supports urban planning by providing detailed information about land parcels, aiding in zoning regulations and development projects.

Dispute Resolution: Helps resolve land disputes by providing clear evidence of property boundaries and ownership rights.

Economic Development: Promotes economic growth by facilitating secure land transactions, attracting investment, and enabling efficient land use.

Environmental Management: Can be used to identify sensitive ecological areas and support sustainable land use practices.

CHAPTER FIVE

SUMMARY OF ATTACHMENT ACTIVITIES

In summary, the period of our internal ship was intriguing, educating and tasking, from the working hours to the actual work carried out during the internship programme. It has desire to experience the field life. I had a feel of the real work experience and also had developed me in many areas especially my social, technical skills and increased my the opportunity to try out the practical aspect of the theoretical work I had been taught in the classroom till that point. Of the many important things I gained is the knowledge to write concise and detailed reports on any course of work/study.

PROBLEM ENCOUNTER DURING SIWES

During my SIWES, I encountered several challenges, including time effectively to meet

construction deadlines, working in adverse weather conditions, Fatigue and Physical Stress: Surveying often involves long hours of standing walking, or carrying heavy equipment and ensuring that safety measures were strictly followed at all times. These challenges provided valuable learning opportunities in problem solving teamwork.

SUGGESTIONS FOR IMPROVEMENT OF THE ATTACHMENT SCHEME

The industrial attachment (internship) scheme in Surveying and Geoinformatics is crucial for students to gain practical skills and bridge the gap between theoretical knowledge and industry demands. However, many attachment programs face challenges such as limited access to modern equipment, inadequate supervision, and a lack of structured learning objectives. The following suggestions aim to enhance the effectiveness of the scheme:

1. Enhancing Practical Exposure:

Increase hands-on training sessions with advanced equipment like total stations, GNSS receivers, LiDAR, UAVs (drones), and digital levels.

Ensure students participate in real-world projects such as cadastral surveys, engineering surveys, hydrographic mapping, and construction site monitoring.

Organize field visits to major infrastructure projects (roads, bridges, dams, pipelines) to expose students to practical applications of surveying.

RECOMMENDATIONS

The following will be recommend after I have successfully participated in 4 months SIWES program:

a. Regular seminar and workshop should be organized where student could be exposed to textbooks that student can fall on when they are going for industrial training exercise as

b. Organizations that accept student for the SWIES programme should provide conducive

c. As a matter of urgency, Tertiary institution should encourage scholars to write relevant well as writing report for SWIES programme in particular, and safe environment for students to learning in the course of training, the most effective method in industrial training procedures.