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As a faithful student of the prestigious citadel of learning KWARA STATE POLYTECHNIC, This report provides a detailed account of my Industrial Training (IT) experience as a Surveying and Geo-Informatics student at [KWARA STATE GEOGRAPHIC INFORMATION SERVICE (KW-GIS]. The training was conducted from [September] to [December] 2024, during which I was exposed to various practical aspects of what my field of study entails.

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CHAPTER 1; INTRODUCTION

1.1 BACKGROUND;

Industrial Training (IT) is an aspect of higher education that provides we the students with practical exposure to real-world work environment. The training bridge the gap between classroom theory and industry practice, ensuring a Development in technical and professional skills required in the field. Surveying and GEO-INFORMATICS is a practical field of study that requires a head-on experience and ensure that we acquire essential technical, professional, and ethical skills needed for a successful career in the field.

1.2. OBJECTIVES;

As a surveying and GEO-INFORMATICS student who wants to do well in this field, Industrial training prepares us for experiences. These objectives help ensure that valuable experience are gained and we become industry-ready professionals in this field of study;

✓Bridging the Gap Between Theory and Practice;

To apply theoretical knowledge gained in the classroom to real-world surveying and geospatial tasks.

✓Exposure to Modern Surveying Techniques and Equipment

✓To gain practical experience in using Total Stations, GNSS receivers, digital levels, drones (UAVs), and other surveying instruments.

✓To learn and apply software tools such as AutoCAD and other GIS and remote sensing applications for spatial data analysis and mapping.

✓Gaining Exposure to Various Fields of Surveying; To experience different areas of surveying such as geodetic surveying, hydrographic surveying, photogrammetry, remote sensing, and engineering surveys.

✓Prepare for Future Career Opportunities.

CHAPTER 2. DESCRIPTION OF ESTABLISHMENT.

2.1. LOCATION AND BRIEF HISTORY OF ESTABLISHMENT

kw-GIS

ADDRESS; Kwara State Geographic Information Service,

Commissioner's Lodge Way, GRA, Ilorin, Kwara State, Nigeria.

The Kwara State Geographic Information Service (KW-GIS) bill was passed into Law by the State House of Assembly and assented to by His Excellency, Mallam AbdulRahman AbdulRazaq in the year 2020, which by this Law, the Kwara State Urban and Regional Planning and Development Law No 13 of 2017 was repealed, making KW-GIS a Parastatal, which shall directly report to the Office of the Executive Governor of the State.

The State Government established the Kwara State Geographic Information Service (KW-GIS) as an Agency to provide modern and efficient land administration in Kwara State, improve land Administration, provision of modern equipment and other processes related to land with the use of technology and digital platforms.

2.2. OBJECTIVE OF ESTABLISHMENT;

The Agency is to ensure proper Administration and Management of Land and Building matters in the State as well as all issues relating to Titles, Registration, Searches, Physical Planning and Urban Development and other responsibilities as may be determined by the Executive Governor of the State.

1. Development and maintenance of a database of all Land within the State, particularly with respect to title history, location, size, use and other related data.

2. The Agency ensures that all developmental activities in the State are in line with the State Master Plan and are not altered by the citizens/and activities of citizens in order to promote growth and rapid development so as to have a viable, peaceful and serene environment for all and sundry in the State.

3. The digitalized record keeping.

4. Introduction, implementation and sustainability of best practices for Land ownership and title certification in the State. Among many others.

5. Development and maintenance of a geospatial information system or such approach system and structures for overall development,

research and land management.

6. Verifying applications for land rights.

2.3. ORGANISATION STRUCTURE;

KWARA GEOGRAPHIC INFORMATION SERVICE (KW-GIS)

The Agency as a system consists of four major Directorates which are: Directorate of Lands; Directorate of Urban & Regional Planning; Directorate of Physical Planning and Development Control and the Office of the Surveyor General.

Directorate of Lands: Manages land-related issues

Directorate of Urban & Regional Planning: Manages urban and regional planning

Directorate of Physical Planning and Development Control: Manages physical planning and development control

Office of the Surveyor General: Manages surveying.

2.4. VARIOUS DEPARTMENTS AND THEIR FUNCTIONS;

1. CARTOGRAPHY DEPARTMENT:

Thay are responsible for the design, creation, and production of maps and visualizations by taking raw geographic data and translating it into visually appealing and informative maps. I.e

(a). Data analysis and interpretation

(b). Map design and layout.

(c) Map production and dissemination

(d). Client consultation: It means collaborating with clients to understand their preferences and mapping need.

2. GIS DEPARTMENT;

They function to acquire, manage, analyze, and visualizing geospatial data to generate insightful maps and spatial information that can be used for decision-making across various industries, including urban planning, environmental monitoring, infrastructure management, and resource allocation.

(A). Data collection and input: Gathering geographic data from various sources like surveys, remote sensing imagery, and existing databases, then converting it into a usable format for GIS analysis.

(B). Data management and integration: Organizing and storing geospatial data within the GIS system, ensuring data consistency and accuracy by integrating different data layers.

3. RECORD UNIT:

They are in charge of keeping all incoming and outgoings files, Recording of files and keeping all documents.

4.

CHAPTER 3. REPORT ON WORK DONE AND EXPERIENCES GAINED.



During my SIWES training, one of the significant activities I participated in carrying out was the establishment of a permanent benchmark and the use of GNSS receivers for geospatial data collection. This process is essential in surveying and geo-informatics, particularly for land boundary demarcation, topographic mapping, and geodetic control.

The aim of this activity is to establish precise geodetic control points using Global Navigation Satellite System (GNSS) receivers. These control points serve as reference locations for future surveying activities, including mapping, land parcel delineation, and construction projects.

Equipment used- Base Receiver (on tripod), Rover Receiver (held by surveyor): This is a GNSS rover, which moves around collecting position data in real-time or through post-processing methods. It was indeed an experience that day, The base receiver gave us some issue that we have to go back to where it was positioned after walking miles away from it.

Survey tripod and Data Logger- handheld device or software used to record GNSS data and control the survey settings.

Now, The boundary pillar that was established at the site can simply be explained as Cadastral surveying because it is process of measuring, mapping, and recording land parcels for legal, taxation, and

ownership purposes. It ensures that each landowner knows the exact extent of their property and helps in preventing disputes.

PROCEDURES;

The base receiver was mounted on a tripod at a known reference point or a newly established control point.

The rover receiver was carried to different locations to collect position data.

A survey marker (Permanent Benchmark - IL PB 1452,(IL means ilorin))was embedded in the ground using concrete.

The marker contained an engraved identification number for referencing in survey records.

The control point coordinates, elevation, and site details were recorded in survey logs.

WHY ARE BOUNDARY PILLARS IMPORTANT IN CADASTRAL SURVEYING?

1. Physically mark land parcel limits.

2.Provide a reference for future land subdivision or sales.

3. Ensure government and legal recognition of land ownership.

4. Prevent disputes between landowners.

It sounds easy to say just boundary pillar buryinf but this was a job that took us hours! It was a while fun experience, Gained more insight, there was chance to ask questions and get rewards.

EXPERIENCE GAINED;

1.The pillar is partially buried with a portion exposed for visibility.

2.Concrete pillars are cast or pre-made pillars are used.

3.The pillar is labeled with a survey identification number.

4. A reference coordinate is assigned to the pillar using our GNSS. After that, we the surveyors ensures to records the coordinates of all installed pillars.

***I was able to see what a GNSS looks like and how its been used. That was my first time.

5. I learnt to persevere, and get the job done at all cost, There was a part of the land we couldn't access because it was so bushy, while I thought oh no way out, The supervisor came prepared with cutlass and alas! We started cutting down the bush just so we could get the job done. That was the highlight.

CHAPTER 4.

During my SIWES training, I was actively involved in engineering surveying, which plays a crucial role in construction, infrastructure development, and precise positioning. My tasks in this area included setting out, leveling, and data collection for engineering projects.

Engineering Survey Activities I Performed:

1. Setting Out Survey: I assisted in transferring design coordinates from a plan to the actual site.

Used total stations and GNSS receivers to mark positions for roads, buildings, and drainage structures.

2. Leveling and Elevation Measurement; Conducted differential leveling to determine height differences across a construction site.

Used leveling instruments to establish benchmarks for engineering projects.

3. Control Point Establishment; Helped in setting up and observing control points for construction layout.

4. Topographic Survey for Engineering Design; Collected field data for contour mapping and slope analysis.

5. 5. As-Built Survey; Conducted surveys after construction to compare completed structures with design plans.

Engineering survey plays a critical role in construction, infrastructure development, and land management. It ensures accurate measurements, proper alignment, and efficient project execution.

I gained practical experience in various aspects of engineering surveying, including fieldwork, data processing, and technical reporting. Below are the key skills and knowledge I acquired:

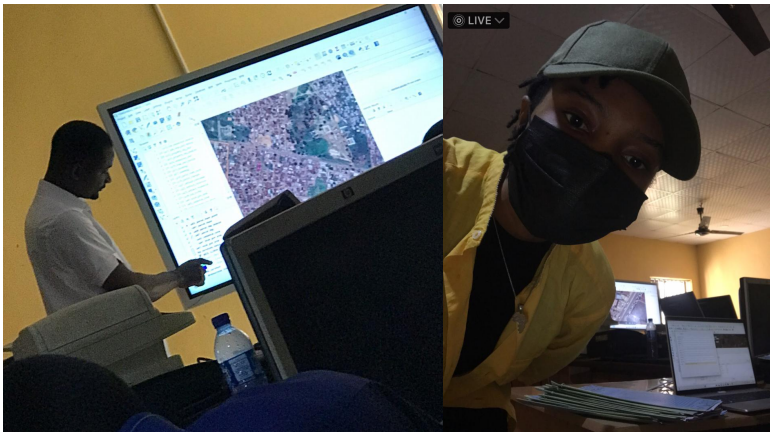
1. Total Station Operation:Learned how to set up and calibrate a total station for accurate angle and distance measurements.

2.Data Processing and Analysis; I gained valuable experience in handling survey data and using software tools for analysis: AutoCAD for Survey Plan Preparation

3. Technical Reporting and Documentation; My training also exposed me to the importance of proper documentation in surveying.

4. Teamwork and problems solving: If there's another thing I won't forget ffrom my training time is that I need people and team work get the job done faster!.

Another thing learned was how important knowing how to use software is in GIS, It makes works faster and less stressful.



I was able to join a professional class in the company where we learn how to make use of GIS (Geographic Information System) software.

I was also able to work in the CARTOGRAPHY DEPARTMENT;

The Cartography Department is responsible for the creation, design, and management of maps and spatial data. In a Surveying and Geo-Informatics setting, the department plays a crucial role in converting raw survey data into readable and usable maps. Watching the Cartographers draw map plans on sheets was such an experience, We were able to practice using a cardboard on my first attempt.

Below are some of the jobs carried out in cartography;

1. Map Printing and Publishing ;Preparing high-quality maps for printed publications, online platforms, and mobile applications.

2. Map Production and Design.

3. Software Used in the Cartography Department- AutoCAD Map 3D – For CAD-based cartographic design.

I was able to function really well under the software, using AutoCAD was a job for the interns and diees students it really helped in growing my knowledge as a surveying and GEO-INFORMATICS students who wants to chase the carrier.

CHAPTER 5.

5.1. SUMMARY OF ATTACHMENT ACTIVITIES;

During my SIWES at KW-GIS (KWARA STATE GEOGRAPHIC INFORMATION SERVICE) I was involved in various surveying and geo-informatics tasks, including GNSS surveying, control point establishment, and data processing using GIS software such as AutoCAD. I participated in engineering surveys, data digitization,cadastral survey.

I also gained hands-on experience with various surveying instruments, including total stations, theodolites, and GNSS receivers. The training provided me with a deeper understanding of fieldwork, bridging the gap between classroom theories and real-world applications. Learning in this environment was an invaluable experience, allowing me to apply my academic knowledge to practical projects.

5.2. PROBLEM ENCOUNTERED;

1. One of the problem encountered was transportation down to the place of work everyday due to distance, this was really q challenge but I was able to manage.

2. Limited Equipment Access- There were limited computers to use to practice or work on, majority of time when the siwes students wants to practice or work, one of the staff want to make use of the system, unless you have your own personal system, this will be a struggle.

3. Data Processing Complexity – Some datasets required extensive analysis, which was time-consuming and required extra guidance from supervisors.

4. Unfavorable Weather Conditions – Fieldwork was occasionally disrupted by bad weather, affecting the continuity of surveying tasks.

5.3. SUGGESTIONS, CONCLUSION AND RECOMMENDATION;

To enhance the SIWES program and improve the learning experience for future students, I propose the following recommendations:

1. Increase Equipment Availability – Providing additional surveying instruments and computers will allow siwes students to have more hands-on practicals.

2. Improve Logistics Support – Better arrangements for transportation to distant project sites will help students gain exposure to a variety of field environments.

3. Increase Supervisor Engagement – More structured mentorship and supervision will ensure students maximize their learning experience.

My SIWES experience at KW-GIS was an eye-opening and highly educational journey. The practical exposure to surveying techniques, GIS applications, and cadastral mapping reinforced my understanding of Surveying and Geo-Informatics. I developed technical skills, teamwork, and problem-solving abilities, which will be beneficial in my future career.

Although I faced some challenges, they provided valuable learning experiences that improved my adaptability and technical proficiency. I strongly believe SIWES is a crucial program for bridging academic knowledge with industry practices, and I appreciate the opportunity to have been part of this learning process as a student in this great citadel of learning, KWARS STATE POLYTECHNIC.

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