A TECHNICAL REPORT

ON

STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

UNDERTAKEN AT

MULTISERVE LIMITED

551, AINA AKINGBALA OMOLE PHASE II, OJODU BERGER, IKEJA,

LAGOS STATE

BY

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ND/23/ARC/PT/0010

SUBMITTED TO THE DEPARTMENT OF ARCHITECTURAL TECHONOLOGY INSTITUTE OF ENVIRONMENT STUDIES, KWARA STATE POLYTECHNIC, ILORIN KWARA STATE IN PARTIAL FULFILMENT OF AWARD OF ORDINARY NATIONAL DIPLOMA IN THE DEPARTMENT OF ARCHITECTURAL TECHNOLOGY

JULY –NOVEMBER, 2024

DECLERATION

I declare that this technical report of "student industrial work experience scheme (SIWES) is an original work by me under the supervision of Department of Architectural Technology Kwara State Polytechnic, Ilorin.

DEDICATION

This report is dedicated to God for His enabling strength he bestowed on me, giving me knowledge and understanding with the grace of getting through with the Four (4) months Student Industrial Work Experience Scheme (SIWES) training.

This is also dedicated to my parent Mr. and Mrs. MUHAMMED, siblings, friends, and BTI Architectural Studio.

CERTIFICATION

I certify that **MUHAMMED ADIJAT OPEYEMI with Matric No: ND/23/ARC/PT/0010** of Institute of Environmental Studies, Department of Architectural Technology, Kwara State Polytechnic, Ilorin. Carried out is long essay under my supervision.

ACKNOWLEDGEMENT

I am grateful to God the sole provider of knowledge, Wisdom, Love, Mercy and Grace for his protections on embarking and completing the program.

I also appreciate space and form and their entire of the firm who offered me timely criticism and corrections that led me through the various steps and stages during the program.

I appreciate my parents, Mr. and Mrs. MUHAMMED, My siblings and friends for their unquantifiable love and financial assistance during this period. May God bless us and reap the fruit of our labor.

Moreover, I express my profound gratitude and immense thanks to all my lectures, who are worthy of emulation. I hereby pray to ALMIGHTY GOD to crown their effort with is abundant blessings and continue to elevate their status to the highest position both in like ten and hereafter

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CHAPTER ONE

1.0 INTRODUCTION:

1.1 BRIEF HISTORY OF SIWES

SIWES was established by Industrial Training Fund (ITF) in the year 1973 to serve the problem of lack of adequate practical skills preparatory for employment in Industries by Nigeria Tertiary Institutions graduates The scheme educates student on industrial based skill essential for a smooth transition from the classroom to the world of work. Students of tertiary institutions is given the opportunity of being familiarized and exposed to the needed experience in handling machinery and equipment which are usually not available in the educational institutions parking in SIWES industrial training has become a crucial precondition for the award of diploma and degree certificates in specific disciplines in most institutions of higher learning in Nigeria in line with government education policies.

1.2 DEFINITION OF SIWES;

Student Industrial Work Experience scheme is a program organized by the federal government of the students to partake in two (2) months industrial training based on the course of study.

1.3 **OBJECTIVES OF SIWES**;

Expose student to work methods and techniques in handling equipment and machinery that may not be available in the institution.

Provided avenues for students to acquire industrial skills for experience during their course of study.

Provided student with the opportunities to apply their educational know in real work situation, thereby bringing the gaps between theories for practice.

1.4 Safety Rules and Regulations

Building Codes and Standards

1. International Building Code (IBC): A model code that sets minimum safety standards for building design and construction.
2. International Residential Code (IRC): A model code that sets minimum safety standards for one- and two-family dwellings.
3. Americans with Disabilities Act (ADA): A federal law that requires buildings to be accessible to people with disabilities.
4. National Fire Protection Association (NFPA): A non-profit organization that develops and publishes fire safety standards.

Fire Safety

1. Fire-Resistant Materials: Use of fire-resistant materials for building construction, such as fire-resistant wood and gypsum board.
2. Fire Suppression Systems: Installation of fire suppression systems, such as sprinkler systems and clean agent systems.
3. Fire Alarm Systems: Installation of fire alarm systems, including smoke detectors and pull stations.
4. Means of Egress: Provision of safe and accessible means of egress, including stairs, elevators, and exit doors.

Accessibility

1. Ramps: Provision of ramps for accessible entry and circulation.
2. Elevators: Installation of elevators that meet accessibility standards.
3. Accessible Restrooms: Provision of accessible restrooms with grab bars, lowered sinks, and emergency alarms.
4. Clear Floor Space: Provision of clear floor space for wheelchair maneuverability.

Structural Safety

1. Load-Bearing Capacity: Design of buildings to withstand loads from gravity, wind, and seismic activity.
2. Foundation Design: Design of foundations to transfer loads to the ground safely.
3. Seismic Design: Design of buildings to resist seismic forces and minimize damage.
4. Wind-Resistant Design: Design of buildings to resist wind forces and minimize damage.

CHAPTER TWO

2.0 **DRAWING INSTRUMENT**

These are instrument used in drawing and construction of lines in architecture. Drawing are;

Tee-square

Adjustable set square

Scale rule

Mobile board or standing board

2.1 **HOW TO SET A PAPER**

Setting a paper is a step in drawing. Where a Tee square is to be used in conjunction with Set square and so much more either horizontal or vertical, the both side of the paper must aline with the tee square and adjustable set square.

2.2 **SCALE READING AND LINES**

A scale is use in measuring and knowing the exact dimensions of a drawing. In which the scale is numbered according to the size of the design you want

NOTE: The higher the scale the lower the plan and the lower the scale the larger plan.

LINES are a way of communication in architecture in such a way that it would represent a particular thing which will be interpreted by architects. Types of lines are

Broken or dotted line

Zig zag line

Mold or thick line

Light or faint line E.T.C

2.3 **DESIGN BRIEF AND DESIGN SCOPE**

Design brief these are scope brought by the client you are designing for.

Design scope these are what the architect and the client want to be on site but mostly it is provided by the architect.

2.4 **ARCHITECTURAL DRAWINGS AND TYPES OF DRAWINGS**

Architectural drawing these are drawings that are designed by Architect which are to be presented or erected on site.

TYPES OF DRAWINGS.

presentation drawings

Working drawings

Presentation drawing; are drawings that shows the furniture arrangements the landscape of the land is going to be the vegetation's and so on.

Working drawings; are drawings that shows the exact dimensions of the building and land and shows the details where needed.

2.5 THINGS TO BE CONSIDERED BEFORE DESIGNING

- Building orientation
- Functionality
- Cross ventilation
- Set back
- Aesthetics.

*__Building orientation;__ building is to be well and properly oriented on site considering the climatic effect on the building.

*__Functionality;__ the building must be easily accessible in such a way that it will be easy for the occupant to moves in easily and go out without distraction.

*__Cross ventilation;__ a building must be well cross ventilated most especially Rooms facing the north-east on a site.

CHAPTER THREE

2.0 Introduction to AutoCAD

AutoCAD is a popular computer-aided design (CAD) software used for creating, editing, and viewing 2D and 3D digital models. It is widely used in various industries such as architecture, engineering, construction, and manufacturing.

Key Features of AutoCAD

1. 2D and 3D Modeling: Create and edit 2D and 3D models using a variety of tools and commands.
2. Drawing and Annotation: Create and edit drawings, including lines, arcs, circles, and text.
3. Layer Management: Organize and manage drawings using layers, which can be used to control visibility, color, and linetype.
4. Block and Reference: Create and insert blocks, which are reusable symbols or objects, and reference external drawings.
5. Dimensioning and Tolerancing: Add dimensions and tolerances to drawings to specify measurements and tolerances.
6. Plotting and Publishing: Plot drawings to paper or electronic formats, and publish drawings to various formats, including PDF

and DWF.

AutoCAD Interface

1. Command Line: Enter commands and respond to prompts using the command line.
2. Toolbars: Access frequently used tools and commands using toolbars.
3. Ribbon: Access tools and commands using the ribbon, which is organized into tabs and panels.
4. Drawing Area: Create and edit drawings in the drawing area.
5. Status Bar: View information about the current drawing, including the coordinate system and drawing limits.

Basic AutoCAD Commands

1. Line: Draw a line using the LINE command.
2. Circle: Draw a circle using the CIRCLE command.
3. Arc: Draw an arc using the ARC command.
4. Rectangle: Draw a rectangle using the RECTANGLE command.
5. Zoom: Zoom in and out of the drawing area using the ZOOM command.

6. Pan: Pan the drawing area using the PAN command.

AutoCAD File Types

1. DWG: AutoCAD's native file format, used for storing and exchanging 2D and 3D drawings.
2. DXF: A file format used for exchanging 2D drawings between AutoCAD and other CAD software.
3. PDF: A file format used for exchanging and viewing drawings in a read-only format.

AutoCAD Versions

1. AutoCAD LT: A 2D-only version of AutoCAD, suitable for users who only need to create and edit 2D drawings.
2. AutoCAD: A full-featured version of AutoCAD, suitable for users who need to create and edit both 2D and 3D drawings.
3. AutoCAD Architecture: A version of AutoCAD specifically designed for architects, including tools and features for creating and editing architectural drawings.
4. AutoCAD Civil 3D: A version of AutoCAD specifically designed for civil engineers, including tools and features for creating and editing civil engineering drawings.

3.2 Introduction to 2-D Drawing

2D drawing in AutoCAD is the process of creating and editing two-dimensional objects, such as lines, arcs, circles, and text. Here's an introduction to 2D drawing in AutoCAD:

Basic 2D Drawing Commands

1. Line (L): Draws a line between two points.

2. Arc (A): Draws an arc between two points.

3. Circle (C): Draws a circle with a specified radius or diameter.

4. Rectangle (REC): Draws a rectangle with specified length and width.

5. Polygon (POL): Draws a polygon with specified number of sides.

2D Drawing Techniques

1. Orthographic Projection: A technique for drawing 2D views of 3D objects.
2. Isometric Drawing: A technique for drawing 2D views of 3D objects at a 120-degree angle.
3. Oblige: Adding dimensions to your drawing to specify measurements.

2D Drawing Settings

1. Units: Specifies the units of measurement for your drawing.

2. Scale: Specifies the scale of your drawing.
3. Layer: Organizes objects into layers, which can be used to control visibility and properties.

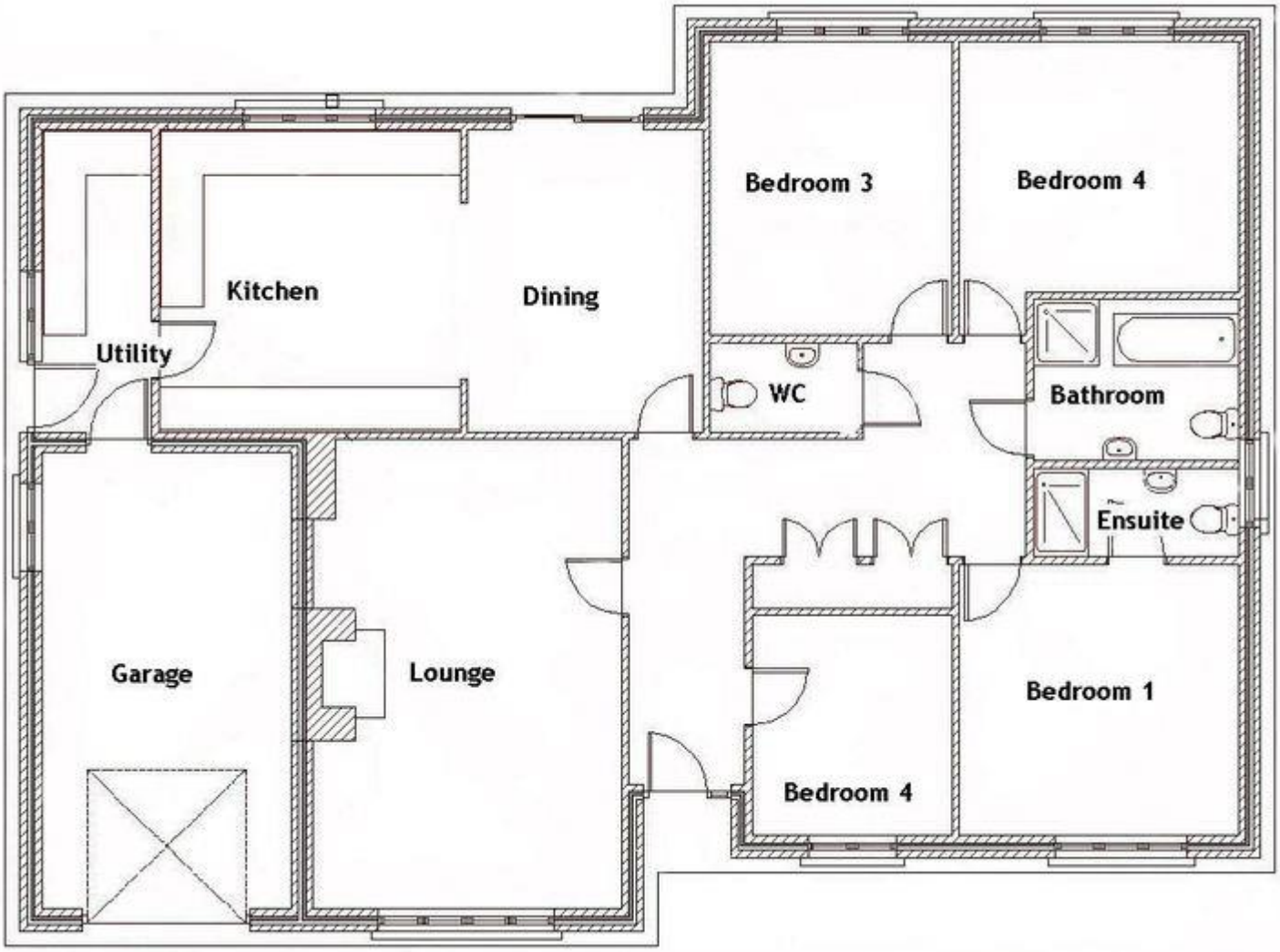
Best Practices for 2D Drawing in AutoCAD

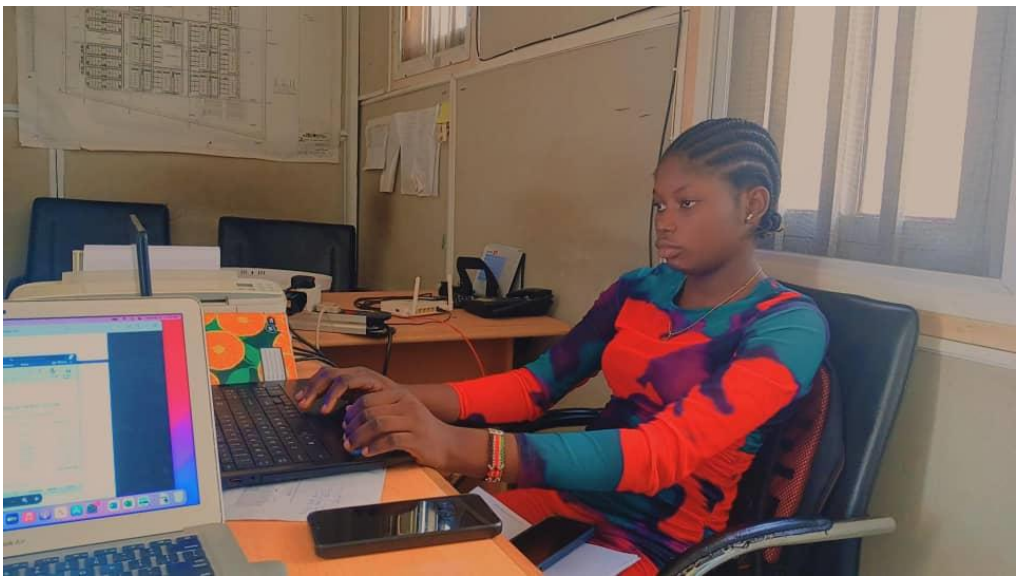
1. Use layers: Organize objects into layers to control visibility and properties.
2. Use object snap: Use object snap to ensure accuracy and precision.
3. Use grid and snap: Use the grid and snap to help you draw accurately.
4. Dimension carefully: Add dimensions carefully to ensure accuracy and clarity.

3.2 Introduction to 3-D drawing

3D drawing in AutoCAD is the process of creating and editing three-dimensional objects, such as solids, surfaces, and meshes. Here's an introduction to 3D drawing in AutoCAD.

3.3. 3 D Drawing of 4 Bedroom ground floor plan using AutoCAD


Bedroom 3
Bedroom 4
Kitchen
Dining
Utility
WC
Bathroom
Ensuite
Garage
Lounge
Bedroom 1
Bedroom 4



CHAPTER FOUR

4.1 SUMMARY

Student industrial training experiences scheme (SIWES) provide student with appreciable skill designed to expose or equip them with real life working experience. Student knowledge increase maturely and understanding of their own career goals and for the progress of the nation.

The report contains and gives a detailed explanation of all the activities carried out at BTI Architectural studio at Shop 56, Charis Shopping Complex, Beside Total Filling Station, Ilorin, Kwara State.

4.2CHALLENGES FACE DURING SIWES

1. Limited Practical Experience: Students may feel that they lack the necessary practical skills to perform tasks efficiently.
2. Time Management: Balancing work and academic responsibilities can be challenging.
3. Financial Constraints: Students may face financial difficulties, such as transportation costs or living expenses, during SIWES.
4. Safety Concerns: Students may be exposed to hazardous working conditions or equipment.
5. Supervision and Feedback: Inadequate supervision or feedback from

supervisors can hinder students' learning experience.

6. Technical Challenges: Difficulty in operating equipment or software due to lack of training or experience.
7. Self-Confidence: Students may struggle with self-doubt or low self-confidence, especially when faced with new challenges.

4.3RECOMMENDATION

I recommend that SIWES should provide places for industrial attachment for student, Industrial Training Fund (ITF) should pay some allowance to student and the company should provide safety equipment to prevent further environment and health hazards.

Institution should be encouraged to create financial autonomy for institution based SIWES unit directorate.

4.4CONCLUSION

In conclusion as a student of Architectural Technology, I have been able to obtain the relevant and effective practical training and experience in a duration of four months (4) have been to know what presentation and working drawing are meant to be and so much more.

Finally, I would like to state that the SIWES program is a relevant and necessary program for all students that must an advantage for each student's professional prior to graduation.