A TECHNICAL REPORT

ON STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

UNDERTAKEN AT

ARCHCON NIGERIA LIMITED, ADEWOLE ESTATE ILORIN, KWARA STATE

BY

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DEDICATION

I dedicate this industrial attachment work to God Almighty who begin this programme with me and made the success. I dedicate this programme to my beloved parents MR & MRS ABDULGANIYU for their financial support. God bless you (Amen).

ACKNOWLEDGEMENTS

I wish to thank the Managing Director of **ARCHCON NIGERIA LIMITED, ADEWOLE ESTATE, ILORIN, KWARA STATE. Arc. Muhammed Jimoh Faworaja (M.J)**

for giving me the privilege to serve in the site which gave me more knowledge, may God continue strengthen and perfect your ways.

I thank my sisters, my brothers and all my friends for their moral financial supports. I pray God will spare your life so that you can eat the fruit of your labour (Amen).

I acknowledge the support of my supervisors; God will increase your knowledge. Amen

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CHAPTER ONE

BRIEF HISTORY OF SIWES

The Student Industrial Work Experience Scheme (SIWES) was established in 1973 by the Industrial Training Fund (ITF) as a strategic initiative to bridge the gap between theoretical knowledge and practical skills for students in Nigerian tertiary institutions. The scheme was introduced to address the inadequacy of hands-on experience among graduates, ensuring they acquire industry-relevant competencies before entering the workforce.

SIWES provides students with exposure to real-world industry practices, facilitating a smooth transition from academic learning to professional environments. Through this scheme, students gain practical knowledge in handling equipment and machinery that are often unavailable in their institutions. This hands-on experience enhances their employability and technical proficiency.

Participation in SIWES has become a mandatory requirement for obtaining diploma and degree certificates in specific disciplines, as stipulated by the Nigerian government's education policy.

The program is structured into three modules:

1. **First Module:** A two-month training designed for 200-level students in Engineering and Food Technology programs. This phase introduces students to fundamental engineering and technological operations at the shop-floor level.
2. **Second Module:** A three-month industrial training targeted at 300-level students in disciplines such as Engineering, Architectural Technology, Food Technology, Geography, Biochemistry, Nursing, Pharmacy, Geology, Physics, and Library Science.
3. **Third Module:** A six-month extensive training for 400-level students in fields such as Engineering, Architectural Technology, Food Technology, Botany, Microbiology, Industrial Chemistry, Computer Science, Zoology, Agriculture, and Physiotherapy.

SIWES is jointly managed by the ITF, coordinating agencies such as the National Universities Commission (NUC), National Board for Technical Education (NBTE), and National Commission for Colleges of Education (NCCE), in collaboration with employers and participating institutions. The Federal Government of Nigeria provides the necessary funding for the scheme.

Beneficiaries of SIWES

The program benefits undergraduate students in the following fields:

- Agriculture
- Engineering
- Technology
- Environmental Sciences
- Education
- Medical Sciences
- Pure and Applied Sciences

Duration of SIWES

- Four months for students in Polytechnics and Colleges of Education
- Six months for University students

Survey of Institutions Participating in SIWES

A survey conducted in 2023 revealed that a total of 206 institutions participate in the SIWES program:

- Universities: 59
- Polytechnics: 85
- Colleges of Education: 62

Objectives of SIWES

The primary aim of SIWES is to equip students with practical knowledge and hands-on experience in their respective fields, within a professional work environment. This exposure helps to supplement their classroom-based learning and prepares them for the challenges of their chosen careers.

CHAPTER TWO

DESCRIPTION OF THE ESTABLISHMENT OF ATTACHMENT

LOCATION AND BRIEF HISTORY OF THE ESTABLISHMENT

GENERAL INFORMATION NOTE: -

ARCHCON NIGERIA LIMITED is a reputable Architectural Firm established several years ago by professional with a wealth of experience in the field of architecture.

The firm is located at No 7, Okehi Close, Off Akure Road, Adewole Estate, Ilorin Kwara State.

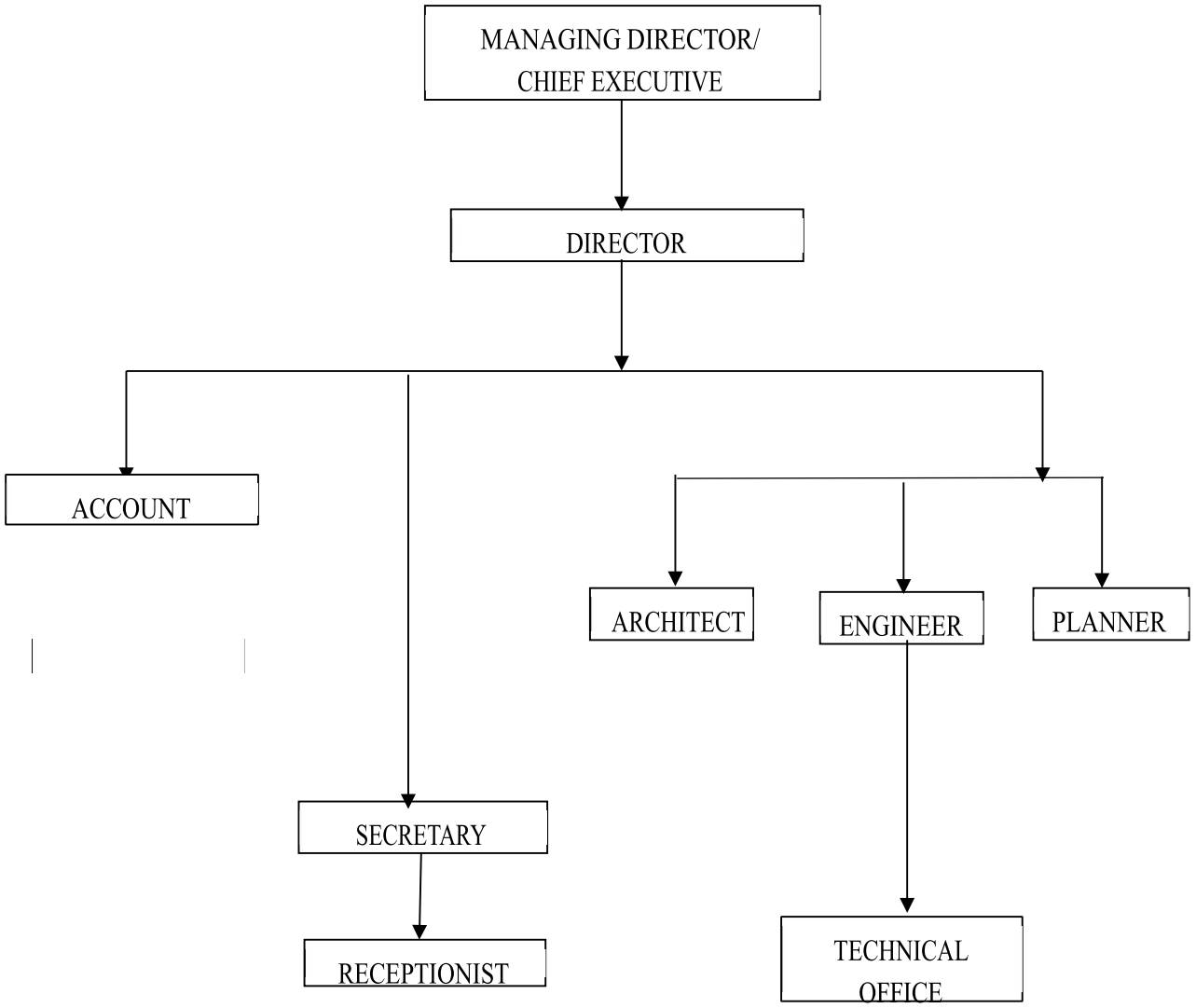
AREA OF OPERATION

- **ARCHCON NIGERIA LIMITED** offers services in the following field: -
- **ARCHITECTURAL DESIGN: -** Design of residential, Industrial, Commercial, and Institutional Building, Tower, Bridges and Road construction, Renovation works, Traffic Engineering and Road maintenance.
- **BUIDING CONTRACTOR:** - Build any kind of structures in line with architectural and structural details.
- **INTERIOR AND EXTERIOR DECORATION**: - Carry out service of interior decoration, Land scalping works, furnishing, renovation of houses and offices, general maintenance of buildings, house cleaning, decoration, carpeting, foam, mattress and rug of all house and any buildings.

SECTIONS AND DEPARTMENTS

- Architectural department
- Accounting department

ORGANISATIONAL STRUCTURE



NOTE: The chat above applies to the organization in question alone and might not necessarily conform to the standard hierarchy of a construction form.

CHAPTER THREE

Architectural Software and Functions

In the field of architecture, a computer software called AutoCAD is utilized to create precise and accurate drawings, which serve as the foundation for design and construction. Throughout my experience, I was introduced to this essential architectural software.

Below is a detailed description of this tool and its uses:

- **AutoCAD:** is a computer-aided design (CAD) software developed by **Autodesk**, widely used across various industries for 2D and 3D design and drafting. Since its release in 1982, AutoCAD has become one of the most popular CAD programs globally due to its precision, versatility, and robust toolset.

Key Features of AutoCAD:

1. **2D Drafting and Drawing**
    - Create detailed technical drawings and floor plans.
    - Include dimensions, annotations, and layers for better organization.
    - Use blocks and templates to streamline repetitive tasks.
2. **3D Modeling and Visualization**
    - Design and visualize 3D objects and environments.
    - Tools include solid, surface, and mesh modeling.
    - Photorealistic rendering capabilities.
3. **Customization and Automation**
    - Customize the interface to suit personal workflows.
    - Use AutoLISP, VBA, and other scripting languages to automate tasks.
    - Create custom tool palettes and commands.
4. **Collaboration and File Compatibility**
    - Supports DWG, DXF, DWF formats for wide compatibility.
    - Integration with cloud services for real-time collaboration.
    - Version tracking and markup tools for teamwork.
5. **Industry-Specific Toolsets**
    - Specialized toolsets for architecture, electrical, mechanical, civil engineering, and more.
    - Libraries of components, symbols, and automation tools tailored to each field.

Common Uses of AutoCAD:

1. **Architecture**
    - Design floor plans, elevations, and sections.

- Create building layouts and construction documentation.
- Analyze spatial relationships and optimize room placement.

2. **Civil Engineering**

- Draft site layouts, roadways, and infrastructure projects.
- Plan utility networks and drainage systems.
- Incorporate topographical data into designs.

3. **Interior Design**

- Create room layouts and furniture plans.
- Visualize material choices and lighting.
- Coordinate with architects and builders using shared DWG files.

4. **Urban Planning and Landscape Design**

- Draft land use plans, zoning layouts, and green spaces.
- Integrate GIS data and terrain models.
- Simulate urban growth and infrastructure needs.

5. **Product Design**

- Develop conceptual designs and technical drawings.
- Use 3D modeling for prototyping and presentations.
- Export to CAM software for manufacturing.

Introduction to AutoCAD

- Developed by **Autodesk**
- Leading software for **2D & 3D CAD design**
- Widely used across **architecture, engineering, and design industries**
- Known for **precision, customization, and compatibility**

Core Features of AutoCAD

- **2D Drafting**: Floor plans, technical drawings, annotations
- **3D Modeling**: Solid, surface, and mesh tools

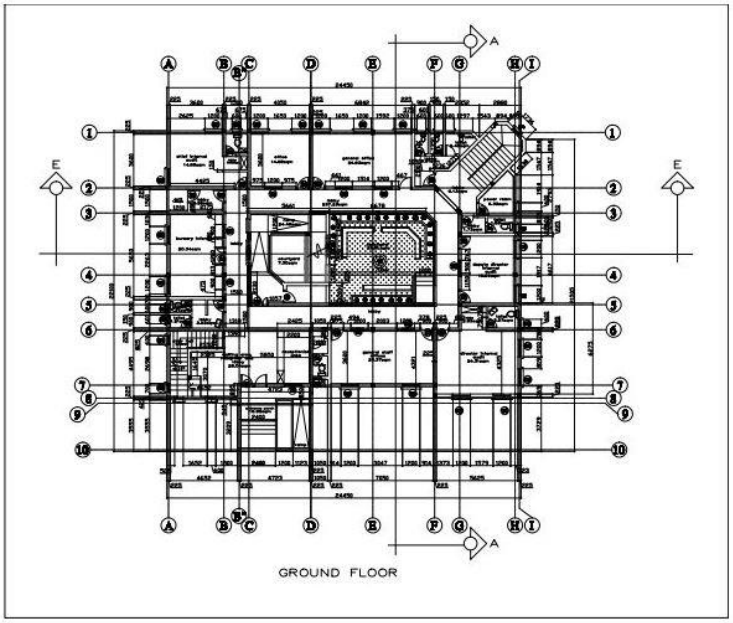
- **Customization**: AutoLISP, scripts, tool palettes
- **File Support**: DWG, DXF, DWF formats
- **Cloud Integration**: Real-time collaboration and version control

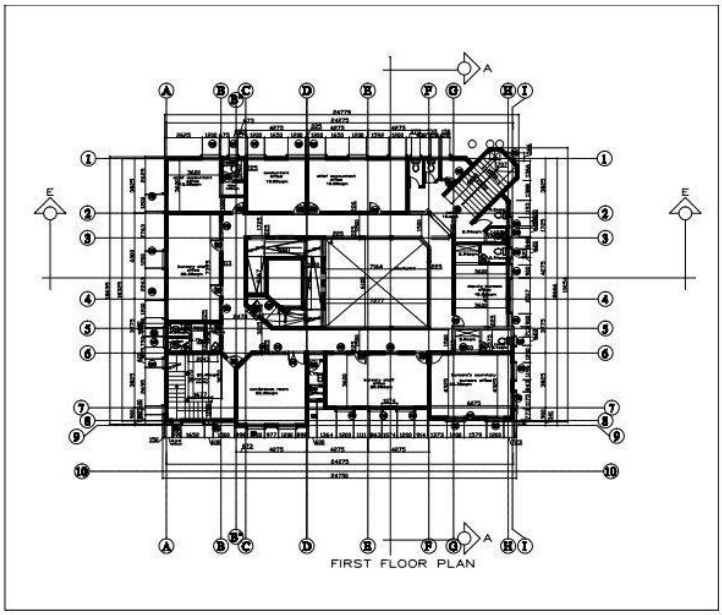
Industry-Specific Toolsets

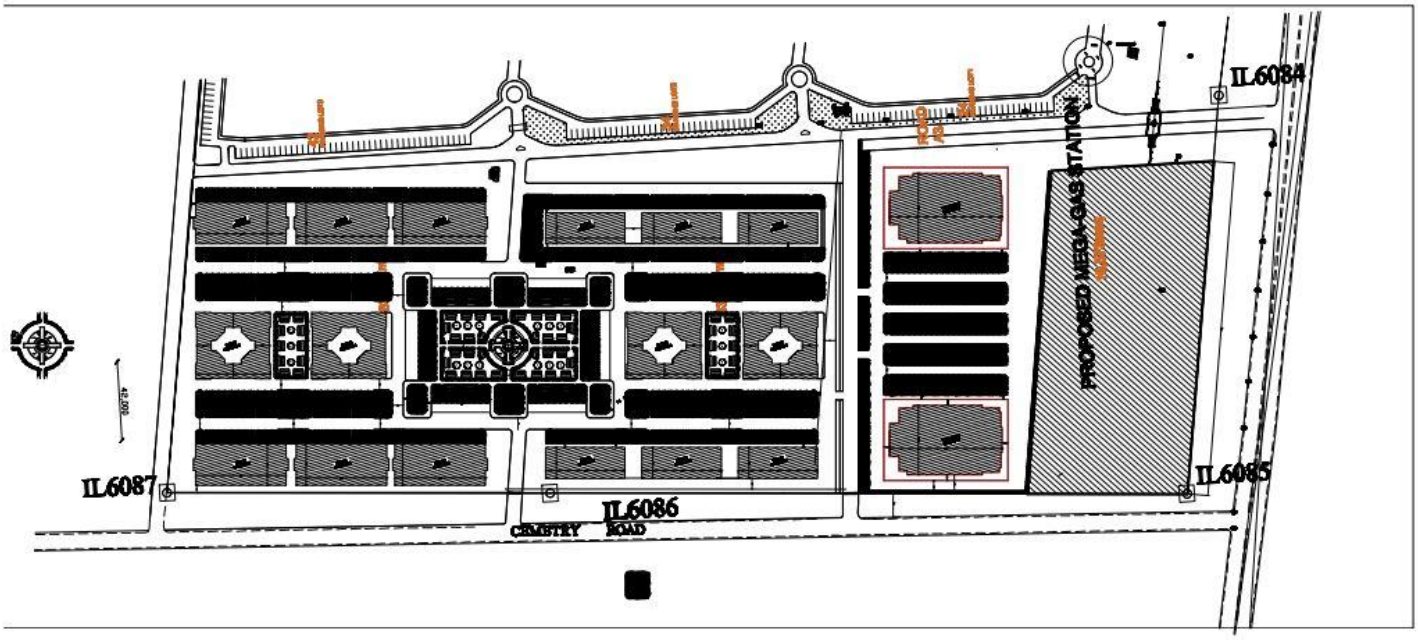
- **Architecture Toolset**: Walls, doors, and window tools

Common Applications

- **Architecture**: Building layouts, construction documents
- **Interior Design**: Layouts, lighting, materials







Ilorin Eid Site Plan

AutoCAD is a powerful, flexible design tool that empowers professionals across disciplines to visualize, design, and document with confidence. Whether you're building skyscrapers or circuit boards — AutoCAD gets it done.

Architectural Drawing Classifications

Architectural drawings are further divided into two main categories:

1. **Working Drawing:** These are detailed and dimensioned drawings used on-site for construction. They include floor plans, elevations, sections, and other structural and service details.
2. **Presentation Drawing:** These are aesthetic renderings that showcase the visual representation of the project to clients. They do not include dimensions but provide a realistic depiction of the final structure.

Key Architectural Drawings

- Site Plan: Displays the arrangement of buildings and structures on a proposed site, along with roads, landscaping, and other site-specific details.
- Floor Plan: Illustrates the layout of rooms, spaces, and their functional relationships within a building.
- Roof Plan: Represents the roof structure, style, shape, and projections, ensuring weather protection for the building.
- Section Drawing: Shows a cross-sectional view of a building, revealing internal structures and materials used. There are two types:
  - Cross Section: Cuts through the shortest part of a building.
  - Longitudinal Section: Cuts through the longest part of a building.
- Schedule Drawing: Details the specifications of doors, windows, and other fittings required for construction.
- Elevation Drawing: Displays the external appearance of a building from different viewpoints, including the front, sides, and rear.

CHAPTER FOUR

Site Experience and Practical Applications

During my practical experience on a construction site, I gained valuable insights into the implementation of architectural plans. The key activities I participated in included setting out the foundation, excavation, and understanding the role of various tools used in site work.

Setting-Out of Foundation

Setting out is the process of transferring architectural plans from paper to the ground. It involves marking the outlines of the foundation and walls to ensure accurate construction according to the design.

Materials and Tools Used for Setting Out

1. Working Drawing (Plan): Serves as a reference for accurate measurement and layout.
2. Profile Board: Used to define levels and reference points.
3. Pegs: Mark the foundation boundaries and key positions.
4. Nails (3” and 2”): Used for securing markers.
5. Builder’s Line: Ensures alignment of walls and structural elements.
6. Measuring Tape (30m & 5m): Used for accurate measurement of dimensions.
7. Builder’s Square: Ensures right angles and proper alignment.
8. Sledgehammer: Drives pegs into the ground for firm marking.

The goal of setting out is to ensure all elements of the plan are positioned correctly in three dimensions to achieve precision in construction.

KWASU SATELITE MINI CAMPUS OSI

FLOOR TILES

Excavation

Excavation involves the removal of topsoil to prepare for foundation work. The depth and method of excavation depend on the soil type and foundation requirements.

Methods of Excavation

1. Manual Excavation: Involves the use of hand tools, often in small-scale or remote construction sites.
2. Mechanical Excavation: Uses heavy machinery like bulldozers and excavators for efficiency in large-scale projects.

Tools Used for Manual Excavation

- Digger: Used for breaking up soil.
- Shovel or Spade: Used for removing and transporting soil.
- Hammer and Chisel or Jackhammer/Compressor: Used for breaking tough ground or rock layers.

Lessons Learned from Site Experience

Through my site experience, I gained practical knowledge in the following areas:

- Importance of Accuracy: Precise measurements and alignment are crucial for successful construction.
- Team Coordination: Effective communication between architects, engineers, and site workers enhances efficiency.
- Practical Use of Instruments: Understanding how tools function on-site enhances my ability to create practical and implementable designs.
- Problem-Solving Skills: Encountering and resolving on-site challenges improved my ability to adapt and think critically in real-world scenarios.

Grader scarifying and reshaping the roads for quality and drainage

Road Asphalt

CHAPTER FIVE

4.0 SUMMARY, CHALLENGES, AND RECOMMENDATIONS

4.1 Summary

The Student Industrial Work Experience Scheme (SIWES) has been a valuable and enriching experience, providing me with essential practical training in the field of architecture. Over the four-month period, I was exposed to real-life on-site activities, construction processes, and project execution, which enhanced my understanding beyond theoretical classroom knowledge. Additionally, I developed workplace awareness, improved my interpersonal and professional skills, and gained insight into an architect's responsibilities and ethical considerations. This experience has reinforced the importance of industrial training as an integral part of an architectural student's development before graduation.

4.2 Problems Encountered

Despite the benefits gained, certain challenges were faced during the SIWES program:

1. Limited Access to Advanced Architectural Tools – Some of the firms visited lacked advanced design software and equipment, which limited exposure to modern architectural practices.
2. Inadequate Supervision – At times, there was minimal guidance from supervisors, making it difficult to fully understand some technical aspects of architectural work.
3. Poor Coordination of the Program – Delays in placement and lack of clear communication between institutions and firms affected the smooth transition into the internship.
4. Exposure to Limited Project Types – Some sites focused only on specific building types, limiting exposure to a broader range of architectural designs and construction methods.
5. Financial Constraints – The lack of financial support for transportation and work related expenses posed challenges for students working in distant locations.

4.3 Recommendations for Improvement

To enhance the effectiveness of the SIWES program, the following improvements are suggested:

1. Better Supervision and Mentorship – Firms should assign experienced professionals to guide interns, ensuring they gain in-depth knowledge and practical experience.
2. Stronger Collaboration Between Institutions and Firms – Schools should actively coordinate with companies to ensure timely placement and proper monitoring of students.
3. Exposure to Diverse Projects – Students should be rotated through different project types to gain comprehensive exposure to various architectural and construction processes.
4. Financial Support for Students – The government, institutions, or relevant bodies should consider providing stipends or transport allowances to ease financial burdens on students.

4.4 Conclusion

The SIWES program remains a crucial and beneficial scheme for students in architecture and other technical fields. Despite the challenges encountered, it has provided invaluable practical experience, industry exposure, and professional development. If properly managed and improved, it will continue to serve as an essential bridge between academic learning and real-world practice, ensuring students are better prepared for their future careers.