A TECHNICAL REPORT
STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

HELD AT
BISTOLIC ELECTRIC SHOP
OKUKU ALONG EKUSA ROAD OLAOSEBIKAN STREET, OSUN STATE

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CHAPTER ONE

1. INTRODUCTION

The Student Industrial Work Experience Scheme (SIWES) is a mandatory skill development program initiated by the Nigerian government to bridge the gap between theoretical knowledge and practical industry experience. As part of my academic curriculum in Electrical/Electronic Engineering at Kwara State Polytechnic, I undertook my SIWES at **BISTOLIC ELECTRIC SHOP**, a reputable firm in Ilorin specializing in electrical installations, maintenance, and energy solutions. This report documents my activities, learning outcomes, challenges, and insights gained during the six-month training period.

Students Industrial Work Experience Scheme (SIWES) is a Skills Training Program designed to prepare and expose Students of Universities, Polytechnics, Colleges of Technology, Colleges of Agriculture and Colleges of Education for the Industrial Work situation they are likely to meet after graduation. The Scheme affords Students the opportunity of familiarizing and exposing themselves handling equipment and machinery that are usually not available in their institutions. Before the establishment of the Scheme, there was a growing concern that graduates of our Institutions of higher learning lacked adequate practical knowledge and that the theoretical education in Higher Institutions was not responsive to the needs of the Employers 'of Labour. It is against this background that the Industrial Training Fund (ITF) initiated, designed and introduced SIWES Scheme in 1973 to acquaint Students with the skills of handling Industrial equipment and machinery. The Industrial Training Fund (ITF) solely funded the Scheme during its formative years. However, due to finance constraints, the Fund withdrew from the Scheme in 1978. The Federal Government noting the significance of the skills training, handed the

management of the Scheme to the National Universities Commission (NUC) and the National Board for Technical Education (NBTE) in 1979. In November 1984, management and implementation of the Scheme was again reverted to the ITF with the funding to be solely borne by the Federal Government

1.2. BRIEF HISTORY OF SIWES

SIWES was introduced in 1973 by the Industrial Training Fund (ITF) to equip Nigerian students with technical skills relevant to their fields. It aims to prepare students for the workforce by integrating academic learning with industrial practice. For engineering students, SIWES is critical for understanding modern tools, safety standards, and industry workflows.

1.3. Background & Establishment

- **Origin**: Launched under the ITF Act of 1971, SIWES emerged from concerns about graduates lacking practical skills needed by Nigerian industries.
- **Objective**: To expose students to real-world work environments, enhance employability, and align education with industry demands.

CHPTER TWO

2. OBJECTIVES OF SIWES

The aim of SIWES is to prepare and expose students of higher institutions to machine and equipment handling and professional work ethics/methods in Industries.

The objectives of SIWES, are to:

1. Provide avenue for Students to acquire industrial skills and experience in their course of study.
2. Prepare Students for the industrial work situation they are to meet after graduation.
3. Expose Students to work methods and techniques in handling equipment and machinery that may not be readily available in the Institutions.
4. Make the transition from school to the world of work easier, and enhance Students contacts for later job placement.
5. Provide Students with an opportunity to apply their knowledge in real work situation thereby bridging the gap between theory and practice.
6. Enlist and strengthen Employers involvement in the entire educational process.
7. To apply classroom theories to real-world electrical systems.

8. To gain hands-on experience in electrical installations, maintenance, and safety practices.

. To develop problem-solving skills in troubleshooting electrical faults.

10. To understand the operational standards and regulations in Nigeria's electrical industry.

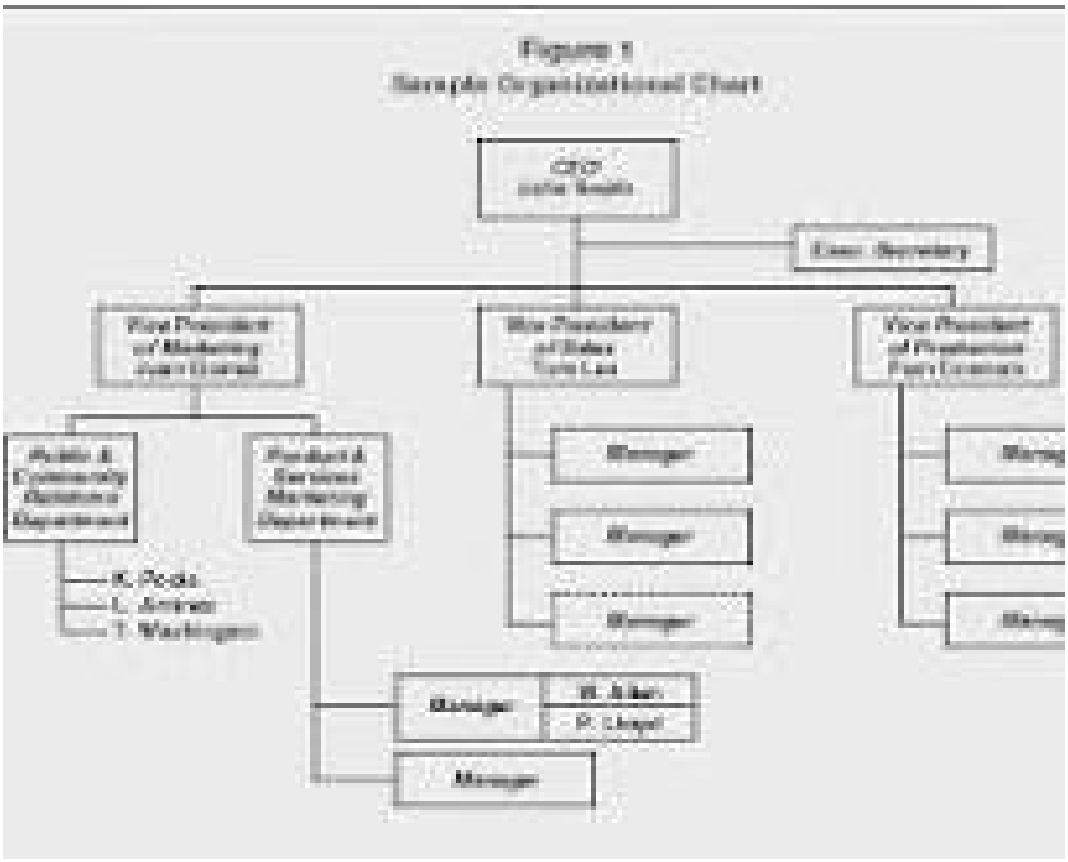
CHAPTER THREE

COMPANY PROFILE

3. 1 ORGANIZATION

BISTOLIC ELECTRIC SHOP is a certified electrical services provider in okuku, Osun State, accredited by the Nigerian Electrical Regulatory Body. The company specializes in:

- Residential and commercial wiring installations.
- Maintenance of electrical panels, circuit breakers, and distribution boards.
- Solar energy system installations.
- Electrical safety audits and compliance with Nigerian Electrical Code (NEC).



CHAPTER FOUR

4.0 ACTIVITIES UNDERTAKEN

4.1 Installation of Single-Phase Energy Meters

- **Process**:
  - Studied the layout of single-phase systems (Live, Neutral, Earth).
  - Connected the meter to the distribution board via a circuit breaker.
  - Ensured proper termination of cables (Live-In, Live-Out, Neutral-In, Neutral-Out).
  - Tested the meter using a multimeter to verify voltage stability.
- **Tools Used**: Screwdrivers, pliers, multimeter, insulation tape.

4.2 Installation of Two-Phase Energy Meters

- **Process**:
  - Understood the application of two-phase systems (common in some industrial setups).
  - Identified two live phases (L1, L2) and neutral connections.
  - Configured the meter to balance load between phases.
  - Performed insulation resistance tests.

4.3 Installation of Three-Phase Energy Meters

- **Process**:
  - Studied three-phase wiring (L1, L2, L3, Neutral).
  - Installed a 3-pole circuit breaker for overload protection.
  - Connected CT (Current Transformer) coils for high-current systems.

- Verified phase rotation and load distribution.

4.4 Electrical Conduit Pipe Laying

- **Process**:
  - Measured and cut PVC/conduit pipes to required lengths.
  - Bent pipes using a conduit bender for corners and junctions.
  - Secured pipes to walls with clamps and saddles.
  - Pulled cables through pipes and ensured smooth pathways.
- **Safety**: Adhered to NEC standards for pipe spacing and grounding.

4.5 Electrical Installations

An electrical installation is a collection of electrical devices that are permanently electrically linked to one another and can receive power from an electrical source. An electrical installation is a comprehensive system of electrical components and equipment designed to deliver electricity in residential, commercial, and industrial settings. Installation can include everything from wiring, switches, and sockets to the systems needed to power lights, appliances, machinery, and other electrical equipment.

- Assisted in wiring residential buildings, including conduit piping, socket outlets, and lighting circuits.

- Participated in installing three-phase distribution boards for commercial clients.
- Learned to interpret electrical schematics and blueprints.

Electrical Installation

4.6 Maintenance and Repairs

- Performed routine maintenance on circuit breakers, switches, and transformers.
- Troubleshot power outages and short circuits using multimeters and insulation testers.
- Replaced faulty components in control panels.

4.7 Safety Practices

Safety practices in the workplace aren't just rules and regulations; they're a commitment to your safety and the safety of your colleagues. We understand that understanding the complexities of workplace safety seems daunting, workers reported lost time due to workplace injury from 2000 to 2021, indicating the extent of workplace accidents and the need to implement safety practices in the workplace!

- Observed strict adherence to safety protocols, including the use of Personal Protective Equipment (PPE).
- Conducted risk assessments before commencing work on live circuits.

4.8 Solar Energy Systems

A solar energy system is an assembly of interacting pieces of equipment designed to collect solar radiation, store the collected energy, and distribute it as needed.

- Assisted in mounting solar panels and connecting inverters/batteries for hybrid systems.
- Gained basic knowledge of off-grid solar installations.

CHAPTER FIVE

SKILLS ACQUIRED, CHALLENGES, RECOMMENDATION AND CONCLUSION

5.1 SKILLS ACQUIRED

- **Technical Skills:** Proficient use of tools (pliers, screwdrivers, cable cutters) and testing instruments (multimeters, clamp meters).
- **Safety Awareness:** Implemented lockout-tagout (LOTO) procedures and NEC guidelines.
- **Teamwork:** Collaborated with engineers and technicians on large-scale projects.
- **Problem-Solving:** Diagnosed and resolved wiring faults in residential buildings.

5.2 CHALLENGES ENCOUNTERED

- Limited access to advanced tools for specialized tasks.
- Occasional miscommunication between team members during complex installations.
- Adapting to fieldwork conditions, such as working at heights or in tight spaces.

5.3 RECOMMENDATIONS

- **To the Company:** Invest in modern testing equipment and provide refresher training on emerging technologies (e.g., smart grids).
- **To the Polytechnic:** Strengthen partnerships with more industry players to diversify student exposure.
- **To SIWES:** Extend the duration of the program for in-depth skill development.

5.4 CONCLUSION

My SIWES experience at BISTOLIC ELECTRIC SHOP significantly enhanced my technical competencies and workplace ethics. The exposure to real-world electrical systems deepened my understanding of the profession and prepared me for future engineering challenges. I am grateful to my supervisors at both Kwara State Polytechnic and BISTOLIC ELECTRIC SHOP for their guidance.