A TECHNICAL REPORT ON

STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME [S.I.W.E.S]

HELD AT

UNIVERSITY OF ILORIN TEACHING HOSPITAL.

BY
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ND/23/COM/PT/0004

DEPARTMENT OF COMPUTER SCIENCE
INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGY

KWARA STATE POLYTECHNIC, ILORIN

IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE AWARD OF ORDINARY NATIONAL DIPLOMA (OND) IN COMPUTER SCIENCE, KWARA STATE POLYTECHNIC

FROM
SEPTEMBER TO DECEMBER, 2024

CERTIFICATION

This is to certify that **BAZAMBO ABDULSAMAD ABDULLAHI** with matriculation number **ND/23/COM/PT/0004** undergoes his industrial training **SIWES** at **UNIVERSITY OF ILORIN TEACHING HOSPITAL, OLD JEBBA ROAD, OKE-OSE ILORIN KWARA STATE NIGERIA** In partial fulfillment of the award of National Diploma (**ND**) in computer science, Kwara State Polytechnic, Ilorin, undersigned by the following people:

……. ….……

MR ABDULKAREEM Q.B **Date**

Department SIWES Supervisor

……. ….……

MR OYEDEPO F.S **Date**

Head of Department

……. ….……

MR ABIODUN **Date**

SIWES Director

DEDICATION

This SIWES report is dedicated to GOD Almighty, Mr. & Mrs. **BAZAMBO** for their spiritual and financial support during my SIWES program.

ACKNOWLEDGEMENT

With overwhelming joy in my heart, I wish to thank the almighty God the fountain of all knowledge, my strength and my source, the great provider for his unconditional love and favor towards my life and throughout this academic pilgrimage. My immeasurable appreciation goes to my parents **Mr.** and **Mrs. BAZAMBO** for their parental care and the support they have given me since the day I have been given birth to and for the effort they have put in ensuring that I become someone great in life.

My sincere appreciation also goes to the entire staff and management of **UNIVERSITY OF ILORIN TEACHING HOSPITAL, OLD JEBBA ROAD, OKE-OSE ILORIN KWARA STATE NIGERIA ,**My acknowledgement is incomplete without acknowledging my H.O.D; **MR. OYEDEPO F.S** for his firmness and tireless effort in making Computer Science Department the best. To all my lecturers, thank you for the grooming and shaping. God bless you all.

Finally, only God is above all sort of mistakes. All errors in this work are strictly and exclusively mine.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND

SIWES was established by ITF in 1973 to solve the problem of lack of adequate practical skills preparatory for employment in industries by Nigerian graduates of tertiary institutions.

The Scheme exposes students to industry based skills necessary for a smooth transition from the classroom to the world of work. It affords students of tertiary institutions 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.

Participation in Industrial Training is a well-known educational strategy. Classroom studies are integrated with learning through hands-on work experiences in a field related to the student's academic major and career goals. Successful internships foster an experiential learning process that not only promotes career preparation but provides opportunities for learners to develop skills necessary to become leaders in their chosen professions.

One of the primary goals of the SIWES is to help students integrate leadership development into the experiential learning process. Students are expected to learn and develop basic non-profit leadership skills through a mentoring relationship with innovative non-profit leaders.

By integrating leadership development activities into the Industrial Training experience, we hope to encourage students to actively engage in non-profit management as a professional career objective. However, the effectiveness of the SIWES experience will have varying outcomes based upon the individual student, the work assignment, and the supervisor/mentor requirements. It is vital that each internship position description includes specific, written learning objectives to ensure leadership skill development is incorporated.

Participation in SIWES has become a necessary pre-condition for the award of Diploma and Degree certificates in specific disciplines in most institutions of higher learning in the country, in accordance with the education policy of government.

Operators - The ITF, the coordinating agencies (NUC, NCCE, NBTE), employers of labour and the institutions.

Funding - The Federal Government of Nigeria

Beneficiaries - Undergraduate students of the following: Agriculture, Engineering, Technology, Environmental, Science, Education, Medical Science and Pure and Applied Sciences.

Duration - Four months for Polytechnics and Colleges of Education, and Six months for the Universities.

1.2 OBJECTIVES

The following are some of the objectives of SIWES:

i. SIWES will provide students the opportunity to test their interest in a particular career before permanent commitments are made.

ii. SIWES students will develop skills in the application of theory to practical work situations.

iii. SIWES will provide students the opportunity to test their aptitude for a particular career before permanent commitments are made.

iv. SIWES students will develop skills and techniques directly applicable to their careers.

v. SIWES will aid students in adjusting from college to full-time employment.

vi. SIWES will provide students the opportunity to develop attitudes conducive to effective interpersonal relationships.

vii. SIWES will increase a student's sense of responsibility.

viii. SIWES students will be prepared to enter into full-time employment in their area of specialization upon graduation.

ix. SIWES students will acquire good work habits.

x. SIWES students will develop employment records/references that will enhance employment opportunities.

xi. SIWES will provide students the opportunity to understand informal organizational interrelationships.

xii. SIWES will reduce student dropouts.

Foster commitment and collaboration with both internal and external constituents.

The 4 months Students Industrial Work Experience Scheme (SIWES) which is a requirement for the completion of my course of study, Computer Science, was undertaken at the Network Operations Centre of the University Of Ilorin. The Organizations function is to provide training services for computer programmers and enable them to learn on the field practitioner.

CHAPTER TWO

DESCRIPTION OF THE ESTABLISHMENT OF ATTACHMENT

2.1 LOCATION AND BRIEF HISTORY OF ESTABLISHMENT

The name of the organization is UNIVERSITY OF ILORIN TEACHING HOSPITAL, OLD JEBBA ROAD, OKE-OSE ILORIN KWARA STATE NIGERIA. It was founded by group of computer scientists whose aim is to develop, train and recreate the world of technology with the motto, together, we recreate the world.

The company started its operation in November, 2005/2006 Academic Session.

Presently the organization has grown wide to the extent that it has several departments.

In fact this institution has grown to the extent of having a staff of 15 or more and people that are been paid by this institution.

2.2 OBJECTIVES OF THE ESTABLISHMENT

i. To provide world class training services for computer students and IT enthusiast

ii. To provide a co-working space for experts to work and network

iii. To provide a community of like-minded technological experts

v. To create a platform where students of tertiary institutions can put classroom knowledge into real life practice

2.3 ORGANIZATIONAL STRUCTURE

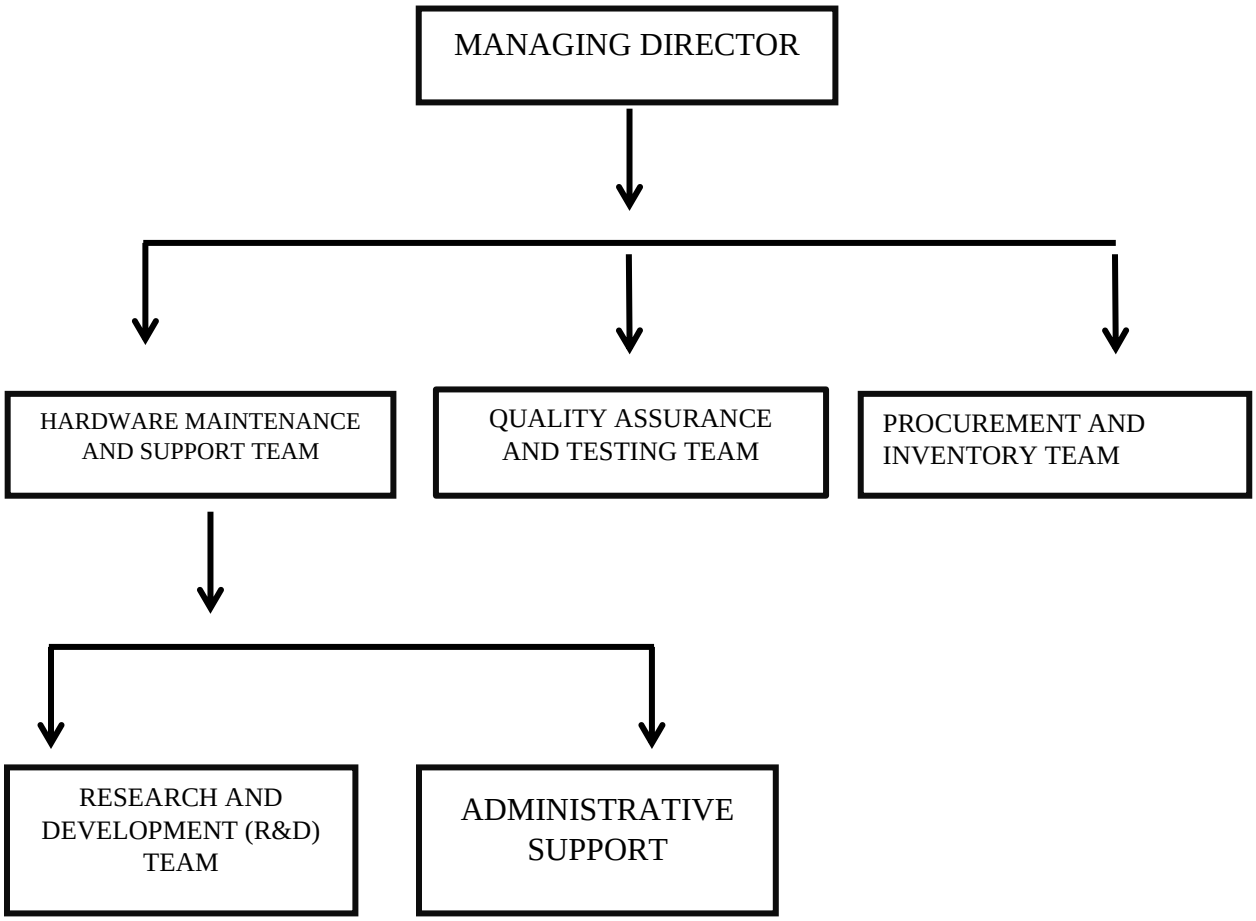

Figure 1. Organisational structure of the company

2.4 THE DEPARTMENTS IN THE ESTABLISHMENT AND THEIR FUNCTIONS

There are three major departments in UNIVERSITY OF ILORIN TEACHING HOSPITAL, OLD JEBBA ROAD, OKE-OSE ILORIN KWARA STATE NIGERIA.

Administrative Department

Human Resources Department

IT Department

- Administrative department: the main role of the administrator is to ensure the efficient performance of all departments in the organization. They provide motivation to the work force and make them realize the goals of the organization.
- Human resources department: this department is responsible for handling different functions within the organization. The department is responsible for hiring and firing employees, training workers, maintaining interoffice relationships and interpreting employments laws. The department works diligently behind the scenes to ensure that the organization runs efficiently.

Information Technology Department: this is the department responsible for the architecture, hardware, software and networking of the computers in the company. Some of the activities of this department are programming, web development, technical support and administration.

CHAPTER THREE

INDUSTRIAL EXPERIENCE

3.1 HARDWARE

I was trained and exposed to Hardware external and internal devices with equipment that enable me to perform major functions such as input, output, storage, communication, processing, and more.

3.1.1 OVERVIEW OF ASSIGNED TASKS

During the SIWES placement in the hardware department, I was assigned to tasks involved various activities aimed at gaining hands-on experience in hardware systems, maintenance, and troubleshooting. These tasks are outlined below **:**

- Hardware Installation and Setup
- Preventive Maintenance
- Troubleshooting and Repairs
- Networking and Configuration
- Hardware Testing and Quality Assurance
- Support and Training

TOOLS AND EQUIPMENT USED

During the SIWES placement, various tools and equipment were utilized to perform hardware-related tasks. These tools were essential for installation, maintenance, troubleshooting, and repairs. Below is an overview of the tools and equipment categorized by their functions

General Tools

- Screwdrivers (Phillips and Flathead): For assembling and disassembling hardware components, such as computer cases and motherboards.
- Pliers and Tweezers: For handling small hardware components and connectors.

- Anti-Static Wrist Strap: To prevent electrostatic discharge (ESD) when handling sensitive hardware.
- Cable Ties: For organizing and securing cables during installations.
- Compressed Air Canister: For cleaning dust and debris from hardware components like fans and heat sinks.

3.1.2 INSTALLATION PROCEDURES

Installation of a Printer

- Unboxing and Assembling :

Remove the printer from its packaging and install cartridges and paper trays.

- Connecting to the System:
  Use USB or wireless connections to link the printer to the computer.

  Driver Installation:
- Install necessary drivers from the provided CD or download them from the manufacturer's website.

  Testing:

- Print a test page to confirm proper setup.

REASONS FOR HARDWARE

Hardware forms the backbone of any computer system, enabling the execution of software and serving as the physical foundation for technology. Below are key reasons why hardware is essential in various applications:

- Physical Foundation of Technology

- Execution of Computational Tasks
- Storage and Retrieval of Data
- Interaction with the Physical World

3.1.3 TROUBLESHOOTING TECHNIQUES

Troubleshooting is the process of diagnosing and resolving hardware-related issues to ensure optimal system functionality. Below are common troubleshooting techniques used in hardware:

- Visual Inspection
- Power Supply Check
- Component Reseating
- Diagnostic Tools
- Isolation Testing
- Driver Updates and Firmware Checks
- Clearing CMOS or BIOS Reset
- Error Code Analysis
- Cable Management and Connection Check
- Factory Reset or Reinstallation

Visual Inspection

- ❖ Technique: Physically inspect the hardware for visible damage, such as broken components, burnt marks, loose connections, or dust accumulation.
- ❖ Purpose: Identifies obvious issues that can be resolved without technical tools.

Power Supply Check

- ❖ Technique: Verify if the hardware is receiving adequate and stable power using a multimeter or a power supply tester.
- ❖ Purpose: Addresses issues caused by insufficient or fluctuating power supply.

Component Reseating

- Technique: Remove and reinsert components like RAM, GPUs, or cables to ensure proper connections.
- Purpose: Resolves loose connection problems that cause hardware to malfunction.

Diagnostic Tools

- Technique: Use software or hardware tools such as POST (Power-On Self-Test) cards, mem test software, or disk diagnostics tools.
- Purpose: Identifies specific errors in hardware components like memory, storage devices, or motherboards.

Isolation Testing

- Technique: Disconnect all non-essential hardware components and test the system with only critical components connected (e.g., CPU, motherboard, RAM).
- Purpose: Pinpoints the faulty component by process of elimination.

Driver Updates and Firmware Checks

- Technique: Update outdated drivers or firmware through the manufacturer's website or automatic update tools.
- Purpose: Resolves compatibility and performance issues caused by outdated software.

Clearing CMOS or BIOS Reset

- Technique: Reset the BIOS/UEFI settings by removing the CMOS battery or using a dedicated reset jumper.
- Purpose: Fixes configuration errors that prevent hardware from functioning correctly.

Error Code Analysis

- Technique: Check beep codes, LED indicators, or error messages during POST to identify specific hardware failures.
- Purpose: Provides direct insight into the faulty hardware part.

Cable Management and Connection Check

- Technique: Ensure all cables are securely connected and free from physical damage.
- Purpose: Resolves connectivity issues caused by damaged or improperly connected cables.

Factory Reset or Reinstallation

- Technique: Perform a factory reset or reinstall the operating system to resolve persistent software-hardware compatibility issues.
- Purpose: Eliminates software-induced hardware problems.

3.2 MAINTENANCE OF HARDWARE

Proper maintenance of hardware ensures optimal performance, longevity, and reliability of computer systems and related devices. Below are key practices and strategies for maintaining hardware:

- Regular Cleaning
- Proper Ventilation
- Software Updates and Upgrades
- Regular Inspections
- Backup and Data Management
- Regular Battery Maintenance

3.2.1 SOME PROJECT DONE AT THE FIRM

REPAIR

REPAIR OF CARTRIDGE

TROUBLE SHOOTING

REPAIR OF HP DESKTOP

CHAPTER FOUR

CHALLENGES AND PROBLEM ENCOUNTERED

It is not uncommon to hear students on their Student Industrial Work Experience Scheme (SIWES) or internship lament over their unpleasant experiences, especially the challenges encountered in the process of finding a firm to accommodate and support them.

While it is expected of students to go out and acquire practical knowledge of their chosen fields, it seems also right for firms to make provisions to support their efforts.

Though internship is peculiar to polytechnics, but most universities have followed suit depending on the course of study of the students. The major objective of internship is to help students apply theoretical knowledge and school-based skills to practice before they enter the world of work.

The program came into existence following decree No. 47 of October 08, 1971 as amended in 1990. This decree gave birth to the founding of the Industrial Training Fund (ITF) in 1973/1974, which in turn established the Students Industrial Work Experience Scheme (SIWES) to bridge the gap between school-based knowledge and work-place skills. Though industrial training provides students with work experience that prepares them for the work place, but the major advantage is that it helps students discover their areas of career interests which they are most likely to acquire.

But despite this advantage, internship isn't without its hiccups, as students face the challenges of getting firms that would not just absorb them in their core areas of competence, but pay them monthly allowances. Vanguard Learning investigation reveals that organizations such as banks request for IT students because of cheap labour, others do not wish to accommodate students who beg for placements, while some organizations will ask the students to pay for the knowledge that will be acquired. Some of the challenges faced are listed below:

- Trekking each day to ELECTRONICS & HARDWARE LABORATORY DEPARTMENT OF COMPUTER SCIENCE, AL-HIKMAH UNIVERSITY, ADETA ROAD ILORIN.
- Lack of free access to internet for SIWES students at training place.
- T-fare cost

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.0 CONCLUSION

In conclusion, this report has dealt with all I was taught both practical and theory during the SIWES program. The SIWES program is of great advantage which every student that participated will forever remember.

5.1 PERSONAL IMPRESSION ABOUT THE ORGANISATION

The UNIVERSITY OF ILORIN TEACHING HOSPITAL, OLD JEBBA ROAD, OKE-OSE ILORIN KWARA STATE NIGERIA is a place to be and thank God that I went there for the industrial training. They have God fearing staffs and student have unlimited and unrestricted access to all their resources this makes it easier for students to learn fast.

5.2 SUGGESTIONS AND RECOMMENDATIONS

I will suggest that the ITF should keep the SIWES program going so that students in the higher institution can gain more practical experience which will prepare them ahead of the labor market demands.

I recommend the UNIVERSITY OF ILORIN TEACHING HOSPITAL, OLD JEBBA ROAD, OKE-OSE ILORIN KWARA STATE NIGERIA Road Ilorin for any computer science student interested in Hardware Maintenance, it is a place where one can never be the same after being trained and also for any IT department the student might fall into.