SIWES TECHNICAL REPORT

WRITTEN BY:

OMOLAYO FAWAZ DAMILARE

ND/23/WEC/FT/0025

HELD BETWEEN:

AUGUST TO DECEMBER.

HELD AT:

KB FABRICATION WORKSHOP NIG. LTD.

AIRPORT ROAD, OPPOSITE NASFAT,

ILORIN, KWARA STATE.

SUBMITTED TO:

DEPARTMENT OF WELDING AND FABRICATION ENGINEERING TECHNOLOGY

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF NATIONAL DIPLOMA (ND) CERTIFICATE IN WELDING AND FABRICATION ENGINEERING TECHNOLOGY

CERTIFICATION

This is to certify that *OMOLAYO FAWAZ DAMILARET* of Department of *WELDING AND FABRICATION* with matriculation number *ND/23/WEC/FT/025* has completed his four months SIWES training program held between 29TH JULY TO 16TH NOVEMBER, 2024 at *KB FABRICATION WORKSHOP NIG. LTD.* Airport Road, Ilorin, Kwara State.

SIWES SUPERVISOR *SIGNATURE*
& DATE

SIWES COORDINATOR *SIGNATURE*
& DATE

HEAD OF DEPARTMENT *SIGNATURE*
& DATE

DEDICATION

This SIWES work is dedicated to Almighty God who gave me the knowledge and wisdom to complete this course. I give Him all the glory, honour and adoration for His protection, provision and guidance throughout the period of my study.

ACKNOWLEDGEMENT

My special thanks go to my lovely parents Mr and Mrs RASHEED, together with my guidance that have been there for me. May Almighty God grants them long lives and prosperities and for them to eat the fruit of their labour.

Furthermore, I equally acknowledge my brothers, sisters and my younger ones. May God blesses them all.

I am particularly indebted to all staffs of KB FABRICATION WORKSHOP NIGERIA LIMITED, Airport Road, Ilorin, Kwara State.

REPORT OVERVIEW

SIWES (Students' Industrial Work Experience Scheme) is a four months skill training program designed to expose and prepare students of Tertiary Institutions such as Kwara State Polytechnic for the Industrial Work experience they are likely to meet after graduation.

KB Fabrication Workshop Nigeria Limited is located in Ilorin, Kwara State Capital along Airport Road, opposite NASFAT prayer ground. The company is mainly into Fabrication, Construction and offering Burglary Fabrication, Gate Fabrication, Iron Door Fabrication and Metal Fabrication.

Work actually carried out during the four months SIWES training are welding and fabrication of BURGLARY, welding and fabrication of METALLIC GATE and welding and fabrication of IRON DOOR.

Experiences gained are I know how to use electric arc welding machine, I know how to weld different weld joints such as butt joint, corner joint, tee joint, lap joint and edge joint. I also know how to carry out measuring and cutting out operations using try-square, meter rule and hack saw.

Conclusion and Recommendation. My four months SIWES program has made me to have technical knowledge about what I have learnt theoretically in the classroom. I will recommend that the organization should provide some stipend for SIWES students and transport facility so as to ease their mobility.

RASHEED, KEHINDE BASIT

LIST OF FIGURES

LIST OF TABLES

TABLE OF CONTENTS

Table of Contents
viii - ix

CHAPTER 1

INTRODUCTION

1.1: BACKGROUND OF SIWES

The Student Industrial Work Experience Scheme (SIWES) is a skill training program designed to prepare and expose students of Tertiary Institutions like POLYTECHNICS to the industrial work situation they are likely to meet after graduation. The scheme afford students the opportunity to familiarizing and exposing themselves to handling equipment machinery that are usually not available in institutions.

Before the establishment of the scheme, there was a growing concern among industrialists that graduates of Tertiary Institutions lacked adequate practical background (studies) preparatory for employment in industries. Thus, the employers were of the opinion that the theoretical education going on in institutions of higher learning was not responsive to their needs.

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 ITF solely funded the scheme during its formative years. But as the financial involvement became unbearable to the fund, it withdrew from the scheme in 1978. The Federal Government handed over the scheme in 1979 to both the National Universities Commission (NUC) and the National Board for Technical Education (NBTE).

Later, the Federal Government in November 1984 reverted the management and implementation of the SIWES program to ITF and it was effectively taken over by the Industrial Training Fund in July 1985 with the funding being solely borne by the Federal Government.

SIWES is a tripartite program involving the STUDENTS, the POLYTECHNIC and the INDUSTRIES (employer of labor). The program is funded by the Federal Government of Nigeria and jointly coordinated by Industrial Training Fund (ITF) and National Board for Technical Education (NBTE).

1.2: OBJECTIVES OF SIWES

Specifically, the objectives of the Students Industrial Work Experience Scheme (SIWES) are to:

(i) Provide an avenue for students in institutions of higher learning to acquire industrial skills and experience in their course of studies.

(ii) Prepare students for the industrial work experience they are to undergo after graduation.

(iii) Expose students to work methods and techniques in handling equipment and machinery that may not be available in their institutions.

(iv) Make the transition from school to the real world.

(v) Enhance students' contacts for later job placement.

(vi) Provide students with an opportunity to apply their knowledge in real work situation.

(vii) Bridge the gap between theory and practical.

(viii) Enlist and strengthen employer's involvement in the entire educational process.

(ix) Prepare students for employment in Industry and Commerce.

(x) Satisfy accreditation requirements set by NBTE.

CHAPTER 2

DESCRIPTION OF THE ESTABLISHMENT OF ATTACHMENT

2.1: LOCATION AND BRIEF HISTORY OF ESTABLISHMENT

KB Fabrication Workshop Nigeria Limited is located in Ilorin, Kwara State Capital along Airport Road, opposite NASFAT prayer ground. The company is mainly into Fabrication, Construction and offering Burglary Fabrication, Gate Fabrication, Iron Gate Fabrication and Metal Fabrication.

2.2: OBJECTIVES OF ESTABLISHMENT

The objectives of KB Fabrication Workshop Nigeria Limited are as follow:

(i) Foremost in Metal Fabrication, Metal Engineering, Steel Construction and Agricultural Machineries.

(ii) Design and drawing of welding and bending of pipe works for fabrication process.

(iii) Leading Metal Fabrication company.

(iv) Automotive Body Shop and Metal Fabricator.

(v) One stop shop for metal/steel construction, building engineering, project management, auto dealership and general contract.

2.3: ORGANIZATION STRUCTURE (INCLUDIND ORGANOGRAM)

Organization Structure of KB Fabrication Workshop Nigeria Limited, along Airport Road, Ilorin, Kwara State.

1. Manager
2. Assistance Manager
3. Supervisors
4. Workers
5. Apprentices

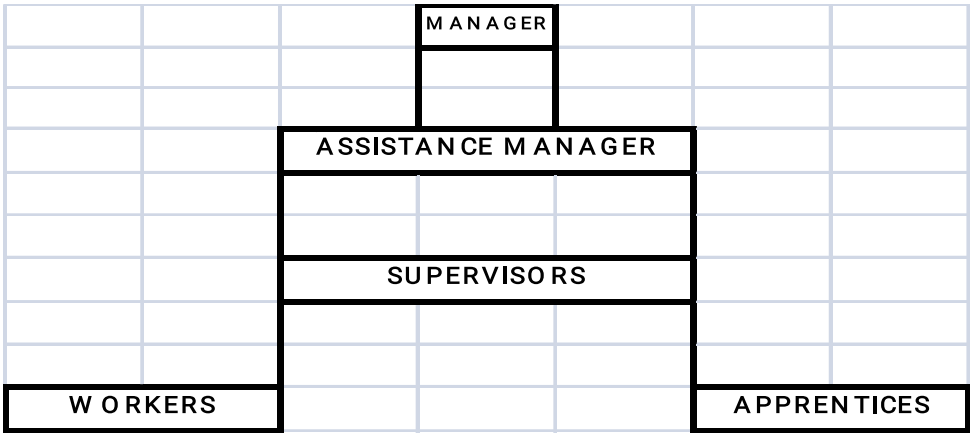

FIG. 1: ORGANOGRAM OF KB FABRICATION WORKSHOP NIG. LTD.

4

2.4: VARIOUS UNITS IN THE ESTABLISHMENT AND THEIR FUNCTIONS

S/N	UNIT	FUNCTION
1	WELDING AND FABRICATION UNIT	RESPONSIBLE FOR WELDING AND FABRICATION WORK
2	BUILDING UNIT	CONSTRUCTION AND MAINTENANCE OF BUILDING
3	MECHANICAL UNIT	KEEPING AND MAINTENING OF VEHICLES
4	ELECTRICAL UNIT	RESPONSIBLE FOR ELECTRICAL WORK
5	ACCOUNTING UNIT	PREPARE BUDGET AND EXERCISE BUDGETTING CONTROL

TABLE 1: ESTABLISHMENT'S UNITS AND THEIR FUNCTIONS

5

CHAPTER 3

WORK ACTUALLY CARRIED OUT

3.1: WELDING AND FABRICATION OF BURGLARY

The following operations were carried out during the welding and fabrication processes of burglaries, namely:

(i) DESIGN OF BURGLARY: This involves detail calculation and drawing of the burglary to be fabricated.

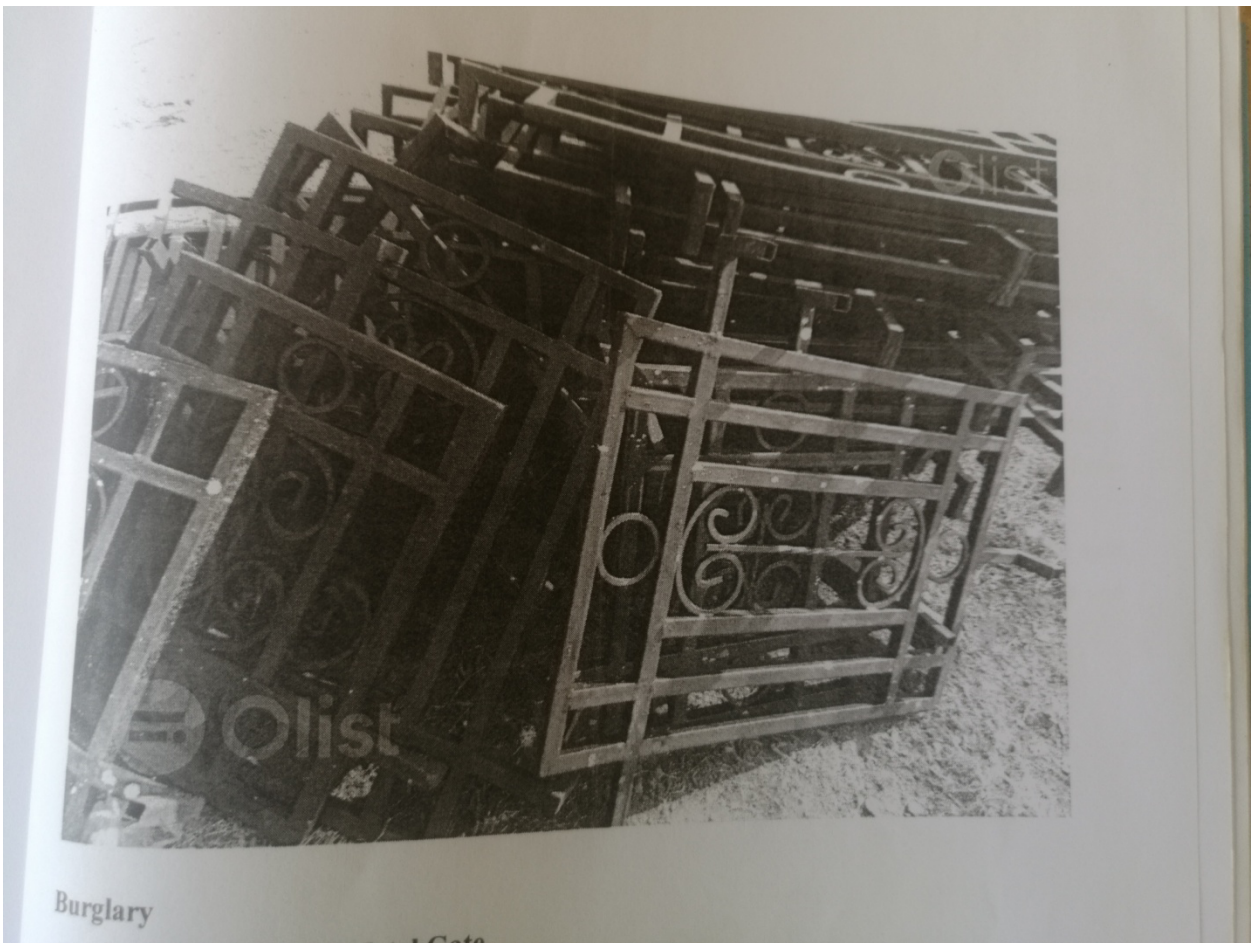

FIG.2: BURGLARY

(ii) MEASURING OF MILD STEEL: This involves the measurement of 16mm mild steels iron to prescribed lengths as shown in the detailed diagram. It was done with the aid of a measuring tape.

(iii) CUTTING OF MILD STEEL: Mild steels were cut in accordance with the prescribed measurement and designed values using hack saw.

(iv) WELDING: Using arc welding process where coalescence is produced by heating the work piece with an electric arc set-up between a flux coated electrode and the work piece.

3.2: WELDING AND FABRICATION OF METALLIC GATE

To fabricate a metallic gate, some basic operations are carried out using the vice, hack saw, hand grinding machine and the drilling machine.

The following were the steps followed during the welding and fabrication of the metallic gate:

(i) MARKING OUT: Before any fabrication and construction is carried out, marking out is first operation to be carried out so as to construct the exact size. The marking out was done on a 3x3 angle iron using a meter rule and the scriber.

(ii) CUTTING OPERATION: After the marking out, the next step is the cutting operation and it was carried by the use of the hand grinding machine.

(iii) WELDING OPERATION: Before welding was carried out, tackling was done for temporary fastening so as to have a correct figure. And then full welding was carried out on the four angles iron members using an electric arc welding to form a rectangular shape.

(iv) GRINDING OPERATION: This grinding operation was carried out using the hand grinding machine to smoothen the welded part in other to look fine and have a smooth surface.

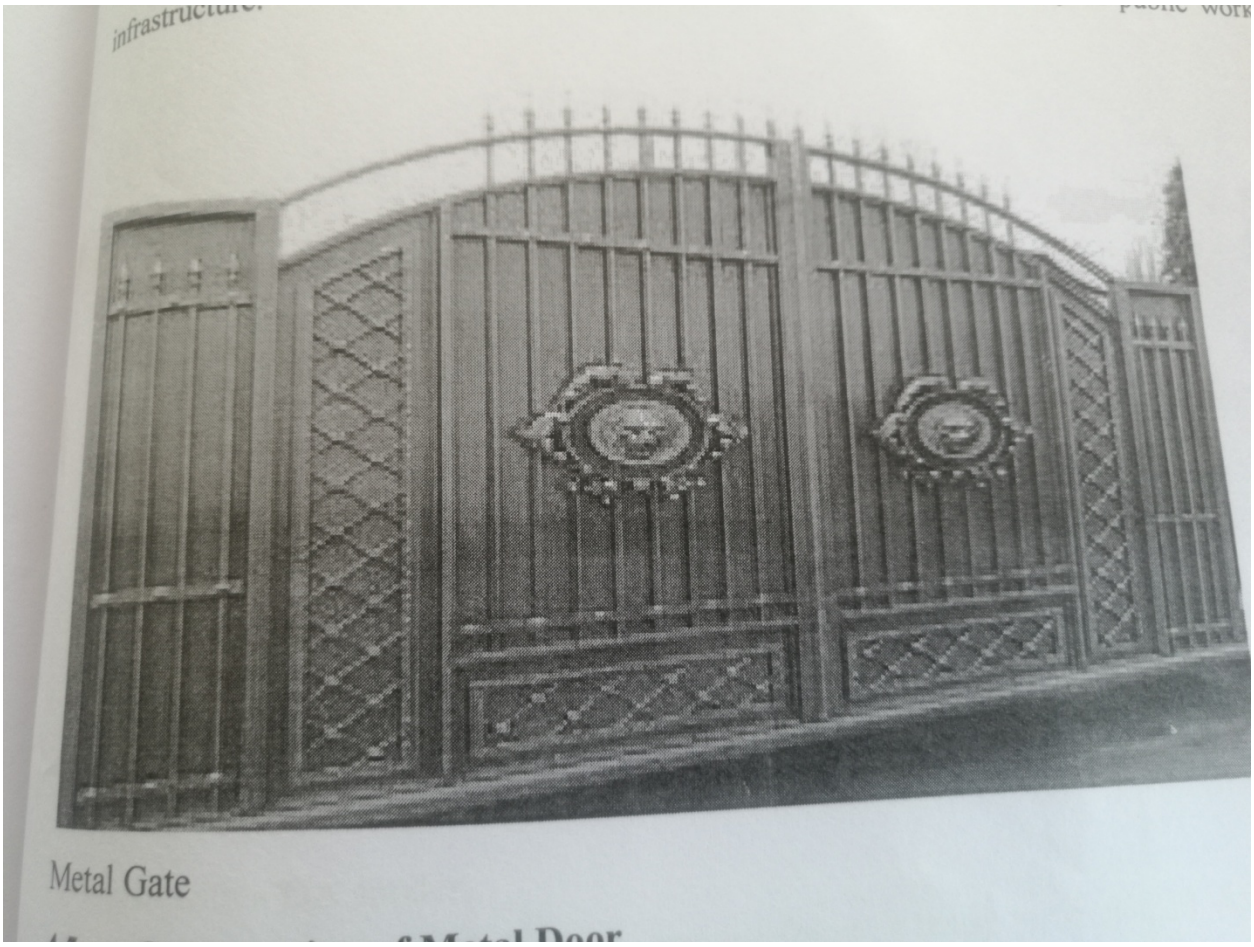

FIG.3: METALLIC GATE

(v) DRILLING OPERATION: This drilling operation was carried out using the vertical drilling machine so as to have a spot in order to fix a chain link when a copper wire was use to tie it to the angle iron and a fence was constructed. With the following procedure a metal fence was successfully constructed. The metal was fixed in between pillars behind the workshop in the Ministry of Public Works and Infrastructure.

3.3: WELDING AND FABRICATION OF IRON DOOR

(A) WELDING PREPRATION

(i) Properly setting up the frame before welding is critical to ensure the finished frame is squared.

(ii) Lay the head and the two jambs down on a level work surface with the door side down.

(iii) Assemble the frame and bend tabs on the jamb to lock the jambs to the head. Follow the manufacturer's instructions to determine which direction to bend the tabs. This is critical to ensure the proper door opening width.

(iv) Clamp the frame to the table for stability. Confirm the frame is squared and adjust as needed.

(v) Tack welding a shipping bar into the door side of the frame to guarantee the opening width of the welded frame. For example, if the door opening is 3 feet, then the spreader bar should be exactly 3 feet.

(vi) Now the frame is ready for welding. Using the minimum amount of weld necessary, apply the face weld or full profile weld as specified.

(B) WELDING FINISHING

(i) Grind until the weld is level with the face of the frame.

(ii) File the edges smooth.

(iii) Finish with a DC sander.

(iv) The finishing process is completed and the frame is ready to be painted. After it was painted, a proper weld will give the frame a seamless appearance.

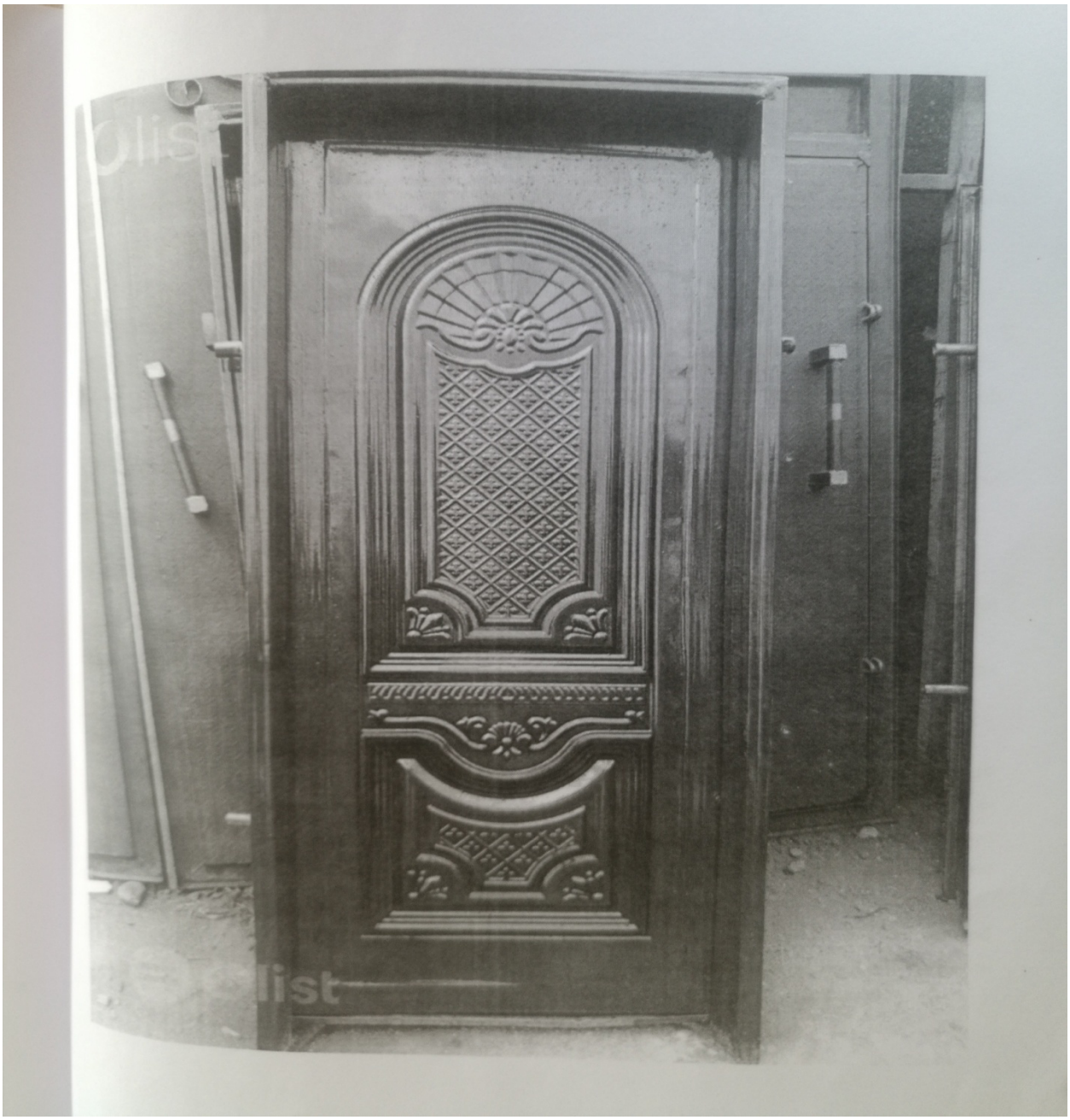

FIG.4: IRON DOOR

CHAPTER 4

EXPERIENCES GAINED

4.1: EXPERIENCE ON ARC WELDING

In Arc Welding, a welding power is used to create and maintain an electric arc between an electrode and the base metal to melt at the welding point. In such welding process the power supply could be AC or DC, the electrode could be consumable or non-consumable and a filler material may or may not be added. The most common type of arc welding is Shielded Metal Arc Welding (SMAW).

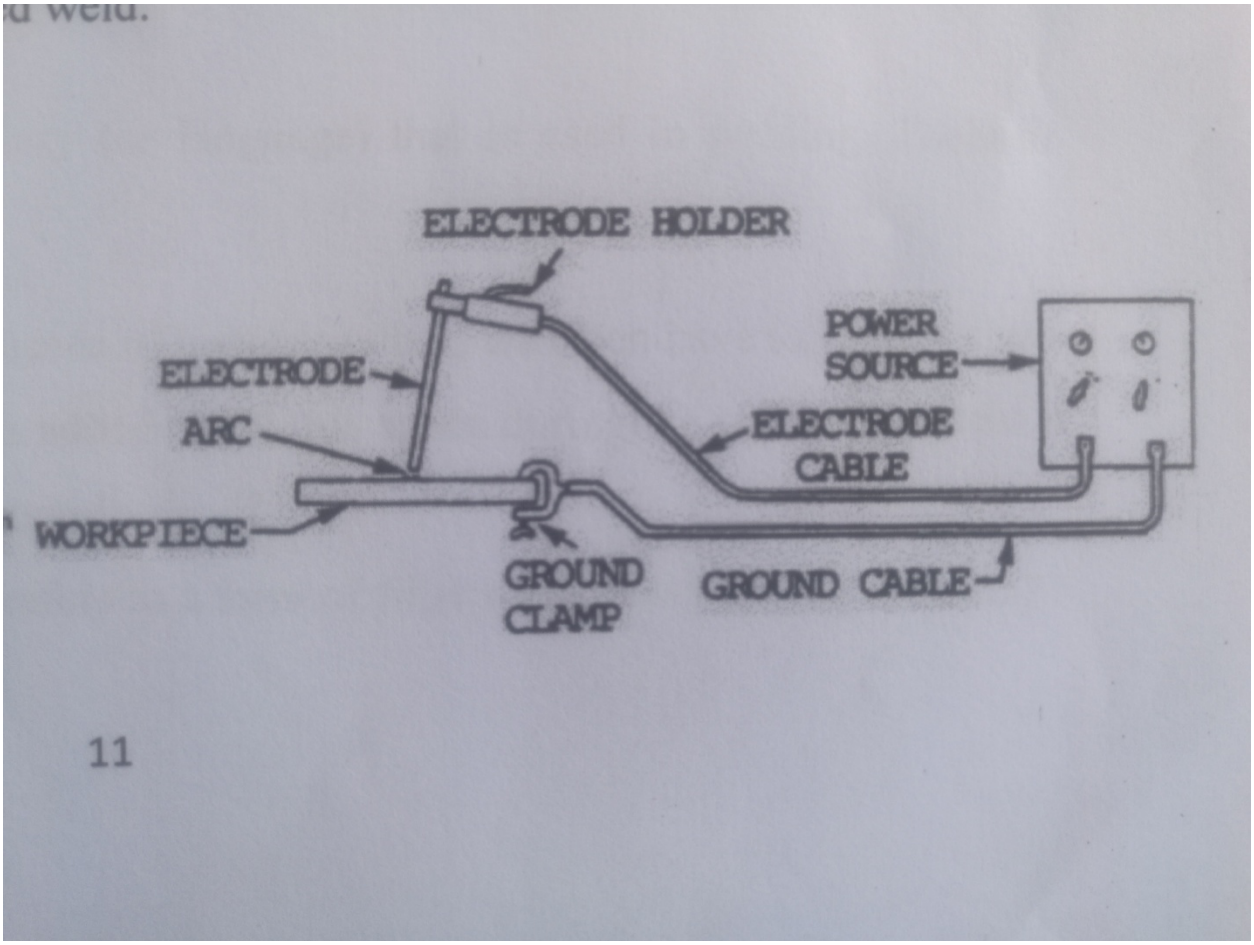

FIG.5: ARC WELDING

Shielded Metal Arc Welding (SMAW): A process that uses a coated consumable electrode to lay the weld. As the electrode melts, the (flux) coating disintegrates, giving off shielding gases that protect the weld area from atmospheric gases and provides molten slag which covers the filler metal as it travels from the electrode to the weld pool. Once part of the weld pool, the slag floats to the surface and protects the weld from contamination as it solidifies. Once hardened, the slag must be chipped away to reveal the finished weld.

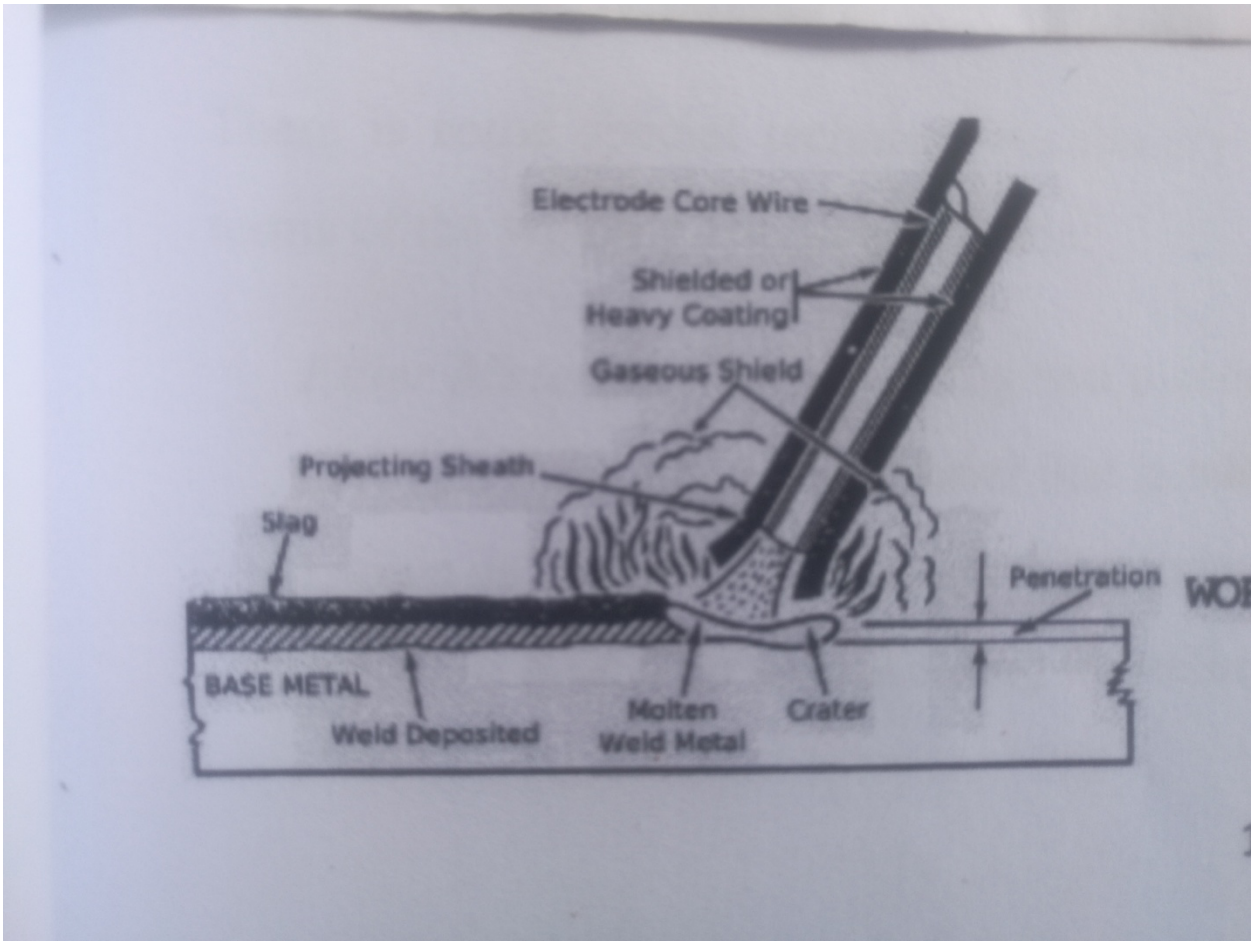

FIG.6: PRINCIPLE OF ARC WELDING

4.2: EXPERIENCE ON WELD JOINTS

The weld joint is where two or more metal parts are joined by welding. The five basic types of weld joints are the butt, corner, tee, lap and edge.

BUTT JOINT: It is used to join two members aligned in the same plane. This joint is frequently used in plate work, sheet metal work and pipe work.

CORNER AND TEE JOINTS: These joints are used to join two members located at right angles to each other. In cross section, the corner joint forms an L-shape and the tee joint has the shape of letter T.

LAP JOINT: This joint is made by lapping one piece of metal over another.

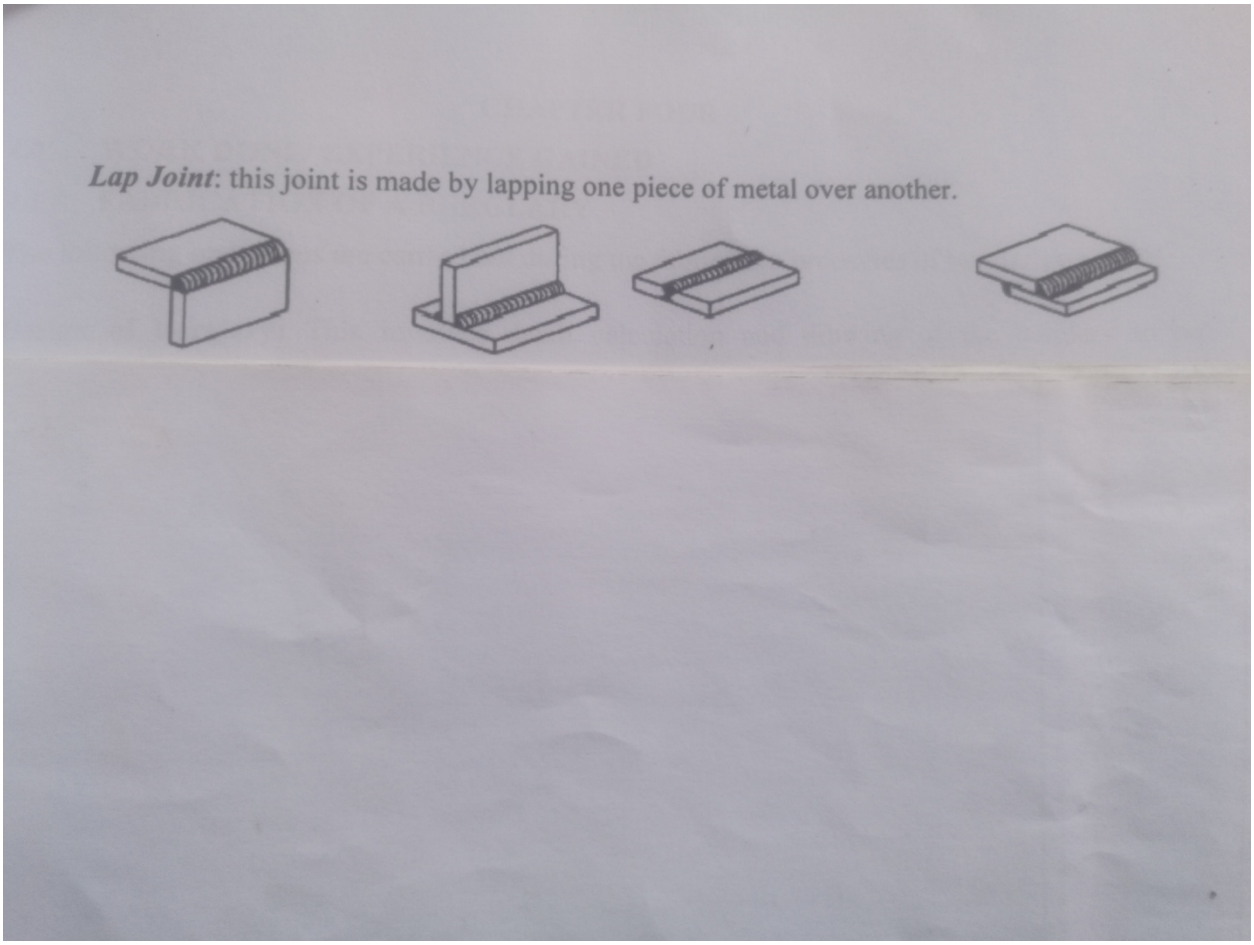

FIG.7: TYPES OF WELD JOINTS

4.3: EXPERIENCE ON MARKING OUT AND CUTTING OPERATION

MARKING OUT: Before any welding and fabrication operation is carried out, marking out is the first operation to carried out so as to fabricate the exact size. Try square and meter rule are usually used when marking out together with scriber.

CUTTING OPERATION: After the marking out, the next operation is cutting operation. Manually it is carried out using Hack Saw.

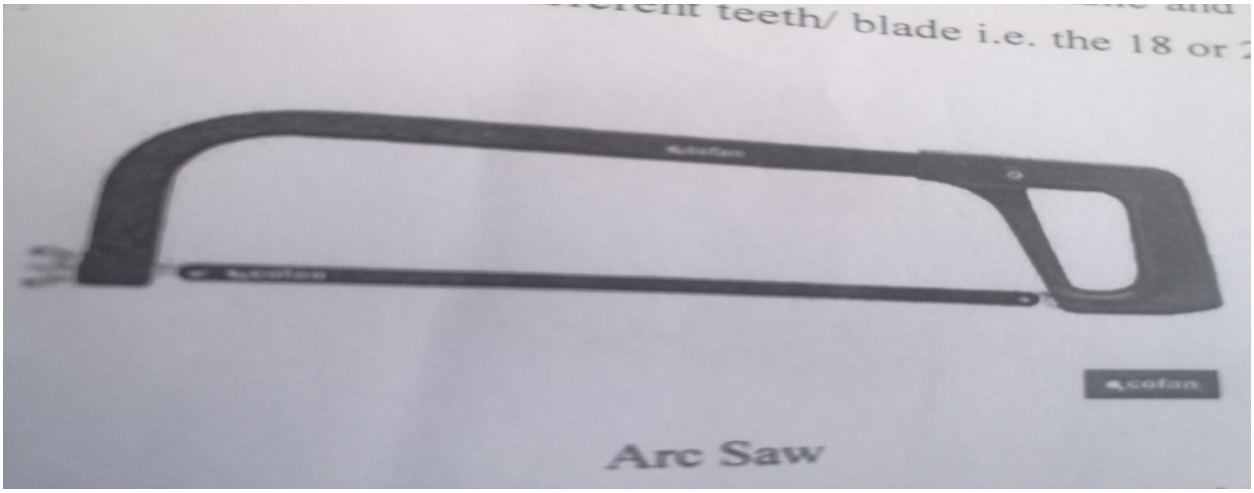

FIG.8: HACK SAW

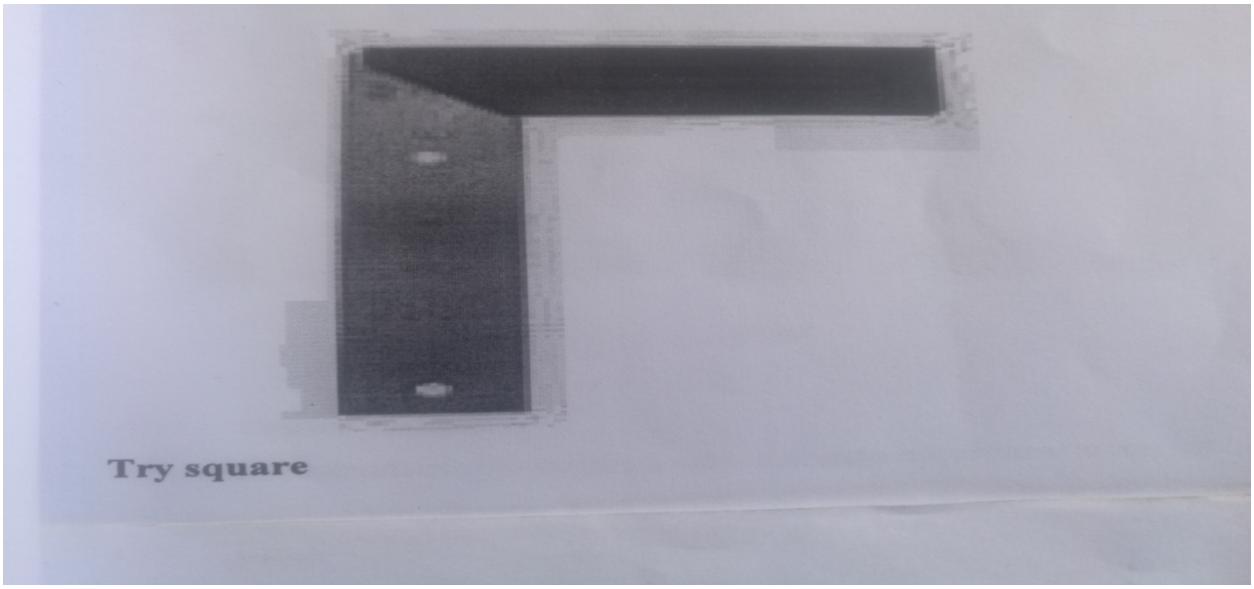

FIG.9: TRY SQUARE

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1: SUMMARY OF ATTACHMENT ACTIVITIES

The four months SIWES program is an efficient and an effective program which has bring much improvement to me in my field of study. I have gained a lot of experiences from the various works done on field such as fabrication of sliding gate, welding of metallic iron door as well as welding and fabrication of different set of burglary.

It is a program that bridges the gap between theories and practical, therefore it has made me to have technical knowledge about what I have learnt theoretically in the classroom.

5.2: PROBLEMS ENCOUNTERED DURING THE PROGRAM

Despite the knowledge, experiences and exposures acquired during my four months SIWES program, the following are some of the problems and challenges I encountered:

(i) Difficulty in finding a place for industrial training is a big problem for students on SIWES program.

(ii) Another challenge is transport fare issues. After eventually getting a company for the SIWES program, to finance my transport fare to my place of work is a very difficult experience.

(iii) The combination of the industrial training together with the course work was so challenging and stressful.

5.3: SUGGESTIONS FOR THE IMPROVEMENT OF THE SCHEME

(i) I would suggest and strongly recommend that the establishment should be giving stipend to SIWES students.

(ii) I would also suggest and recommend that the establishment should provide transport facilities for SIWES students so as to ease their mobility.

REFERENCE

(i) Students Industrial Work Experience Scheme SIWES (2023). Students Manual a Practical Approach, Kwara State Polytechnic, Ilorin. Pp 2-5, Pp 17 and 26-27.

(ii) Students Industrial Work Experience Scheme SIWES (2024). Training Logbook.

(iii) *http://www.kbfabrication.com (accessed on Saturday 2nd of November, 2024 at 4.07pm)*

16