



TECHNICAL REPORT

ON

STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

HELD AT

**UNIVERSITY OF ILORIN TEACHING HOSPITAL (UITH) OLD JEBBA ROAD,
OKE-OSE, P.M.B 1459, ILORIN KWARA STATE NIGERIA.**

BY

ISSA AMURA ABDUL -QODIR

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ENGINEERING.**

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DEDICATION

This report is dedicated to Almighty Allah Subuhanalilahi (SWT) for his mercy and blessing on me that made it possible for me to begin and end the four month Industrial training in good health I said Alhamdulilahi.

ACKNOWLEDGEMENTS

My profound gratitude goes to Almighty Allah (SWT), Who in his infinite mercy has granted me favor to be partaking of his wisdom, knowledge and understanding especially in the course of programmed.

I wish to extend my heartfelt gratitude to my lovely and caring parent Mr. and Mrs. **ABDULKAREEM ISSAAMURA** for their financial and moral support throughout the course of the study. May them live long to reap the fruit of their labor, I am using this medium of opportunity to thank my family for their great support during my programmed.

I will never forget to appreciate the effort of my industrial based supervisor in person of **ENGR MAROOF JENYO (HOD)** works department, UITH Ilorin and all the staff of University of Ilorin Teaching Hospital. I will also like to appreciate the board staff of social maintenance and services unit starting from **ENGR. FEMI OROJO, ENGR. ABDULLAI, ENGR. SAKA BOLAJI ABDULKAREEM** and my second father **MR.WOPA ABDULFATAHI** may Almighty Allah Bless you All. (AMEEN).

PREFACE

The Student Industrial Work experience Scheme is an essential part of the preparation of student for their National Diploma in engineering courses to satisfy the accreditation requirement.

The Industrial training is not just a mere Vacation Job, Also this four months Industrial training has enable me to be able to take into practical all the ethical work done in class.

It helps to give me an experience of what the course Mechanical Engineering is all about.

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CHAPTER ONE

1.0 INTRODUCTION

Student Industrial Work Experience Scheme (SIWES) is designed to take care of the practical aspects of learning in science and engineering profession. It is important that students are allowed to go out and learn how to put into practice of those theories and laws learnt in lecture rooms while still in course of study and to have more experience. That is why engineering students of Kwara State Polytechnic are mandated to take part, in the training program. The training is applied for the students under Student Industrial Work Experience Scheme (SIWES).

1.1 OBJECTIVES OF SIWES

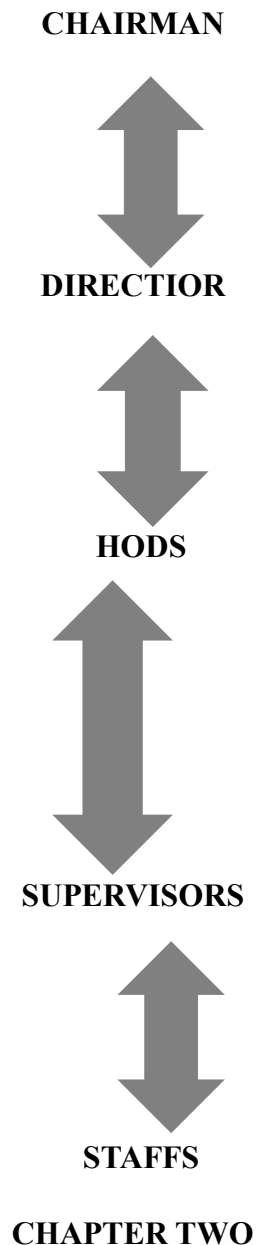
1. SIWES program provide students with the experience that will enable them to Function professionally after graduation.
2. It also enhances contact for future employment.
3. It enables students to bridge the gap between lecture room and environment practical work.
4. It is practically make students see and know those challenges they are likely to encounter in their chosen field.
5. Finally it strengthens industrial involvement in higher institution education with objective of the student and trainer relationship to foster good qualitative training of the student.

1.2 HISTORICAL BACKGROUND OF THE ORGANIZATION

University of Ilorin Teaching Hospital is situated along old Jebba Road Oke Ose, P.M.B 1459, Ilorin Kwara state, Nigeria. The Hospital has been in existence since 1980 and have been managed by so many expertise. The hospital is well

Known throughout Kwara State of Nigeria.

1.3 ORGANIZATION CHART



2.0 STOCK SECTION

In this store, different types of Refrigeration materials are kept there, such as;

- ❖ Evaporator
- ❖ Condenser
- ❖ Pipes
- ❖ Compressor
- ❖ Capillary
- ❖ Drier
- ❖ Capacitor
- ❖ Pallet
- ❖ Contactor
- ❖ Time Delay
- ❖ Phase Failure
- ❖ Gear Switch

❖ Refrigerant



2.1 IDENTIFICATION OF STORE MATERIAL

Copper Pipe: This is a metal of brownish -red color and it is usually used for Refrigerator, ice-block machine and cold room.

DILFERENT SIZE OF COPPER PIPE

- Quarter Pipe (1/4)
- 5/16 Pipe
- 3/8 Pipe
- Half inch pipe
- 5/8Pipe
- 778 Pipe



Condenser fan blade



cut-head compressor



Evaporator



Evaporator fan roller

CHAPTER THREE

3.0 ICE BLOCK MACHINE

This is another type of refrigeration system but its main purpose is to make of
Produce an ice-block.

These are component of ice-block machine which are:

- Compressor
- Condenser
- Evaporator (made up of copper pipe)
- Pallet
- Capillary tube
- Condenser



Condenser

3.1 REFRIGERATOR

Refrigerator means the process of removing heat from a substance to be cool.

Important and function of parts of the Refrigerator

1. **Condenser:** Is an external part of the refrigerator, when the compressor is

Working the condenser will begin to develop a kind of heat.

2. **Evaporator:** Is an internal aspect of the refrigerator, when the compressor is working the evaporator will begin to freeze.

3. **Compressor:** is the brain of refrigerator in the sense that this compressor is the transmitter of the system, it transmit the coding aspect to the Evaporator and also warming to the condenser aspect.

4. **Capillary tube:** This is a tinning tube that is connected to the evaporator and this Is where the freezing starts.

5. **The Body:** This is where the above listed part are attached in order to form a

System.



Compressor

LIKELY FAULT TO BE DEVELOP BY REFRIGERATOR

1. Damage of compressor
2. Damage of Overload and relay
3. Escape of gas

1. **Damage of Compressor:** In a situation whereby the compressor is no more working efficiently, also it may burn due to fluctuation of electricity or low voltage.

2. **Damage of Over load and Relay:** When the relay or the overload have problem,

Then we said the refrigerator has develop fault.

3. **Escape of Gas:** This occur whenever the condenser or the evaporator rust.

3.2 REFRIGERANT

Refrigerant is substance or mixture, usually a fluid, used in a heat pump and Refrigeration cycle.

Examples of Refrigerant that is common use for Refrigerator are:

R600a

RI2.

R134a

3.3 AIR CONDITION

Air condition is a type of refrigeration use in to remove heat from a room or an Office and to make it cool.

Types of Air Conditioner Unit

Window Air Conditioner Unit

Split Air Conditioner Unit

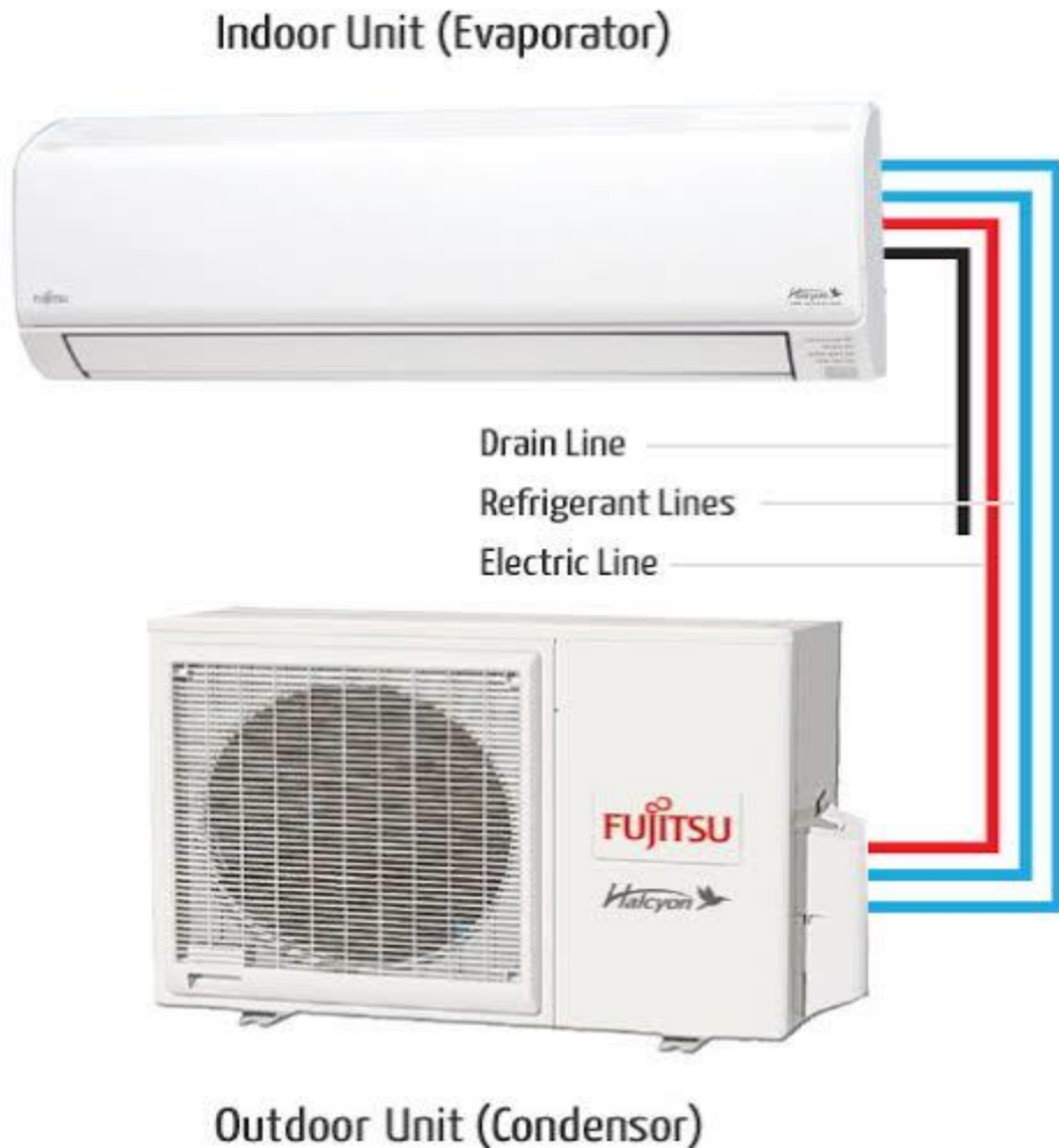
Central Air Conditioner Unit

Standing (Portable) Air Conditioner Unit

Window Air Conditioner Unit: is the type of air conditioner that is usually install in a way that a portion of the wall is not covered in order to install the unit, where the condenser side will face outside and evaporator will face inside.



Split Air Conditioner Unit: This is made of two oil. The indoor unit and the outdoor unit, where the indoor unit or evaporator is bony on the wall through the means of hanger and like 5 inches of wall is drilled to 1he other side in fodder is connect the pipe and the wire to the outdoor unit.



Central Air Conditioner Unit: This are commonly use in a big company or a
Very large hall.



Standing (Portable) Air Conditioner Unit: as the name implies. This is a very tall and portable air conditioner usually placed in a corner of a room.

Hisense



Types of Air Conditioner Compressor.

- ❖ Reciprocating Compressor
- ❖ Scroll Compressor
- ❖ Screw Compressor
- ❖ Rotary Compressor
- ❖ Centrifugal Compressor

Out of the above listed types, the most common types that is familiar to us is Rotary Compressor; simply because Rotary Compressor are usually very small, quiet, and reliable.



Rotary compressor

Servicing of Air Conditioner

This is the removal of dirt or dust from the fins of the condenser and the evaporator as well in order to make the air conditioner unit to perform perfectly, and the equipment used for the servicing of air conditioner in the workshop is called WATER COMPRESSOR.



Water compressor

CHAPTER FOUR

4.0 COLD ROOM

Cold Room is usually a room use to freeze or chill food stuff. E.g. Fish, meat, -turkey e.t.c.

Types of Cold Room Compressor

1. Belt drive compressor

Copland compressor

2. Thermos king compressor

4.1 TOOLS USED IN THE ORGANIZATION

- Spanner
- Plier
- Hammer
- Allen Key
- Drilling Machine
- Cutting Machine
- Grinding Machine
- Chisel
- Riveting Machine
- Screw driver
- Charging hose



PLIER



SCREWY DRIVER



WRENCH



FLARING TOOLS



TESTING GAUGE

4.2 SAFETY HANDLING TOOL

- a. Use correct tool/ equipment for a proper work
- b. Do not litter the environment with the tools to avoid accident in the workshop
- c. Handle or grip firmly the tools e.g. hammer and chisel while in use.
- d. Do not put Or leave tools e.g. or suspended under high temperature environment to avoid expansion of the tools.
- e. Do not use damaged tools or equipment to avoid further damage and accident to you and people around.
- f. Do not use any tool that you do not know the technical way of kindling it.

4.3 MAINTENANCE QF THE TOOLS

Maintenance is an important aspect that improves life span of these hand tools. Tools should be kept inside a recommended tool box. After use, tools should be cleaned and lubricated to prevent corrosion and also, reshaping tools like chisel when blurt.

As a matter of fact, always use the appropriate tools for the appropriate work of Lask.

4.4 CAR MECHANICS

- Car mechanics are professionals who diagnose, repair, and maintain vehicles.
- They work on engines, transmissions, brakes, and electrical systems.
- Key skills include technical knowledge, problem-solving, and using tools.

Tools for Car Repair**

- **Mechanics use**

Hand Tools:** Wrenches, screwdrivers, pliers, hammers, torque wrenches

Power Tools:** Impact wrenches, drills, grinders.

Diagnostic Tools:** OBD-II scanners, multimeters, battery testers.

Specialty Tools:** Engine hoists, transmission jacks, wheel balancers.

Safety Equipment:** Gloves, safety glasses, steel-toe boots.

Car Parts**

Cars consist of several systems and parts:

Engine:** Pistons, crankshaft, valves, spark plugs.

Transmission:** Clutch, gearbox, driveshaft.

Electrical System:** Battery, alternator, starter motor.

Fuel System:** Fuel pump, injector, filter.

Cooling System:** Radiator, water pump, thermostat.

Exhaust System:** Catalytic converter, muffler.

Suspension & Steering:** Shocks, struts, steering rack.

Braking System:** Brake pads, rotors, calipers.

Wheels & Tires:** Tires, rims, lug nuts.

Body & Interior:** Chassis, seats, dashboard.

Safety Features:** Airbags, seatbelts, ABS.

CHAPTER FIVE

5.0 SUMMARY OF THE WORK DONE, CONCLUSION, AND RECOMMENDATION

5.1 SUMMARY OF THE WORK DONE

The period of industrial training attachment at university of Ilorin Teaching Hospital has given me the opportunity of learning about repair of refrigerator, repair of air-condition, repair of ice-block machine, repair of cars and also repair of cold room as well as construction of cold room and ice-block machine.

I spent time with the engineers, technologists, craft man and also I.T student from other institutions from which I had acquired and received more knowledge from them.

5.2 CONCLUSION

The experience acquired at University of Ilorin Teaching Hospital in with four months Industrial Training is a great achievement for me in the area of Mechanical Engineering (refrigeration aspect) to be precise. As this knowledge impacted on me will be utilize in the future.

5.3 RECOMMENDATION

The Student Industrial Work Training Experience has brought me to a great extent (UITH) University of Ilorin Teaching Hospital of practical aspect of what is been impacted on me. I would like to recommend this training to be the integral part to all the student in order to have more knowledge in their area of

Specialization.