REPORT ON STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)

HELD

AT

FEDERAL AIRPORTS AUTHORITY OF NIGERIA, ILORIN, KWARA STATE.

BY

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SOME ABBREVIATIONS USED IN THE REPORT

FAAN	-	Federal Airports Authority of Nigeria
NAMA	-	Nigeria Airspace Management Agency
PAPI	-	Precision Approach Path Indicator
CCR	-	Constant Current Regulator
OCB	-	Oil Circuit Breaker
RMU	-	Ring Mains Unit
E 1	-	Edge Light One

E 2	-	Edge Light Two
ELCB	-	Earth Linkage Circuit Breaker
AFL	-	Air Field Lighting
LV Panel	-	Low Voltage Panel
A.C	-	Air Conditional
13 A	-	13 Ampere
15 A	-	15 Ampere
GEN	-	Generator
ILS	-	Instrument Landing System
VOR	-	VHF Omini-directional Radio Range
PVC	-	Poly Chlorovine cheated
PILC	-	Paper Insulated Lead Cheated
NDB	-	Non directional Radio Beacon

REPORT REVIEW

I did my industrial attachment at the electrical department of FAAN, Gen. Tunde Idiagbon International Airport (GTIIA), Ilorin where I was at first observe how to manipulate some electrical equipments/tools before I was allowed to be manipulate them for use on my own. The department controlled the primary source of power (IBEDC) to the airport and the secondary source of power (GEN).

During my SIWES programmed. I gained wealth of experience in the

1. High Tension unit
2. Low Tension unit (Domestic Installation).
3. CCR and Air Field Lighting Unit.

Also the report contained the problem faced as well as some suggestion to the scheme improvement.

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CHAPTER ONE

1.1. INTRODUCTION

The students industrial work experience scheme (SIWES), is a skills development program initiated by the industrial training fund (ITF), in 1973 to bridge the gap between theory and practice among students in institutions of higher learning in Nigeria. it provides for on -the- job practical experience for students as they are exposed to work method s and techniques in handling equipment and machinery that may not be available in their institutions.

At inception in 1974, the scheme started with 784 students from 11 institutions and 104 eligible courses. By 2008, 210,390 students from 219 institutions participated in the scheme with over 112 eligible courses. However, the rapid growth and expansion of SWIES, has occurred against the backdrop of successive economic crises which have affected the smooth operation and administration of the scheme. Most industries in Nigeria today, are operation below installed capacity while others are completely shut down (Manufacturing Association, 2003 - 2006) used

is has impacted negatively on the scheme as institutions of higher learning find it increasingly difficult to secure placement for students in industries where they could acquire the much need practical experience.

1.2 OBJECTIVES OF SIWES

Specifically, the objectives of the student industrial work experience scheme are to:

1. Prepare students for the work situation they are likely to meet after graduation.
2. Provide an avenue for students in the Nigerian universities to acquire industrial skill s and experience in their course of study.
3. Make the transition from the university to the world of work easier, and thus enhance students contacts for later job placements;
4. Enlist and strengthen employers 'involvement in the entire educational process of preparing university graduates for employment in industry.
5. Provide students with an opportunity to apply their theoretical knowledge in real work situation, thereby bridging the gap between university work and actual practices; and
6. Expose students to work methods and techniques in handling equipment and machinery that may not be available in the universities.

Man is naturally a curious animal. He is always trying to solve perplexing problems in a world full of many unknowns. Man, in order to solve his problems has searched and may continue to search for facts unknown to him.

This technical report is based on the practical experience gained by me during my six\nine-month industrial attachment scheme with FAAN 'federal airport authority of Nigeria' airport Ilorin.

During this period, the training was solely done under the department of electrical. Where I acquire the practical skill, both in maintenance, installation and operation/inspection within this period I was made to undertake and understand how to maintain general rules of safety in electrical department.

CHAPTER TWO

2.0 NIGERIAN AVIATION INDUSTRY

Nigerian aviation industry is a federal government establishment created for the operations of air transportation in Nigeria in safe and secure environment. The activities of the aviation industry in Nigerian are monitored and regulated by the federal ministry of aviation.

PARASTATALS IN THE AVIATION INDUSTRY (NIGERIA) AND

2. Federal Airport Authority of Nigeria (FAAN)
3. Nigerian Airspace Management Agency (NAMA)
4. Nigeria Metrological Agency (NIMET)
5. Accident and Investigation Bureau (AIB)
6. Nigeria College of Aviation Technology (NCAT)
7. Nigeria Civil Aviation Authority (NCAA)

FUNCTIONS OF EACH PARASTATAL

- **Federal Airport Authority Of Nigeria (FAAN): FAAN** is the agency that oversees all land space operations. It also in charge of all airport properties, parks, runway, the air field lighting etc..

FAAN is the largest parastatal among other aviation agencies in Nigeria airport and act as landlord to all other aviation agencies. The headquarters of (FAAN) is located at Muritala Mohammed International airport ikeja, Lagos. FAAN have many Directorates and departments.

2.1. ILORIN AIRPORT IN BRIEF

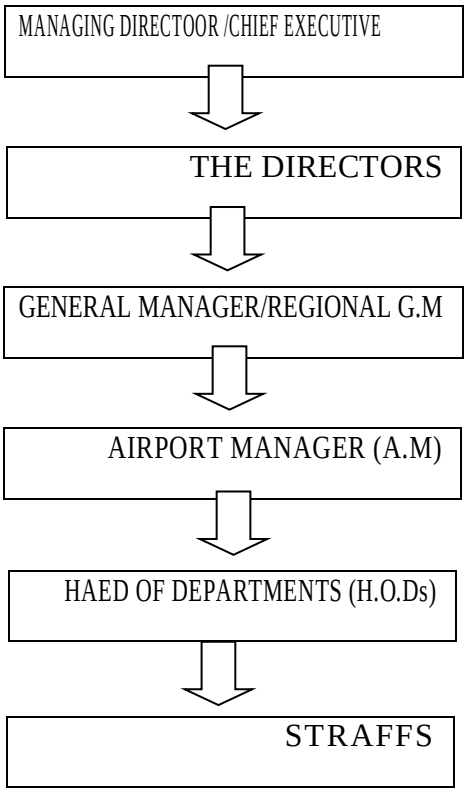
Ilorin airport where I did my SIWES is one of the international airports in Nigeria; it is located along Lagos road. Ilorin airport is an international airport because of the presence of some international airport facilities installed to operate any size of aircraft at any time. The instrument landing system (ILS), Very High Omini-directional Radio Rannge (VOR), Localizer, locator, Beacon middle marker, the length of the runway where planes land is 3.6km and standard approach light at both side of the runway is 0.5km each.

The length of runway and approach of Ilorin airport in total is 4.6km, there is no daily operation of international flights in Ilorin but operates international flight during HAJJ.

2.2. MISSION STATEMENT

The mission statement of FAAN: is to be a profitable carrier of passengers and luggage's in safe and secure environment and to manage the facilities and operation of the airport according to world class standard.

2.3. THE ORGANISTION CHART



The Managing Director (M.D)/ Chief Executive Officer is the overall boss of FAAN, while the Directors are the heads of each directorate. The general manager is the overall head of a department in FAAN, the region general manager oversees the airport under his/her region and the airport manager heads a particular airport.

DIRECTORATES IN FAAN

1. M.D directorate.
2. Directorate of Human Resources
3. Directorates of Administration
4. Directorates of Maintenance and Engineering
5. Directorates of Airport Operations
6. Directorates of Airport Security and Safety
7. Directorates of Commercial and Business Development

8. Directorates of Finance and Account
9. Directorates of Legal services.
10. Directorates of Project Development

DEPARTMENTS IN FAAN

1. Department of Airport Operation
2. Department of Aviation Security
3. Department of Aerodrome Fire and Rescue
4. Department of Account and Finance
5. Department of Environment
6. Department of Human Resources
7. Department of Administration
8. Department of Protocol
9. Department of Public Communication
10. Department of Commercial
11. Department of Safety
12. Department of Electrical
13. Department of Information and communication
14. Department of mechanical
15. Department of Civil/building
16. Department Servicom
17. Department of Water and Sewage
18. Department of purchasing and supply

- Nigerian Airspace Management Agency (NAMA): NAMA is in charge of Airspace Management i.e., in charge of the movement of Aircrafts in the Air
- **Nigeria Metrological Agency (NIMET):** NIMET is in charge of metro report for Aircraft Operation
- **Accident and Investigation Bureau (AIB):** AIB is a body saddled with the responsibility of investigating any aircraft accident be it within or outside the airport
- **Nigeria College of Aviation Technology (NCAT):** NCAT is based in Zaria, Kaduna state saddled with the responsibility of training pilot and teaching other related aviation courses.
- **Nigeria Civil Aviation Authority (NCAA):** NCAA is charge of quality operation of the airspace, land space, serviceability of aircrafts and giving approval (License) for the operation or aircrafts in accordance with ICAO (International Civil Aviation

Organization) standards. ICAO is an international body that regulates all Airport operations.

CHAPTER THREE

3.0. SAFETY

In other to achieve the best of the best in engineering the general rules of safety has to be understand and maintain.

SOME GENERAL RULES OF SAFETY

1. **Forbidden of alcohol in site**
2. **Checking of ladder and planks carefully before use**
3. **Testing electrical devices and extension cable for safety**
4. **Cleaning of oil immediately when spilled on the floor**
5. **Using the rights tools for the wrights work**
6. **Wearing protective overall whenever working**
7. **Wearing of reflective jacket when going to the airside, runway e.t.c**

3.1. SOME JARGON'S OR TECHNICAL WORDS USE IN AIRPORT

Jargon does not mean rubbish; it is a Technical word or language which is been printed and used among experts or professionals in a particular field for communication. It is very essential in Aviation industry, mostly to the Communication department, Controllers and the Pilots.

A= ALFA

B= BRAVO

C= CHALLY

D= DELTA

E= ECHO

F= FOES

G= GOLF

H= HOTEL

I= INDIA

J= JULIET

K= KILO

L= LIMA

M= MIKEL

N= NOVEMBER

O= OSCAR

P= PAPA

Q= QUEET

R= ROMEIO

S= SERIA

T= TANGO

U= UNIFORM

V= VICTOR

W= WHIZKY

X= X-RAY

Y= YANKKEY

Z= ZULU.

EXAMPLE:

1. **D**uty Officer = D.O = Delta Oscar
2. Ilorin = IL = India Lima
3. Head of Department = H.O.D = Hotel Oscar Delta
4. Power House = P.H = Papa Hotel e.t.c.

DIFFERENT CATEGORIES OF AIRPORTS

- INTERNATIONAL AIRPORT
- LOCAL AIRPORT

- INTERNATIONAL AIRPORT:
  An international airport is an airport that offers customs and immigration facilities for passengers travelling between countries. International airports are typically larger than domestic airports and often feature longer runways and facilities to accommodate the heavier aircraft commonly used for international and intercontinental travel. The handling and carriage instrument are operated by the handling company like SAHCOL & NAHCO. International airports often also host domestic flights.
  Four major international airports in Nigeria are:
  1. Muritala Mohammed International Airport- Ikeja,Llagos
  2. Mallam Aminu Kano International Airport-Kano
  3. Nnamdi Azikwe International Airport- Abuja
  4. Port Harcourt International Airport- Port Harcourt

- LOCAL AIRPORT:
  Local or domestic airport is an airport that handles only domestic flights—flights within the same country. Domestic airports do not have customs and immigration facilities and so cannot handle flights to or from a foreign airport.
  Some Local Airports are:
  1. Minna Airport-Minna
  2. Katsina Airport-Katsina
  3. Kaduna Airport –Kaduna
  4. Akure Airport-Akure
  5. Benin Airport-Benin
  6. Gombe Airport-Gombe e.t.c.

3.2. RUNWAY AND APPROACH

A runway is a prepared solid surface constructed for the taking off and landing of aircrafts, the standard length of a runway is 4.6km together with the approach i.e., runway's length is 3.6km and Approach is the advancing area to the runway, the approach of both side is 1km. runway and the approach are together as one because the approach is first sited by the pilot, which indicates to the pilot the direction of the runway.

Ilorin (India lima) runway is subdivided into 2 ways which are:

1. RUNWAY 0.5^0
2. RUNWAY 0.23^0

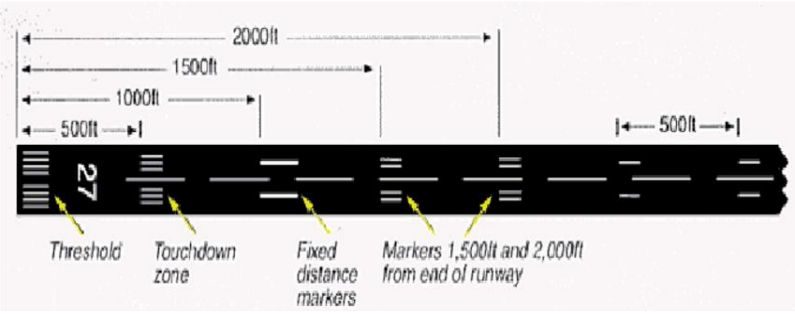
RUNWAY 0.5^0OR LANDING PATH

RUNWAY 0.5^0 is been named in respect to the VOR (very high frequency omini-directional radio range) i.e. from it North position (0^0). Aircraft land through runway o.5 and is safeguard by the ILS (instrument landing system).

RUNWAY 0.23^0 OR TAKE OFF PATH

RUNWAY $0.23^0$is also been named in respect to the VOR. Aircraft takes off through runway 0.23, but some expert pilots do land through 0.23. Or take off through runway 0.5. With the aid of Air field lighting (AFL), the pilot is safeguard when performing visual landing. With the help of AFL landing becomes easy for the pilot even if the cloud is bad i.e. dark.

DIAGRAM OF RUNWAY



AIR FIELD LIGHTING (AFL)

The light (illumination) construction for runway and approach is called AIR FIELD LIGHTING (AFL).

AFL system is an aerodrome light that provides adequate illumination, serves as landing aid to aircraft during bad weather conditions. The CCR (constant current regulator) panel power the AFL, the closed circuit of the AFL makes the CCR panel work perfectly. When the AFL is required the CCR panel is switch ON to power the AFL.

TYPES OF AFL

1. Runway Edge light
2. High Intensity Approach
3. Sodium Approach light
4. Taxi Way and Stop bar
5. Touchdown zone
6. Runway Centre line
7. Precision path approach indicator (PAPI).
8. Low intensity Approach. e.t.c.

RUNWAY EDGE LIGHT

The light construction round the edge of a runway is called **runway edge light.** Edge lights are of two (2) types i.e. E1 & E2 and they are been controlled by different CCR panel. E2 is a standby circuit. But if need occur E1 and E2 can be put to operation at the same time. Distance from E1 to E2 is 60m, E1 to E1 is 120m also E2 to E2 is 120m. All the AFL is powered by the CCR in the CCR room. The connections of all the edge light are in series connection with the use of isolating series transformer and primary cable, while the secondary side of the transformer produces the output for the edge light.

Mostly Air Field Lighting (AFL) is needed when there is **bad** weather or at night and they are powered by the Constant Current regulator (CCR) in the CCR control room.

Features:

Bulb used =200watt GEC bulb

Transformer used = TX 107 (isolating series transformer)

Voltage input to TX 107 = 5kv

Output current to 200w bulb = 6.6 amps max

APPROACH LIGHT

An Approach lighting system (ALS), are light installed at the position of the approach of the runway to give a visual clear sight of the runway for the pilot to be able to sight it from a far distance. An approach light is of different type's e.g. Precision path approach indicator (PAPI), Sodium Approach light, High and low intensity approach light, side row barrel approach. e.t.c.
Approach lighting systems are highly complex in their design and significantly enhance the safety of aircraft operations. Particularly in conditions of reduce visibility

Features of PAPI & High Intensity:

Bulb used =200watt two pin bulb

Transformer used = TX 107 (isolating series transformer)

Voltage input to TX 107 = 5kv

Output current to 200w bulb = 6.6 amps max

Features of low Intensity:

Transformer used = TX 106 (isolating series transformer)

Bulb used = 100watt two pin bulb

Current = 6.6amps

SODIUM APPROACH LIGHT

Sodium approach light has the highest illumination out of the Approach light, its circuit is differ from others and is been controlled by special panel. That is, it is not controlled by CCR panel, no series isolating transformer for its distribution.

Features:

Bulb used= 250watts sodium lamp

Cable used= 3 phase with neutral amour cable

Choke= 400watt and Ignitor

Voltage= 220v

MAJOR ELECTRICAL WORKS IN FAAN, ILORIN AIRPORT

Electrical department of FAAN Ilorin airport, is an engineering department that operates, maintains and services all electrical equipment/installations in the airport, it also ensure safe and constant power supply in the airport.

The department oversees:

2. High tension unit.
3. Low tension (domestic installation)
4. Air fields lighting (AFL)

1. HIGH TENSION UNIT

There are two (2) sources of primary supply in Ilorin airport in which its control room is located at the **power house.** 11kv supply to the RMU switch yard and 33kv supply that is step down to 11kv supply with aid of a 2.5MVA (33/11kv) Transformer, The two lines of 11kv is controlled at the switch yard with the aid of a RMU, the RMU 1, RMU 2 and the common feed the OCB room bus bar.

- R.M.U SWITCH GEAR (Ring Main Unit), ITS USES AND TYPES

RMU is an electrical switch gear that is used to operate electrical networks under normal & abnormal conditions.

- USES

- R.M.U serves as a protective device to its associated transformer.
- It also makes the distribution of power supply in ring mains possible where armored cable is used.

- TYPES OF R.M.U

1	O I L S W I T C H	Type J3 630 amps. Service Voltage= 6.6kv ,550Hz. Maximum Breaking current =630 amps
2	O I L S W I T C H	Type GF3, 200amps. Service Voltage =.6.6/11kv, 50Hz. Maximum breaking current depend on the inserted fuse
3	O I L S W I T C H	Type R4. 400/630amps. Breaking current at 400/630amps.
4	R I N G M A S T E R	RN2C (sf6). Service Voltage=13.8kv. Highest Voltage=15kv. Current rating=630amps. SF6 gas full pressure at 20^0c 0.55 bar gram

DIAGRAM OF RMU

TRANSFORMER:

A transformer is an electrical device that is used for the transformation of voltage from one level to another i.e., it can be used to step up or step-down voltage.

Types of transformers.

1. Step up transformer

2. Step down transformer

3. Auto-transformer

4. Voltage and current transformer

1. Step up transformer: Are transformers used to transform voltage of low level to voltage of high level e.g. power transformer used in generating station. It steps up generated voltage at 16kv to 330kv or 330kv to 132kv, 33kv to 11kv e.t.c with the use of MVA transformer.

Diagram of step up transformer

2.Step down transformer: Are transformers used to transform voltage from higher level to the lower level e.g., Distribution transformers that is used to step down transmission/distribution voltage i.e., 33kv to 415v and 11kv to 415v.

Diagram of step-down transformer

3. Auto-transformer:Auto-transformers can do the work of stepping up or stepping down of voltage depending on the voltage requirement.

4. Voltage and current transformer: Are designed to meet the specific need of measurement and instrumentation system.

PARTS OF A TRANSFORMER AND ITS FUNCTIONS

1.Bushing insulation: it serves as an insulating medium between the terminal core (output/input core) and the body of a transformer.

2.Conservative tank: it is the body of a transformer that serves as a house to the winding and others.

3.Transformer oil: it serves as a cooling and insulating system between the winding.

4.Lamination: it is a separating medium between the windings.

5.Silica jet: it uses as a breading to the transformer, it also use to remove moisture from the transformer.

Diagram

SUBSTATION (DISTRIBUTION)

A substation is where the supply is been distributed to the final consumers.

Some of substation equipments are:

1.Transformer

2.feeder pillar

3.isolator switch

4.J&K fuse

5.Lighting arrestor

6.up riser cabel e.t.c.

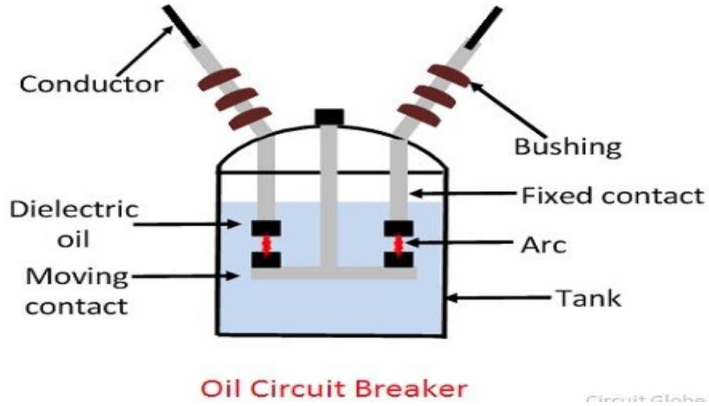
OIL CIRCUIT BREAKER (OCB)

It is an electromechanical device used to operate an electric circuit under normal and abnormal conditions. it operates itself when there is any abnormality.

Ilorin airport power house (code name: papa hotel) makes use of OCB called bulky oil circuit breaker (B.O.C.B), the cottage bulky oil in its conservative tank is to quench the arching in the

breaker during making or breaking period. Both the income and outgoing network is connected and protected by the OCB.

DIAGRAM OF OIL CIRCUIT BREAKER



Secondary supply

BUS-BAR

A bus-bar is a length of copper bar where supply is been distributed to main circuit.

High voltage bus-bar is a length of copper bar in which the 33kv or 11kv is distributed to the substation transformer.

Low voltage bus-bar is a length of copper bar where 415v or 220v is been distributed to final sub-circuit.

DOMESTIC INSTALLATION AND MAINTENAACE (LOW TENSION)

Some experience was gained in domestic installation work like wiring system of building, maintenance of low-tension unit (domestic installation),

-WIRING SYSTEMS

There are many systems of wiring which can be used to provide a safe, efficient and economical installation. Each of the recognized system of wiring has its own particular merits, and the system used for any particular installation should be chosen with regard to the following factors:

(a) Type of load to be supplied.
(b) Type of building in which the installation is situated.
(c) Cost
(d) Durability
(e) Appearance.
(f) Expected life of installation.

Some common types of wiring system

1. Conduit wiring
2. Trucking wiring
3. Ducting wiring
4. Surface wiring

Features of protection

(a) Main switch 60amps singe phase with neutral
(b) 0ne 30amps fuse to protect cooker unit
(c) One 30amps for 13amps ring mains
(d) One or two 5amps fuses for lighting circuit.
(e) One 20amps for 15amps sockeused A.C.
(f)

Some Electrical tools and equipment used

-Plier
-Knife
-screw driver (Flat-face and Star-face)
-Tester
-Cutter
-Multimeter
-Surge generator e.t.c

3. PLIERS:

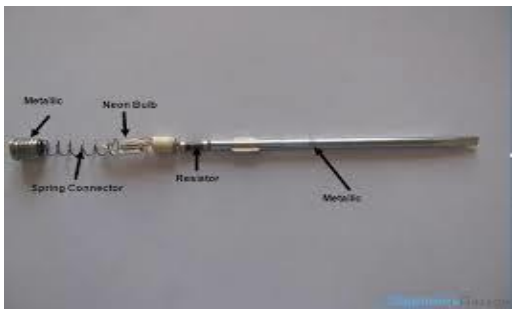
pliers are classified by type and overall length, usually made of high carbon steel, jaws hardened and tempered.

there are various types of pliers, each designed for specific use
(a) flat nose: used to hold flat material
(b) combination: can be used to hold round or flight material and have cutting edges for cutting splits pins, locking wire.
(c) snip nose: for twisting lock wire.
(d) side cutting: for cutting soft wire
(e) cable stripping: for removing the insulation from electrical cables.

2. Knife: it is used for cable peeling.

3. Flat and star screwdriver: used for driving screw in accordance with the size of screw. Blade of high carbon or alloy steel. Also, screwdrivers can be classified by its type of blade.

4. Tester: used for testing the positive or availability of supply in the cable.



5. Cutter: this is used for cutting cables.

6. Multimeter:A multimeter, or universal instrument, may be used to measure voltage, current and resistance. An ‘Avometer’ and ‘fluke’ are typical examples

7. Surge generator: it is a high voltage equipment use to detect the point of fault on high tension cable, its output voltage varies from 5kv to 30kv.

CHAPTER FOUR

4.1.1: CONSTANT CURRENT REGULATOR PANEL (CCR)

The constant current regulators (CCR) provide a constant output into a load of variable impedance constant. The load is normally an airport series lighting circuit formed by the primaries of a number of lamps isolating transformer. The lamp brightness may be controlled locally or remotely from the control tower.

The CCR controls the lamp current by providing phase variable gate firing pulses to trigger a pair of thyristors connected in inverse parallel over current protecting and open circuit (over voltage) protection is provided.

4.2 HIGH TENSION UNIT

There are two (2) sources of primary supply in Ilorin airport in which its control room is located at the **power house** (code name: **papa hotel**). 11kv supply to the RMU switch yard and 33kv supply that is step down to 11kv supply with aid of a 2.5MVA (33/11kv) Transformer, the two lines of 11kv is controlled at the switch yard with the aid of a RMU, the RMU 1, RMU 2, and the common feed the OCB room bus bar.

4.2.1: R.M.U. SWITCH GEAR (Ring Main Unit) AND ITS USES

RMU is an electrical switch gear that is used to operate electrical networks under normal & abnormal conditions.

- **USES**

- R.M.U serves as a protective device to its associated transformer.
- It also makes the distribution of power supply in ring mains possible where armored cable is used

4.2.2: RING MAINS SUPPLY TO THE ILS

Is the transmission of electrical energy to substation through more than one feeder.

There is an 11kv ring main supply to the instruments landing system (ILS) in Ilorin airport, this was made possible with the use of R.M.U, Switch gear, Transformer and armored cable.

ILS are navigational aid equipment for aircraft and is managed by another agency called NAMA but the electric network is been managed by FAAN (electrical dept).

4.2.3: TRANSFORMER AND ITS TYPES

A transformer is an electrical device that is used for the transformation of voltage from one level to another i.e., it can be used to step up or step-down voltage.

SOME COMMON TYPES OF WIRING SYSTEM

1. Conduct wiring
2. Trucking wiring
3. Ducting wiring
4. Surface wiring

FEATURES OF PROTECTION

a) Main switch 60amps single phase with neutral
b) One 30amps fuse to protect cooker unit
c) One 30amps for 13amps ring mains
d) One or two 5amps fuses for lighting circuit
e) One 20amps for 15amps socket used for AC

SOME ELECTRICAL TOOLS AND EWUIPMENT USED

- Pliers
- Knife
- Screw driver (flat-face and star-face)
- Tester
- Cutter
- Multi-meter
- Surge generator
- Megger insulation tester e.t.c

1. **PLIERS:** Pliers are classified by type and overall length, usually made of high carbon steel, jaws hardened and tempered.

There are various types of pliers, each designed for specific use

(a) Flat nose: used to hold flat materials

(b) Combination: can be used to hold around or flight material and have

Cutting edges for cutting splits pins, locking wire.

(c) Snip nose: for twisting lock wire

(d) Slide cutting: for cutting soft wire

(e) Cable Stripping: for removing the insulation from electrical cable.

2. **KNIFE:** it is used for cable peeling.

3. **FLAT AND STAR SCREWDRIVER:** Used for driving screw in accordance with the size of screw, Blade of high carbon or alloy steel. Also, screwdriver can be classified by its type of blade

4. **TESTER:** Used for testing the positive or availability of supply in the cable

5. **CUTTER:** This is used for cutting cables.

6. **MULTIMETER OR UNIVERSAL INSTRUMENT:** May be used to measure Voltage, current and resistance. An 'Avometer' and 'fluke' are typical examples.

7. **SURGE GENERATOR:** It is a high voltage equipment used to detect the point of fault on high tension cable its output voltage varies from 5kv to 30kv.

CHAPTER FIVE

5.0 SUMMARY

The summary of the work done during my student industrial work experience scheme (SIWES) in international airport, Ilorin, Kwara state. I was able to acquire practical experience in:

1. Electrical safety
2. Domestic maintenance, inspection and installation in low tension
3. Maintenance and inspection of Navigational aid equipment air-field (AFL) for aircraft
4. High tension supply and transformer
5. High sensitive electrical oil circuit breaker (OCB) and ring main unit(RMU).

5.1 PROBLEMS ENCOUNTERED

Challenges that I was confronted with at Ilorin international airport were mainly centered on poor interpersonal relationship between I.T students. There was also a time when the number of I.T students at the department was small and this result to **overwork** for the students.

However, more students were brought during the course of my stay. Some other petty problems encountered are as follows:

1. Transportation problem
2. Misuse of power by some of the staff: such as unnecessary errands
3. Feeding problem
4. Inadequate safety materials for I.T students and financial problem.

5.2 SUGGESTION FOR IMPROVEMENT OF THE SCHEME

For the improvement of student industrial work experience scheme (SIWES). I thereby suggest that.

1. SIWES should try and be paying money for the industrial training (I.T) program before or immediately after the program so as to motivate the students
2. SIWES should create a time of orientation for organizations. In case of misused of I.T students
3. The supervisor should please increase the number of time to visit student in his/her place of attachment

RECOMMENDATIONS

1. The number of institutions and students participating in SIWES has been on the increase without responding increase in funding of the scheme. The study recommends that the federal ministry of science and technology (FMST), federal ministry of labor and productivity (FMLP), education trust fund (ETF), and Millennium Development goals (MDGS) of the presidency be involved as major stakeholder that will be cuddled with the responsibility of formulating policies to guide the operation of the scheme and advice the federal government appropriately particularly, on funding the scheme.
2. SIWES should be properly presented to potential sponsors, such as banked, multinational companies and other cooperate institutions for support in creating placement opportunities, training, equipment, facilities, as well as direct funding of SIWES.
3. All institutions should be encouraged to create financial autonomy for institution-based SIWES units/directorates.
4. Instruments for the administration of the scheme should be periodically reviewed to ensure relevance, and uniformity. In conclusion the federal government should take SIWES more important and make it more lucrative to students.