A TECHNICAL REPORT
STUDENT INDUSTRIAL WORKING EXPERIENCE SCHEME
(SIWES)

Held at

UNIQUE PHARMACEUTICAL COMPANY

VEEPEE INDUSTRIAL AVENUE, KM38, ABEOKUTA MOTOR ROAD, SANGO-OTTA, OGUN STATE

Prepared by:

OLUTAYO ABIGEAL TOYOSI
(ND/23/SLT/PT/0186)

SUBMITTED TO

DEPARTMENT OF SCIENCE LABORATORY TECHNOLOGY
INSTITUTE OF APPLIED SCIENCE
KWARA STATE POLYTECHNIC, ILORIN

INPARTIAL FULFILLMENT OF THE AWARD OF THE REQUIREMENT OF THE AWARD OF NATIONAL DIPLOMA IN SCIENCE LABORATORY TECHNOLOGY (SLT)

JANUARY, 2025

DEDICATION

I dedicate this technical report to the Almighty Allah, the giver of knowledge, wisdom and who is rich in mercy.

ACKNOWLEDGEMENT

I take this opportunity to express my profound gratitude and deep regards to the creator of heaven and earth, the one who knows the beginning and the end, the alpha and the omega, the Almighty Allah and also to my guides (MR & MRS OLUTAYO, and to all those who has helped me during my SIWES programme. The blessings, help and guidance given by them, time to time has carry me so this far and shall carry on the journey of life on which I am about to embark. I also take this opportunity to express a deep sense of gratitude to compliment my mentor for his cordial support valuable information and guidance which helped me in completing my SIWES through various stages.

Lastly my deep regard to the best and most inspiring brother and sister in person of Maraim, Balkis,Shittu, Akeem, Afeez.

A big thanks goes to my friends Ajara, Zainab, Rukayat, Medinah, Opeyemi and Simbi , May Almighty GOD bless, protect, keep, nourish and guide you through all your life's entire journey. And also my regard to the school board of trustees and the staff a very big thank you to all and sundry.

TABLE OF CONTENT

CHAPTER FIVE

CHAPTER SIX

CHAPTER ONE

1.1 INTRODUCTION TO SIWES

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.

1.2 HISTORY OF SIWES

The Students' Industrial Work Experience Scheme (SIWES) was initiated in 1973 by the Federal Government of Nigeria under the Industrial Training Fund (ITF) to bridge the gap between theory and practice among products of our tertiary Institutions. It was designed to provide practical training that will expose and prepare students of Universities, Polytechnics, and Colleges of Education for work situation they are likely to meet after graduation.

Before the establishment of the scheme, there was a growing concern among the industrialists that graduates of institutions of higher learning lacked adequate practical background studies preparatory for employment in industries. Thus the employers were of the opinion

that the theoretical education going on in higher institutions was not responsive to the needs of the employers of labour.

As a result of the increasing number of students' enrolment in higher institutions of learning, the administration of this function of funding the scheme became enormous, hence ITF withdrew from the scheme in 1978 and was taken over by the Federal Government and handed to National Universities commission (NUC), National Board for Technical Education (NBTE) and National Commission for Colleges of Education (NCCE). In 1984, the Federal Government reverted back to ITF which took over the scheme officially in 1985 with funding provided by the Federal Government.

1.3 OBJECTIVES OF THE PROGRAMME

The specific objectives of SIWES are to:

- Provide placements in industries for students of higher institutions of learning approved by relevant regulatory authorities (NUC, NBTE, NCCE) to acquire work experience and skills relevant to their course of study
- Prepare students for real work situation they will meet after graduation.
- Expose students to work methods and techniques in the handling of equipment and machinery that may not be available in schools.

- Make transition from school to the labour market smooth and enhance students' conduct for later job placement
- Provide students with the opportunity to apply their knowledge in real life work situation thereby bridging the gap between theory and practice
- Strengthen employer involvement in the entire educational process and prepare students for employment in industry

Promote the desired technological knowhow required for the advancement of the nation.

1.4 OBJECTIVES OF ESTABLISHMENT

- To provide optimum and individual care to patients.
- To develop recognition for patients needs for privacy and preservation of dignity.
- To maintain good relationship with patients, relations and the community through health education.
- To carry out diagnosis and intervention.
- To provide training for students.
- To maintain sufficient hospital supply of equipment and promote their utilization and maintenance.

  To treat and control diseases.

CHAPTER TWO

2.1. PRECUATION TAKEN IN THE LABORATORY

- Wash hand thoroughly after each test
- Wear hand gloves before carrying out any test in the laboratory and discard after use.
- Do not touch exposed eyes, nose or skin gloved hands.
- Wash hand with water and soap or removal of gloves and after the day's work.
- Always put on laboratory coat.
- Ensure that work surface are kept clean and disinfected before each work
- Do not store food, drink or beverages in the laboratory refrigerator.
- Unnecessary talks are disallowed during work.
- Eating, drinking or application of cosmetics is not allowed in the laboratory.

2.2. EQUIPMENT USED IN THE LABORATORY

There are various equipment used in the laboratory to carry out different tests, among which are briefly discussed below:

- Microscope: used for magnifying and focusing image that is not easily seen with the naked eyes.
- Bunsen burner: source of flame (red hot heat)
- Wire loop: used for inoculating

- Test tube: used to heat, centrifuge and hold sample during test.
- Slides: used for routine works such as microscopy and staining purpose in the laboratory.
- Micro capillary reader: used to measure the percentage of PCV
- Capillary tube: Used to spin blood during PCV determination
- Genotype machine: used for genotype determination
- Glucometer machine: used for blood glucose test.
- Laboratory refrigerator: used to keep sample for further use
- Centrifuge machine: used to centrifuge blood or urine.
- Haemocytometer: used for white bloods count
- Wintrobe tube: used for erythrocytes sedimentation rate (ESR).

CHAPTER THREE

3.1 SOME EQUIPMENT AND THEIR USES

- Microscope: this is use to observe microorganism
- Centrifuge: is a machine to spine blood and urine sample.
- Electrophoresis machine: it is use to determine the genotype of a patient.
- Haematocrit reader: is used for reading the percentage level of blood.
- Tile: it is flat and white which is used in blood group, widal test etc.

3.2 SAMPLE_COLLECTION

The procedure used to collect blood through the vain

- Collect the necessary material such as syringe, cotton wool, spirit and tourniquet.
- Look for the vein and tie the tourniquet around the patient hand.
- Ask the patient to fold his or her hand in order to show clear appearance of the vein.
- Clean the particular place where you can see the vein clearly with spirit and cotton wool.
- Insert the syringe inside the vein, a little bit deep.

- Draw it little by little, in the case where you did not see blood at that particular place, gently remove the syringe and put it in another place.

- After you have get the blood, ensure that you remove the tourniquet before the syringe, then put the cotton wool on the place that you have remove syringe.

Another method used in the laboratory to collect sample is the use of fingertrip lancet.

- Clean the finger with spirit swap

- Use the lancet to prink the finger

Collect the sample with EDTA capillary tube

CHAPTER FOUR

4.1 MICROBIOLOGY UNIT

Microbiology unit is concerned with laboratory test to detect causes of diseases which are associated with microbial infection. This must do a bit of parasitology, example of this is the malaria parasite test. The microbiology unit performs different functions which include:

4.2 LABELLING

The collected samples are labeled with patients name, age, sex, address, nature of sample and investigation required. Therefore, a special code number is given to each sample. All these are entered into the laboratory register.

4.3 WIDAL AGGLUTINATION TEST

The method used for this test are basically two i.e. tube agglutination test method and rapid slide titration method.

- Rapid slide titration method.
- Materials.

a. Patients serum

b. A suitable pipette

c. A suitable dropper

d. White tile

e. Commercially prepared febrile. Antigens –H and O (somatic and flocular Antigens).

- **Method**

1. Using a suitable pipette, 0.08, 0.04, 0.02, 0.01, 0.005, of undiluted patient's serum is delivered on to a row of circles on a clean white tile.

2. The dropper is used to add one drop of appropriate suspension of Antigens O and H to each of serum aliquot on the tile.

3. It is mixed by stirring for a few seconds using a wooden stick starting with the mixture containing 0.005ml of serum and proceeding to the well containing 0.08ml

4. The tile is rotated slowly i.e. roaked and agglutination is read at 1 minute. The reactions seen in the circles are approximately equivalent to those that would occur in tube agglutination test with serum dilution 1 in 20, 1 in 80 and 1 in 320. The rapid slide titration therefore provides an approximate titre for the test serum.

4.4 HEPATITIS TEST (HBs Ag)

Hepatitis test strip is a rapid chromatography immuno assay for a qualitative detection of hepatitis, it can be performed using either serum and plasma

PROCEDURE

Remove the test strip from the sealed pouch

For whole blood

Put a drop of blood on the test strips

Add a drop of buffer

Leave for 15 minute

For serum

Put a drop of serum on the test strips

Leave for 15 minutes.

RESULT

If only one colour band appeared at the control line (c), it is negative

If two colour band appeared at the test line (T) it is positive

If none of the colour band should be repeated

CHAPTER FIVE

5.1 HAEMATOLOGY UNIT

This section is concerned majorly with blood test. There is also a blood bank in this section.

Common test in the haematology laboratory are:

5.2 PACKED CELL VOLUME (PCV)

Packed cell volume is a measure of the porportion of blood volume that is occupied by red blood cell, to check the level of blood in the body,it is determine by centrifuging heparinized blood in a capillary tube.

CHAPTER SIX

6.0 CONCLUSION AND RECOMMENDATIONS

6.1 CONCLUSION

Having passed through the SIWES training, have been able to discover and explore different things about the microbial world; therefore, its usefulness cannot be over – emphasized. The interesting part of this is that the field of microbiology has gotten answer to most of the infection and disease affecting the world. For the few infections that has not been diagnosed, precautionary measures that can be taken against it has been discovered. The only section left is for people should come out of their ignorance and go for medical check – up instead of relying on self – medication and visiting unqualified practitioners, if people could visit hospitals or health – centers frequently and follow the treatments given to them, mortality rate will drastically be reduced and the health status of the nation will be promoted.

More importantly I have been able to see the various prospects available in the field and also the various challenges that call for quick attention. Indeed, the industrial training program has been impactful; it was never a waste of time and energy.

6.1 RECOMMENDATIONS

The effort of the industrial training fund (ITF) was recommended for bringing up this programme known as student industrial work scheme (SIWES). This has paved way for self practice of the theoretical works that have been taught during lectures.