



A REPORT ON
STUDENTS INDUSTRIAL WORK EXPERIENCE SCHEME
(SIWES)

UNDERTAKEN AT
SIKIRU MECHANICAL ENGINEERING ENT.
OKEFOMAN, ILORIN, KWARA STATE

FROM
AUGUST, 2024 – NOVEMBER, 2024

BY
ABDUL RASHED RIDWANULAH
ND/23/MCT/PT/0016

SUBMITTED TO
THE DEPARTMENT OF MECHATRONICS ENGINEERING TECHNOLOGY, INSTITUTE OF
TECHNOLOGY (IOT).

IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE AWARD OF NATIONAL
DIPLOMA IN MECHATRONICS ENGINEERING TECHNOLOGY, KWARA STATE
POLYTECHNIC, ILORIN.

NOVEMBER, 2024

DEDICATION

I dedicate this Students Industrial Work Experience Scheme (SIWES) report to God almighty for his grace and mercy towards the completion of the SIWES programme.

DO NOT COPY

ACKNOWLEDGEMENT

I thank God Almighty for the glory, honor, adoration and mercy I received during the course of my study and when undergoing my industrial Training

My appreciation also goes to my manager, supervisor during my training, who accessibility, untiring effort, patience and guidance and suggestions fabulously contributed to the completion of this report. Who do not just teach me but makes me understood all his teaching, may God Almighty continue to guide and protect him and his house hold.

My second appreciation goes to parent Mr and Mrs Abdul Rashed for their love and care, I really appreciated their support. May Almighty bless them.

REPORT OVERVIEW

This is an industrial attachment report for the Students' Industrial Work Experience (SIWES) programme carried out at Sikiru Gear Company Okefoma road, Ilorin Kwara State within the period of four months from August, 2024 to November, 2024.

The report comprises the background of SIWES, the description of the organization, its aims and objectives, the experiences gained as an industrial training student and the summary, conclusions and recommendations.

It has a total of 5 chapters with sub-chapters. It also has the preliminary pages, such as the title page, report overview and table of contents and recommendations on the improvement of scheme.

TABLE OF CONTENT

Title Page	i
Dedication	ii
Acknowledgement	iii
Report Overview	iv
Table of Contents	v

CHAPTER ONE: Introduction

- ❖ Background to the Study
- ❖ Objectives of SIWES

CHAPTER TWO: Description of Establishment of Attachment

- ❖ Location and Brief History of Establishment
- ❖ Objectives and Core Values of the Establishment
- ❖ Functions of the Establishment
- ❖ Organizational Structure of Establishment

CHAPTER THREE: Actual Work Done with Experience Gained

- ❖ Vehicle Diagnostics and Troubleshooting
- ❖ Engine Maintenance and Repair
- ❖ Suspension and Brake System Repairs
- ❖ Electrical Systems and Wiring
- ❖ Mechatronics Systems Integration
- ❖ Routine Vehicle Servicing
- ❖ Fabrication and Assembly

CHAPTER FOUR: Actual Work Done with Experience Gained

- ❖ Technical Skills
- ❖ Mechanical Repairs
- ❖ Electrical Repairs
- ❖ Understanding of Mechatronics
- ❖ Use of Specialized Tools
- ❖ Problem-Solving
- ❖ Time Management

- ❖ Teamwork
- ❖ Customer Communication

CHAPTER FIVE: Summary and Conclusion

- ❖ Summary of Attachment Activities
- ❖ Problems Encountered
- ❖ Suggestions for Improvement of the Scheme
- ❖ Conclusion

CHAPTER ONE

INTRODUCTION

The Students' Industrial Work Experience Scheme (SIWES) is a scheme established by the Industrial Training Fund (ITF) in 1973 to help students of tertiary institution in Nigeria acquire technical skills and practical exposure in an industrial environment based on various course of study.

Prior to the Establishment of SIWES, science and technology education in Nigeria was marred with the problem of lack of adequate practical and industrial skills and working experience that will prepare students of tertiary institution in Nigeria for employment opportunities in industries. It was in this view that the scheme was established and students in tertiary institution of Nigeria studying sciences and technology related courses were mandated to participate in the program to enable them have technical knowledge and working experience before graduating from their prospective institution and makes it a smooth transition from the lecture room to the world of work.

1.1 BACKGROUND TO THE STUDY

SIWES was established by industrial training fund to solve the problem of lack of adequate practical skills in preparation for employment in industries by Nigerian graduates of tertiary institutions.

The Students' Industrial Work Experience Scheme (SIWES) was designed, established and implemented by the Industrial Training Fund (ITF) in 1974 to ensure acquisition of field practical knowledge and skills by students before graduation, mainly coordinated by the National University Commission (NUC). The NUC recognizing the importance of job specifications in the scheme did set the necessary machinery in motion soon after the resolution was taken in 1998. However, from 1989-1993, the drawing up of the minimum academic standards documents (a major statutory of commission) owe resultant accreditation exercise and the movement of the commission secretariat to Abuja did not leave sufficient time to actualize this goal.

It was not until January 1996 at a 3 days national workshop in Jos that specification was drawn for the entire program that had industrial attachment component in the minimum academic standard documents. Participants were drawn from senior academic from universities across the country, SIWES coordinators and officers in all nine panels, each headed by a senior academic officer were constituted for the entire forty-six program. Prior to drawing job specification, however, a one-day meeting was held at which a five-day meeting was presented and the procedure content and format for presentation of the specification documents were decided.

SIWES commenced in 1974 in the aim of making education more relevant to bridge the gap between the theory and the practice of agriculture, engineering, technology and science related discipline in tertiary institutions in Nigeria.

For students in polytechnics and mono-technics and college of education, the duration of SIWES is for 4 months while university undergraduates go for a 6 months duration. Each institution is

expected to have a SIWES coordinator who is in charge of all activities that pertains to students industrial training in the institution.

The production of SIWES job specification is without doubt a milestone in the development of academic activities in the national university system. The benefit derivable by the employer, universities and the students alike are immense and will go a long way to move the country forward technologically.

Operators: The ITF, the coordinating agencies (NUC, NCCE, NBTE), the employers of labor and institution.

Funding: The Federal Government of Nigeria.

Beneficiaries: Undergraduate students of the following; Agriculture, Engineering, Technology, Environmental, Sciences, Education, Medical sciences and Pure and applied sciences.

1.2 OBJECTIVES OF SIWES

1. It provides students the opportunity to develop attitudes conducive to effective interpersonal relationships.
2. It increases a student's sense of responsibilities
3. It prepares students to enter into full time employment in their area of specialization upon graduation.
4. Makes the transition from school to the world of work easier and enhances students contacts for later job placement.
5. It helps students develop skills in the application of theory to practical work situations.
6. It provides students the opportunity to test their interest in a particular career before permanent commitments are made.
7. It provides an avenue for students in tertiary institutions to acquire industrial skills and work experience in their course of study.
8. It helps students to develop skills and techniques directly applicable to their careers.
9. It provides students the opportunity to understand informal organizational interrelationships.

CHAPTER TWO

DESCRIPTION OF ESTABLISHMENT OF ATTACHMENT

2.1 LOCATION AND BRIEF HISTORY OF ESTABLISHMENT

Sikiru Mechanical Engineering Enterprises located at Okefoma road, Ilorin Kwara State. Sikiru Mechanical Engineering Enterprises is a private owned company. Established with goal of providing top-notch Mechanical work, technological solution and managerial services. Sikiru Mechanical Engineering Enterprises has evolved into a reputable brand in Nigeria's industry.

The journey of Sikiru Mechanical Engineering Enterprises began with a simple yet ambitious idea - to bridge the gap in the Nigerian market for reliable and efficient services. With his extensive experience and expertise in the field, recognized the potential for a company that could cater to the growing demand for mechanical services, computer hardware and managerial services. Thus, Sikiru Mechanical Engineering Enterprises located at no 30, Ajegunle road, Ilorin Kwara State, Nigeria.

Additionally, Sikiru Mechanical Engineering Enterprises provides expert managerial services, including IT consulting, maintenance and managerial services, ensuring that its clients' automobile Mechanical service, technological infrastructure is optimized for maximum efficiency.

2.2 MISSION AND VALUES

Sikiru Mechanical Engineering Enterprises, the mission is to deliver exceptional automobile Mechanical service, technological solutions and services that exceed customer expectations. The company is guided by a set of core values, including a commitment to excellence, customer satisfaction, and continuous innovation. Sikiru Mechanical Engineering Enterprises and his team strive to build long-lasting relationships with their clients, providing personalized support and ensuring that their technological needs are met with prompt and effective solutions.

2.3 FUNCTIONS OF THE ESTABLISHMENT

Sikiru Mechanical Engineering Enterprises is a multifaceted company that offers a wide range of services to cater to the diverse needs of individuals, businesses, and organizations. Our services include:

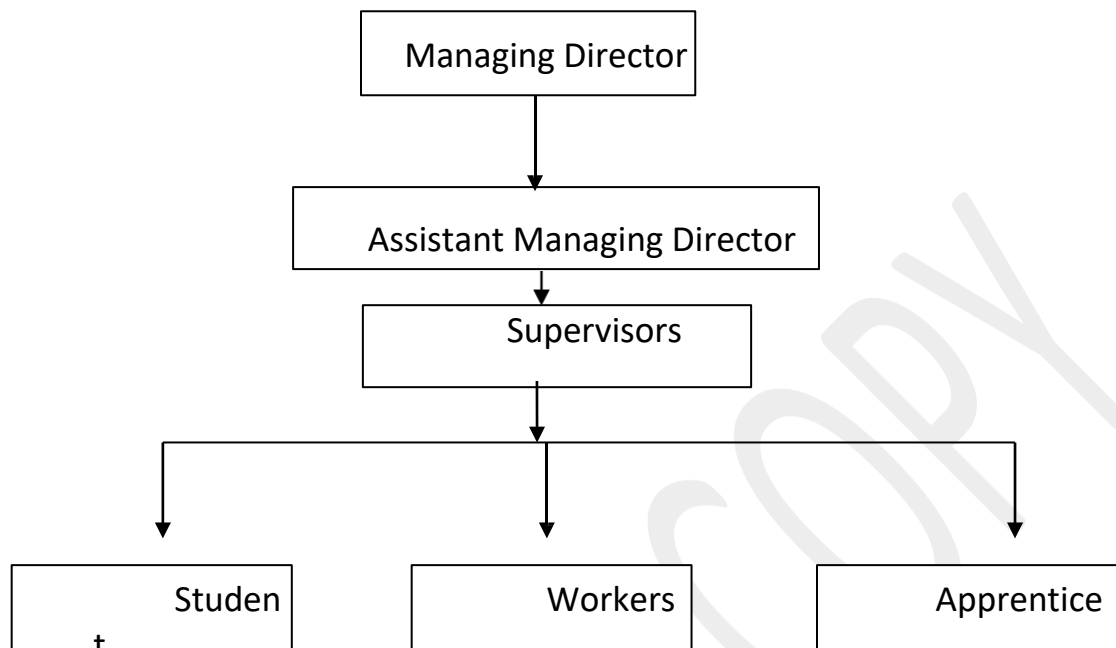
- **Rendering Automobile Services:** We provide expert rendering automobile services to help you bring your ideas to life. Our team of skilled professionals uses the latest technology to deliver high-quality rendering solutions that meet your specific needs.
- **IT Consultation:** Our IT consultation services are designed to help you navigate the complex world of technology. Our experienced consultants will work with you to

understand your IT needs and provide tailored solutions to improve your business operations.

- **Business Innovation:** We believe that innovation is key to business success. Our business innovation services are designed to help you stay ahead of the curve by identifying new opportunities, developing new products and services, and improving your business processes.
- **Marketing Development:** Our marketing development services are designed to help you reach new customers, build your brand, and drive sales. Our experienced marketing team will work with you to develop a customized marketing strategy that meets your specific needs and goals.

We are committed to delivering exceptional services that meet the highest standards of quality and excellence. Contact us today to learn more about how we can help you achieve your goals.

2.4 ORGANIZATIONAL STRUCTURE OF ESTABLISHMENT



CHAPTER THREE

ACTUAL WORKDONE WITH EXPERIENCE GAINED

This report presents an overview of my experience during my industrial training at Sikiru Mechanical Engineering Enterprises, a company specializing in mechanical engineering services, including manufacturing, maintenance, and automation solutions.

During my industrial training, I was exposed to a variety of tasks and activities that helped me build a deeper understanding of mechanical and mechatronics engineering principles. Some of the key activities included:

- **Vehicle Diagnostics and Troubleshooting:** I learned how to use diagnostic tools to identify issues within vehicles. This included scanning the vehicle's electronic control units (ECUs) to detect problems in the engine, transmission, and electrical systems.
- **Engine Maintenance and Repair:** I assisted in performing routine engine maintenance, such as oil changes, air filter replacement, and spark plug servicing. I also helped in more advanced engine repairs, including timing belt replacements and cylinder head repairs.
- **Suspension and Brake System Repairs:** I worked alongside senior mechanics to repair suspension components, such as shock absorbers and struts. Additionally, I participated in brake system repairs, including brake pad replacement and fluid bleeding.
- **Electrical Systems and Wiring:** I gained experience in diagnosing and repairing electrical faults, including faulty wiring, blown fuses, and malfunctioning alternators. I also assisted in replacing electrical components such as lights, sensors, and batteries.
- **Mechatronics Systems Integration:** As part of my Mechatronics Engineering background, I was involved in learning how modern vehicles integrate mechatronics systems like ECU-controlled systems, ABS (Anti-lock Braking System), and advanced driver-assistance systems (ADAS). I worked on troubleshooting and calibrating these systems.
- **Routine Vehicle Servicing:** I participated in vehicle servicing, which involved inspecting various systems such as the cooling system, exhaust system, and fuel system to ensure they were operating efficiently.

- **Machine Maintenance and Repair:** I assisted in the inspection, maintenance, and troubleshooting of mechanical systems and machines. This included hydraulic systems, pneumatic systems, and industrial motors.
- **Automation and Control Systems:** I worked on projects that involved automating mechanical processes using programmable logic controllers (PLCs) and sensors. I helped in designing control systems for automation tasks.
- **CAD Design and Modeling:** I was involved in the creation of computer-aided designs (CAD) for mechanical components and assemblies using tools like AutoCAD and SolidWorks.
- **Fabrication and Assembly:** I participated in the fabrication of mechanical components using welding and machining processes and helped in the assembly of machinery for various projects.
- **Safety and Quality Control:** I was trained in the importance of safety protocols within the workshop and observed quality control practices to ensure the reliability and accuracy of mechanical systems.

CHAPTER FOUR

ACTUAL WORKDONE WITH EXPERIENCE GAINED

4.1 EXPERIENCE GAINED

Throughout my training at Sikiru Mechanical Engineering Enterprises, I acquired both technical and soft skills that are essential for my career as a Mechatronics Engineering Technology student:

- **Technical Skills:**

- **Automobile Diagnostics:** Proficiency in using diagnostic equipment to identify vehicle faults.
- **Mechanical Repairs:** Practical knowledge of repairing and maintaining mechanical systems such as engines, transmissions, and suspension components.
- **Electrical Repairs:** Gained experience in troubleshooting and repairing electrical and electronic systems in vehicles, including the use of automotive multimeters.
- **Understanding of Mechatronics:** I enhanced my understanding of how mechatronics systems are integrated into modern automobiles, particularly in engine control systems and automated features.
- **Use of Specialized Tools:** Developed proficiency in using tools such as hydraulic lifts, power tools, wrenches, and diagnostic software.

- **Soft Skills:**

- **Problem-Solving:** I developed critical thinking and problem-solving skills while diagnosing and troubleshooting vehicle issues.
- **Time Management:** I learned to manage multiple tasks simultaneously, prioritizing repairs based on urgency.
- **Teamwork:** I worked closely with senior technicians and mechanics, learning how to collaborate in a fast-paced workshop environment.
- **Customer Communication:** I interacted with customers, learning how to explain vehicle issues and the steps involved in repairs.

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.1 SUMMARY OF ATTACHMENT ACTIVITIES

My industrial training at Sikiru Mechanical Engineering Enterprises has been an invaluable experience. It has provided me with a better understanding of the practical application of mechatronics and mechanical engineering concepts, while enhancing my technical and problem-solving skills. I am confident that the knowledge gained from this program will be beneficial as I continue my studies and eventually embark on my professional career.

I would like to express my gratitude to my supervisor, Mr Sikiru, and the entire team at Sikiru Mechanical Engineering Enterprises for their guidance and support throughout my industrial training period.

5.2 PROBLEMS ENCOUNTERED

During my industrial training, I encountered several challenges that helped me grow both professionally and personally:

- **Adapting to Real-World Conditions:** Transitioning from theoretical learning to hands-on application in a real-world industrial environment required me to quickly adapt to new situations and work processes.
- **Technical Complexity:** Some of the mechanical systems and automation processes were more complex than anticipated, requiring a deeper understanding of advanced engineering concepts.
- **Time Management:** Balancing multiple tasks and meeting deadlines in a fast-paced environment posed challenges, especially in projects involving fabrication and testing.

5.3 SUGGESTIONS FOR IMPROVEMENT OF THE SCHEME

- Students should be paid their allowance on time to ensure motivation
- Seminars should be organized for establishments to acquaint them with their roles towards

students on training

- Government should participate fully in the provision of equipment in the placement centers
- Selection of placement should not be left to students. Polytechnics should make a means of allocating students to related companies
- Visiting of students during the program should be ensured by the ITF

5.4 CONCLUSION

The period has contributed immensely to my academic experience. Students Industrial Working Experience Scheme (SIWES) is an important program for all students. It helps in tackling the issue of unemployment amongst youth as it teaches us way to be independent. The exercise made me understood part of what is expected as a journalist the practice. It helped groom my relationship skills especially in areas where team work are required and communicating with the staffs and students alike. It has exposed me to work ethics and routines.

The problems, if not tackled, will make it lose its usefulness and vitality notwithstanding the benefits of it.

Finally, I hope the program will be improved so as to enhance manpower development and student's skill in their respective field of study.