**A TECHNICAL REPORT ON**

**STUDENT INDUSTRIAL WORK EXPERIENCE SCHEME (SIWES)**

**TRAINING PROGRAMME**

**(5TH JULY 2023 – 20TH OCTOBER 2023)**

**UNDERTAKEN AT**

**YEMIPIDAN & CO**

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**THE DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION TECHNOLOGY**

**COLLEGE OF COMPUTING AND COMMUNICATION**

**BOWEN UNIVERSITY IWO IN PARTIAL FULFILMENT OF THE REQUIREMENT**

**FOR THE AWARD OF**

**DEGREE OF BACHELOR OF SCIENCE (B.Sc.) IN COMPUTER SCIENCE**

**NOVEMBER 2023.**

**DEDICATION**

I dedicate this report to God Almighty my creator, my strong pillar, my source of inspiration, wisdom, knowledge and understanding. He has been the source of my strength throughout my SIWES training programme. I also dedicate this report to my lovely parents Mr. and Mrs Ajibola and my siblings who encouraged me all the way and whose encouragement has made sure I gave my best all the time. Thank you. My love for you all can never be quantified. God bless you.

**ACKNOWLEDGEMENTS**

My deepest gratitude goes to God who has provided all that was needed to complete my SIWES training programme. Throughout this entire programme, every potential obstacle was managed by Him, and He offered me resilience even in my most challenging moments.

I like to thank Bowen University for giving me the opportunity to undergo my undergraduate degree education.

I would also like to give special thanks to the staff members of Computer Science and Information Technology, My gratitude goes to the program coordinator Dr. Olanloye, the SIWES coordinator Dr.Umezuruike, and provost Prof. Idowu. I also appreciate the contribution of all my able lecturers: Prof.M.O. Oyelami, Dr Ninan, Dr Ninan, Dr O.N. Emuoyibofarhe, Dr H.O. Aworinde, Mr Falana, Mr A.A. Also, Mr Erinfolami, Mrs O.O. Olaniran, Mrs T. Okedigba, Mr. B. P.Ayanniyi, Mr.Opadoyin and to every member of staff of the department.

I appreciate Auxano Solar for giving me the opportunity to work with them as an intern. I appreciate my H.R(Human Resource) Miss Chidimma Precious Okechukwu for Her constant support and dedication towards me completing my training programme. I also appreciate those I worked with Engr. Chidozie, Mr Lawrence, Mr Jeremiah, Mr Martin, Mr Kehinde, Mr Mubarak.

I also acknowledge my friend and fellow inter: Chidozie for making my training period worthwhile.

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**ABSTRACT**

This technical report summarizes my work experience during my 3-months Student Industrial Work Experience Scheme (SIWES) at Auxano Solar.

This report gives an overview of their core values, mission and vision statements of Auxano Solar. It explains in detail the work done, contributions and challenges faced during the SIWES exercise and the knowledge I gained.

**CHAPTER 1**

**1.0 INTRODUCTION**

The Student Industrial Training is an integral component of academic standards across various degree programs in Nigerian tertiary institutions. Initiated in the 1973/1974 session by the Industrial Training Fund (ITF), the Student Industrial Work Experience Scheme (SIWES) addresses the challenge of insufficient practical skills among Nigerian graduates, preparing them for employment in industries.

SIWES serves as a bridge between theoretical knowledge and practical application, offering students exposure to industry-specific skills crucial for a seamless transition from the classroom to the professional world. This scheme provides tertiary institution students with the opportunity to familiarize themselves with and gain hands-on experience in using machinery and equipment not typically available within educational institutions.

Participation in SIWES has become a prerequisite for the conferment of Diplomas and Degrees in specific disciplines in most higher learning institutions, aligning with government education policies. Key operators in this scheme include the ITF, coordinating agencies (NUC, NCCE, NBTE), employers, and the educational institutions.

The primary aim of SIWES is to immerse students in the industrial environment, fostering the development of occupational competencies. This, in turn, equips graduates with the knowledge, skills, and experience necessary for effective performance in their chosen fields, contributing meaningfully to national economic and technological development.

**1.1 OBJECTIVES**

The objectives of the Student Industrial Work Experience Scheme (SIWES) include:

1. Skill Development: Provide students with practical, industry-specific skills that complement their theoretical knowledge acquired in academic institutions.

2. Hands-on Experience: Enable students to gain hands-on experience in handling machinery, equipment, and tools that may not be available in educational institutions.

3. Occupational Competency: Facilitate the development of occupational competencies, ensuring that students are well-prepared for employment in various industries.

4. Industry Integration: Foster a seamless transition from academic learning to the professional work environment, promoting a better understanding of industry expectations.

5. Professional Networking: Provide opportunities for students to build professional networks and relationships within their respective industries.

6. Enhancement of Employability: Improve the employability of graduates by ensuring they possess practical skills and experiences valued by potential employers.

**1.2 ROLE OF INDUSTRIAL TRAINING FUND**

The Industrial Training Fund (ITF) plays a pivotal role in the implementation and success of the Student Industrial Work Experience Scheme (SIWES). Here are the key roles of the Industrial Training Fund in SIWES:

* 1. Establishment and Oversight: The ITF initiated and established SIWES in the 1973/1974 session, creating a structured framework for student industrial training. It continues to provide oversight to ensure the scheme aligns with its objectives.
* 2. Policy Formulation: The ITF contributes to the formulation of policies related to industrial training, ensuring that SIWES remains relevant and effective in addressing the practical needs of students in tertiary institutions.
* 3. Financial Support: The ITF provides financial support for the implementation of SIWES, aiding in the coordination of various activities, including monitoring, evaluation, and improvement of the program.
* 4. Collaboration with Stakeholders: The ITF collaborates with other key stakeholders such as coordinating agencies (NUC, NCCE, NBTE), employers of labor, and educational institutions to ensure a holistic and integrated approach to industrial training.
* 5. \*\*Capacity Building:\*\* The ITF is involved in building the capacity of institutions, employers, and students to enhance the quality of industrial training. This includes organizing workshops, seminars, and training sessions.

**CHAPTER 2**

**2.0** [**BRIEF INFORMATION ABOUT**](#_Toc23194575) **YEMIPIDAN & CO**

YEMIPIDAN & CO is a leading Nigerian organization specializing in comprehensive Information Technology(IT) solutions for any Business such as website development for various businesses and excelling in the field of Data Analytics and Science. Established as a fully-owned Nigerian company, YEMIPIDAN & CO has strategically positioned itself as an innovative and service-focused entity, forging strong partnerships with local enterprises and backed by solid financial support from reputable local banks.

1. Website Development: YEMIPIDAN & CO is at the forefront of creating dynamic and tailored websites catering to the unique needs of various businesses. With a commitment to excellence, the organization provides end-to-end website solutions, ensuring a seamless online presence for its clients.

2. Data Analytics and Science: YEMIPIDAN & CO has distinguished itself in the realm of Data Analytics and Science, offering cutting-edge solutions to extract meaningful insights from data. The organization leverages advanced analytics tools and methodologies to empower businesses in making informed decisions and staying ahead in a data-driven world.

YEMIPIDAN & CO has strategically aligned itself with a premier local haulage company, enhancing its capabilities in procurement and IT services. This partnership allows the organization to offer freight forwarding solution to any industry just planning to get into the digital world. The synergy between web development & data science YEMIPIDAN & CO as a comprehensive service provider.

YEMIPIDAN & CO places a strong emphasis on the continuous improvement of its business processes. This commitment serves as a pathway to delivering world-class IT solutions services at minimal costs, contributing to job creation in the West Africa Subregion.

In conclusion, YEMIPIDAN & CO stands as a dynamic force, seamlessly integrating website development, data science, and logistics services. With a commitment to innovation, strategic partnerships, and continuous improvement, the organization is poised to leave a lasting impact on the Nigerian business landscape and beyond.

**2.0.1 OUR VISION**

To become the preferred renewable energy solution provider in Nigeria. To make Digital solution for business in Nigeria.

**2.0.2 OUR MISSION**  
We seek to bridge the gap in the power sector by providing reliable service for any type of business you offer.

### **2.0.3 OUR CORE VALUES**

* Innovation / Accountability
* Team work
* Integrity
* Quick lead time (Service Delivery)
* Quality Service (at Affordable rate)

### **2.0.4 RESUMPTION TIME**

The Resumption time at YEMIPIDAN & CO is 9:00am and work starts immediately (Mondays-Fridays) and the closing time is 4:50pm.

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**CHAPTER 3**

**3.0 TOOLS USED IN SIWES LOCATION**

* LAPTOP
* ROUTER
* PRINTER
* PROJECTOR
* CABLE
* ACCESS POINTS

**CHAPTER FOUR**

**4.0 WORK DONE**

**INTRODUCTION TO WEB DEVELOPMENT**

**4.1 INTRODUCTION**

Web development has evolved significantly over the years, and at the core of this evolution are three essential technologies: HTML, CSS, and JavaScript. These languages work in harmony to create the structure, style, and interactivity of modern web pages. In this extensive exploration, we'll delve into the intricacies of each technology and examine how they contribute to the dynamic landscape of web development.

**4.2 HTML (HYPERTEXT MARKUP LANGUAGE)**

**Understanding the Markup Language:**

HTML serves as the backbone of web development, providing a standardized way to structure content on the internet. It uses tags to define various elements on a web page, such as headings, paragraphs, lists, images, and links. HTML5, the latest version of the language, introduces semantic elements like `<article>`, `<section>`, and `<nav>`, enhancing the clarity and meaning of web documents.

**Semantic HTML and Accessibility:**

The concept of semantic HTML goes beyond mere presentation; it emphasizes the meaning and structure of content. Proper use of semantic elements not only enhances the readability of the code but also improves accessibility for users with disabilities. For instance, the `<nav>` element is used to define navigation menus, aiding screen readers in interpreting the structure of a page.

**HTML Forms and Input Validation:**

HTML plays a pivotal role in creating interactive forms that facilitate user engagement. Input elements such as text boxes, checkboxes, and radio buttons are used to gather user data. Additionally, HTML5 introduces new input types like `<email>`, `<tel>`, and `<date>`, making it easier to capture specific types of information. HTML form validation ensures that user inputs adhere to predefined criteria, reducing errors and enhancing data integrity.

**4.3 CSS (CASCADING STYLE SHEETS)**

**Styling the Web:**

While HTML structures content, CSS is responsible for styling and presentation. Cascading Style Sheets allow developers to control the layout, colors, fonts, and overall aesthetics of a web page. CSS operates on a cascade principle, where styles can be inherited and overridden, providing a systematic approach to styling.

**Responsive Design and Media Queries:**

The advent of mobile devices has necessitated the implementation of responsive design principles. CSS, particularly through the use of media queries, enables the creation of layouts that adapt to different screen sizes. Responsive web design ensures a seamless user experience across devices, from large desktop monitors to small smartphone screens.

**CSS3 and Advanced Styling Techniques:**

CSS3 introduces a plethora of features that take styling to a new level. Transition and animation properties bring elements to life with smooth movements and effects. Flexbox and Grid layout systems provide powerful tools for creating complex, responsive designs with ease. Shadows, gradients, and custom fonts further contribute to the richness of the visual presentation.

**Preprocessors and Postprocessors:**

To enhance the maintainability and efficiency of CSS code, developers often turn to preprocessors like Sass and Less. These tools introduce variables, nesting, and functions, allowing for more modular and reusable stylesheets. Postprocessors, such as Autoprefixer, automatically add vendor prefixes to CSS rules, ensuring compatibility across various browsers.

**4.4 JAVASCRIPT: THE DYNAMIC SCRIPTING LANGUAGE**

**Empowering Interactivity:**

JavaScript is a versatile scripting language that brings interactivity and dynamic behavior to web pages. It operates on the client side, allowing developers to manipulate the Document Object Model (DOM) in real-time, responding to user actions and events.

**DOM Manipulation and Event Handling:**

One of JavaScript's key strengths is its ability to manipulate the DOM, the hierarchical structure representing a web page. Through DOM manipulation, developers can dynamically alter content, update styles, and create responsive user interfaces. Event handling enables the execution of code in response to user interactions, such as clicks, keypresses, and mouse movements.

**Asynchronous JavaScript and AJAX:**

Asynchronous JavaScript, commonly employed through AJAX (Asynchronous JavaScript and XML), facilitates seamless communication between the client and server. This enables the loading of data without refreshing the entire page, resulting in a more fluid and responsive user experience. Promises and async/await syntax introduced in ES6 simplify the handling of asynchronous operations.

**ES6 and Modern JavaScript Features:**

ECMAScript 6, also known as ES6 or ECMAScript 2015, introduced several significant enhancements to JavaScript. Arrow functions, template literals, and destructuring assignment streamline code syntax and improve readability. Classes and modules bring a more structured approach to JavaScript development, aligning it with object-oriented programming principles.

**Frameworks and Libraries:**

JavaScript's ecosystem is enriched by a multitude of frameworks and libraries that simplify development tasks. React, Angular, and Vue.js, for example, provide powerful tools for building interactive user interfaces through the concept of components. These frameworks abstract away complex DOM manipulations, promoting a more modular and maintainable codebase.

**Node.js and Server-Side JavaScript:**

While JavaScript traditionally operated on the client side, the advent of Node.js extended its capabilities to server-side development. Node.js enables the creation of scalable and high-performance server applications using JavaScript. This unification of client and server-side languages streamlines the development process, fostering code reuse and consistency.

**4.5 INTEGRATION AND BEST PRACTICES**

**Synergy of HTML, CSS, and JavaScript:**

The seamless integration of HTML, CSS, and JavaScript is fundamental to creating a cohesive and functional web application. HTML provides the structure, CSS enhances the visual presentation, and JavaScript adds interactivity and dynamic behavior. The trio's synergy is evident in modern web development practices, where responsive and user-friendly applications are the norm.

**Responsive Web Design in Action:**

Responsive web design, a paradigm enabled by the collaboration of HTML and CSS, ensures that web pages adapt to different devices and screen sizes. Media queries in CSS dynamically adjust the layout and styling based on factors such as screen width, height, and device orientation. This approach results in a consistent and optimal user experience across a diverse range of devices.

**Frameworks for Efficiency:**

Frameworks and libraries further streamline the development process by providing pre-built components and structures. React, developed by Facebook, is renowned for its component-based architecture, allowing developers to create reusable and modular UI elements. Angular, backed by Google, emphasizes a declarative approach to building user interfaces. Vue.js, known for its simplicity and flexibility, has gained popularity for its ease of integration.

**Build Tools and Package Managers:**

As web development projects grow in complexity, the use of build tools and package managers becomes crucial. Tools like Webpack and Parcel automate tasks such as bundling, minification, and transpilation, enhancing code optimization and reducing load times. Package managers like npm (Node Package Manager) simplify the management of project dependencies, ensuring version control and reproducibility.

**Version Control and Collaboration:**

Understanding version control systems like Git is essential for collaborative development. Git enables developers to track changes, collaborate seamlessly, and revert to previous versions when needed. Platforms like GitHub and GitLab provide hosting and collaboration features, fostering teamwork and code review processes.

**4.6 CONTINUOUS LEARNING AND INDUSTRY TRENDS**

**Evolving Technologies and Progressive Web Apps (PWAs):**

The landscape of web development is in a perpetual state of evolution. Progressive Web Apps (PWAs) represent a significant trend, combining the best features of

web and mobile applications. PWAs offer offline functionality, push notifications, and fast loading times, providing users with an app-like experience directly from their browsers.

**Serverless Architecture and JAMstack:**

Serverless architecture, where applications are built and deployed without managing servers, is gaining traction. JavaScript, with the rise of services like AWS Lambda and Azure Functions, plays a key role in serverless development. The JAMstack (JavaScript, APIs, and Markup) approach decouples the frontend and backend, relying on APIs for dynamic functionalities, resulting in improved scalability and security.

**WebAssembly and Cross-Platform Development:**

WebAssembly (Wasm) is a binary instruction format that enables high-performance execution of code on web browsers. It allows developers to write code in languages like C++ or Rust and run it in the browser, opening doors to cross-platform development and performance-intensive applications on the web.

**Machine Learning and Web Development:**

The integration of machine learning into web development is a burgeoning trend. TensorFlow.js and other machine learning libraries for JavaScript empower developers to build and deploy machine learning models directly in the browser. This fusion of web development and artificial intelligence expands the possibilities for creating intelligent and interactive applications.

**4.7 CONCLUSION**

This industrial training has equipped me with fundamental practical and theoretical knowledge, supplementing what may have been lacking in traditional classroom lectures. It provided a firsthand experience of industrial work processes, preparing me for a seamless transition into the corporate world upon graduation. This internship has effectively bridged the gap between academic theory and practical application, fostering a heightened sense of confidence in my capabilities and offering insights into the dynamics of an office environment.

In addition, the foundation of modern web development lies in HTML, CSS, and JavaScript. HTML serves to structure content, CSS enhances presentation, and JavaScript introduces interactivity and dynamism. The integration of these technologies, coupled with the incorporation of advanced features, frameworks, and industry trends, empowers developers to craft sophisticated, responsive, and feature-rich web applications.

Recognizing the ever-evolving nature of web development, continuous learning is paramount. Staying abreast of emerging technologies, adhering to best practices, and keeping pace with industry trends are crucial for developers to adapt to the dynamic landscape and deliver cutting-edge solutions. Looking ahead, the symbiotic relationship among HTML, CSS, and JavaScript will persist, shaping the web and providing the groundwork for innovation and creativity in the digital realm.

**RECOMMENDATIONS**

I highly recommend that all Nigerian organizations prioritize safety across all facets of their operations. My experience within Libra Circle has underscored the critical importance of this focus.

Companies should significantly enhance their commitment to training students, aiming to elevate the caliber of graduates entering the job market.

Moreover, it is crucial for the government to strengthen its partnerships with companies hosting SIWES (Students Industrial Work Experience Scheme) participants, thereby amplifying the significance of the program in practical terms. This collaborative effort will contribute to the overall development and effectiveness of the scheme.

**REFERENCES**

* Wikipedia, January 2021, www.Wikipedia.com
* Yemipidan & CO January 2021www.ypco.com.ng
* Industrial training fund , January 2021 www.itf.gov.ng/about-us.php

**APPENDIX**

Code to create a simple Form to collect Data from users

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Contact Form</title>

<style>

body {

font-family: Arial, sans-serif;

background-color: #f4f4f4;

margin: 0;

padding: 0;

box-sizing: border-box;

}

.container {

max-width: 600px;

margin: 50px auto;

padding: 20px;

background-color: #fff;

box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);

border-radius: 8px;

}

label {

display: block;

margin-bottom: 8px;

}

input, textarea {

width: 100%;

padding: 8px;

margin-bottom: 16px;

box-sizing: border-box;

border: 1px solid #ccc;

border-radius: 4px;

}

button {

background-color: #4caf50;

color: #fff;

padding: 10px 15px;

border: none;

border-radius: 4px;

cursor: pointer;

}

button:hover {

background-color: #45a049;

}

</style>

</head>

<body>

<div class="container">

<h2>Contact Form</h2>

<form action="process\_form.php" method="post">

<label for="name">Name:</label>

<input type="text" id="name" name="name" required>

<label for="email">Email:</label>

<input type="email" id="email" name="email" required>

<label for="message">Message:</label>

<textarea id="message" name="message" rows="4" required></textarea>

<button type="submit">Submit</button>

</form>

</div>

</body>

</html>