ND/23/COM/PT/0262

A TECHNICAL REPORT ON

STUDENT INDUSTRIAL WORK EXPERIENCE

SCHEME (SIWES)

FROM

AUGUST TO NOVEMBER, 2024

AT

CURL LINKS TECHNOLOGIES

LOCATED AT MAYWAY AND SON COMPLEX OPPSITE HABEEB FILLING STATION AGRIC ROAD SANGO AREA, ILORIN, KWARA STATE

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SUBMITTED TO

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REPORT OVERVIEW

This report details the industrial training experience gained during the Student Industrial Work Experience Scheme (SIWES) conducted at Curl Links Technologies. The report is divided into five chapters:

- Chapter One provides an introduction to SIWES, detailing its background and objectives.
- Chapter Two describes the establishment of attachment, including its location, history, objectives, and organizational structure.
- Chapter Three focuses on the student's specific involvement in various sections and units within the organization.
- Chapter Four discusses the industrial experience, highlighting key lessons learned in HTML, CSS, and JavaScript.
- Chapter Five presents a summary of attachment activities, problems encountered, and recommendations for improving the SIWES scheme.

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CHAPTER ONE

INTRODUCTION

1.1 Background of SIWES

The Students Industrial Work Experience Scheme (SIWES) is a significant initiative established in 1973 by the Industrial Training Fund (ITF) in Nigeria. It was designed to address the observed gap between theoretical knowledge acquired in academic institutions and the practical skills required in the workplace. SIWES is a skill acquisition program that integrates academic learning with real-world industrial experiences to prepare students for the demands of their chosen careers. Before the introduction of SIWES, graduates from Nigerian tertiary institutions, especially those in science, engineering, technology, and agriculture, faced significant challenges in meeting the technical requirements of various industries. Many lacked the hands-on skills and professional exposure needed for effective performance in the workplace. This mismatch between academic training and industry expectations prompted the ITF to create SIWES as a structured means to equip students with the necessary practical experience and enhance their employability.

SIWES is mandatory for students in accredited tertiary institutions, including universities, polytechnics, and colleges of education, enrolled in courses that require industrial exposure. The program typically lasts six months but may vary depending on the institution or discipline. Students are placed in industries, organizations, or institutions relevant to their courses, where they work under the supervision of both industry professionals and their academic supervisors.

1.2 Objectives of SIWES

The primary objectives of SIWES include:

1. Providing students with practical knowledge of their fields of study.
2. Exposing students to modern technologies and industry standards.
3. Enhancing students' technical and interpersonal skills.
4. Bridging the gap between theoretical knowledge and practical application.
5. Preparing students for future employment opportunities by fostering professionalism and work ethics.

CHAPTER TWO

DESCRIPTION OF THE ESTABLISHMENT OF ATTACHMENT

2.1 Location and Brief History of Establishment

Curl Links Technologies is located at Mayway and Son Complex, Opposite Habeeb Filling Station, Agric Road, Sango Area, Ilorin, Kwara State. This central location offers the company easy access to local and international clients, fostering business relationships and collaborations across the region.

Brief History of Establishment.

Curl Links Technologies was established with a clear vision: to revolutionize technology education. With a strong commitment to bridging the gap between traditional education and industry demands, the company empowers students with **practical programming skills** and prepares them for successful careers in the tech industry.

Recognized for its **innovative approach to tech education**, Curl Links Technologies has expanded its reach through **strategic partnerships** with industry leaders, academic institutions, and government agencies. This has enabled the company to impact students from diverse backgrounds and geographical locations, equipping them with cutting-edge skills that align with industry trends and requirements.

2.2 Objectives of the Establishment

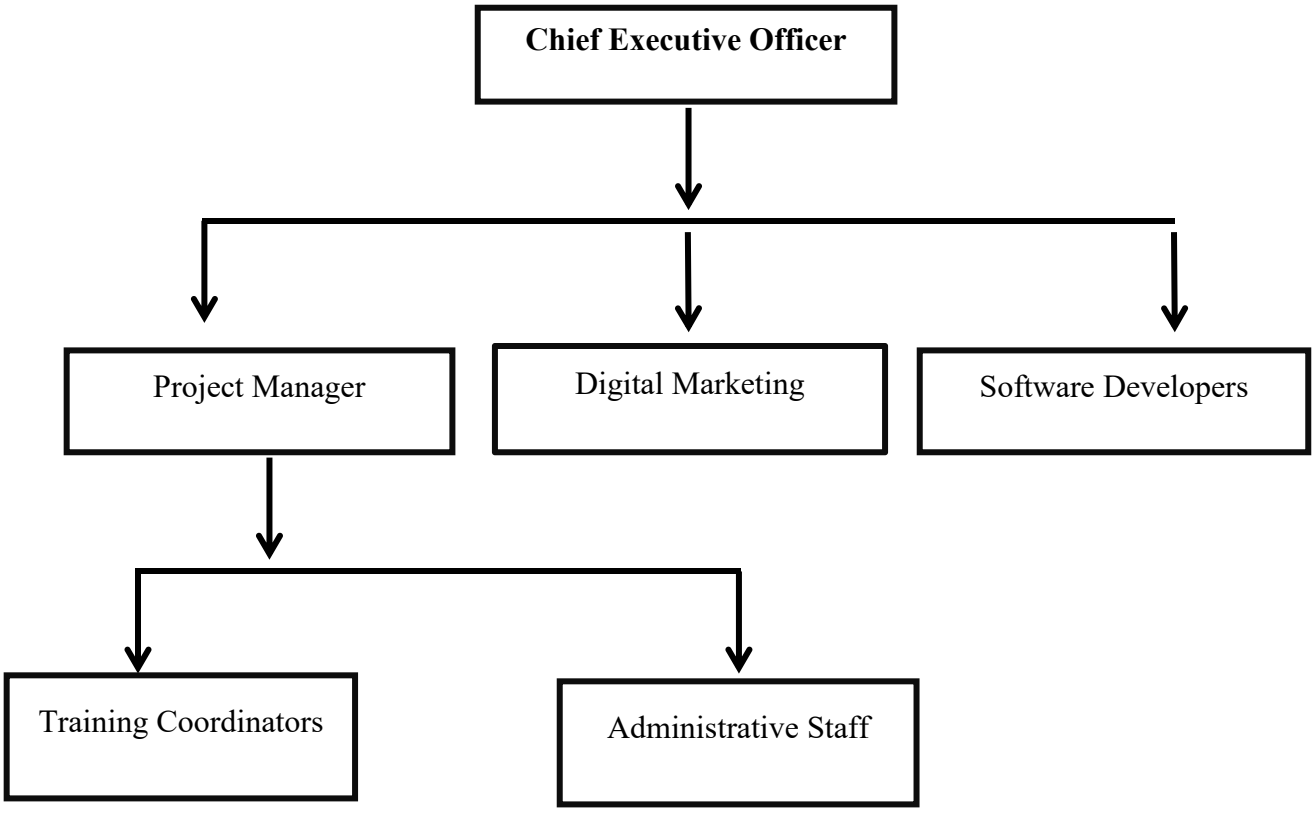
The primary objectives behind the establishment of Curl Links Technologies are centered around providing innovative and effective technology solutions while fostering the growth of the local tech ecosystem. These objectives include:

1. Providing High-Quality Software Solutions: The company aims to develop custom software applications that meet the unique needs of businesses, improving their operational efficiency and performance through innovative technology.
2. Enhancing Technological Development: By offering specialized services in software development, web design, and IT consulting, Curl Links seeks to drive technological advancement in the region, contributing to the broader development of the Nigerian tech industry.
3. Fostering Local Talent Development: One of the key objectives is to empower individuals with the skills and knowledge needed to excel in the IT industry. Through their computer training programs (both certificate and diploma courses), the company provides essential skills to aspiring professionals, helping them to gain industry-relevant expertise.
4. Bridging the Gap between Theory and Practice: Curl Links recognizes the need for practical experience in the tech field. The company provides hands-on experience through its services and training programs, preparing individuals and businesses to thrive in real-world environments.
5. Providing Comprehensive IT Solutions: The company is dedicated to offering a wide range of IT services, including digital marketing, data processing, and IT consultancy, to meet the evolving technological needs of businesses, helping them to grow and stay competitive in an increasingly digital world.

2.3 Organisational Structure

The organizational structure of Curl Links Technologies is hierarchical, with the following key positions:

- Chief Executive Officer (CEO): Oversees the company's overall operations and strategic direction.
- Project Manager: Manages project timelines, resources, and client relationships.
- Digital Marketing: Leverages Various Digital Marketing Strategies To Help Businesses Enhance Their Online Presence, Attract Potential Customers, And Drive Growth
- Software Developers: Responsible for coding, testing, and deploying software solutions.
- Training Coordinators: Facilitate training sessions for students and interns.
- Administrative Staff: Handle day-to-day operations and logistics.



2.4 The Various Departments/Units in the Establishment and Their Functions

1. Web Development Unit: Focuses on creating and maintaining websites for clients.
2. Software Development Unit: Develops standalone and enterprise software solutions.
3. Training and Mentorship Unit: Provides training programs in web design, programming, and other IT skills.
4. Administration Unit: Handles organizational logistics, staff welfare, and resource management.

CHAPTER THREE
STUDENT SPECIFIC INVOLVEMENT IN VARIOUS SECTIONS/UNITS

This chapter details the specific roles and responsibilities undertaken during the Student Industrial Work Experience Scheme (SIWES) at Curl Links Technologies. It highlights the various sections where the student actively contributed, the tasks performed, and how the experience aligned with academic and professional development.

3.1 Overview of Student Involvement

During the industrial training, the student was exposed to multiple sections of the company, gaining practical experience and applying theoretical knowledge to real-world scenarios. The student contributed to different projects and assisted in various company operations, as detailed in the following sections.

3.2 Software Development Unit

The student participated in software development activities and was actively involved in:

1. **Application Development** – Assisting in the development and testing of client-specific software applications.
2. **Coding and Debugging** – Writing, reviewing, and debugging code using programming languages such as JavaScript, Python, and PHP.
3. **Feature Implementation** – Collaborating on the addition of new functionalities and enhancements as per client requirements.
4. **Software Development Life Cycle (SDLC)** – Gaining hands-on experience in different phases, from requirement gathering to deployment.

Skills Acquired:

- Proficiency in programming languages (JavaScript, Python, PHP).
- Understanding of debugging techniques and software testing.
- Exposure to software development frameworks and project management tools.

Example Task:

The student worked on a user authentication system using PHP and MySQL, implementing login and registration functionalities with password encryption.

Code Example:

```
<?php
// Sample PHP login script
session_start();
$conn = new mysqli("localhost", "root", "", "database");
if ($_SERVER["REQUEST_METHOD"] == "POST") {
   $username = $_POST['username'];
   $password = md5($_POST['password']);
   $result = $conn->query("SELECT * FROM users WHERE username='$username' AND password='$password'");
   if ($result->num_rows > 0) {
      $_SESSION['user'] = $username;
      echo "Login successful!";
   } else {
      echo "Invalid credentials.";
   }
}
?>
```

3.3 Web Development Unit

The student contributed to the design and development of responsive websites, focusing on:

- **Website Design:** Creating modern, visually appealing web pages using HTML and CSS.
- **Front-end Development:** Developing user-friendly interfaces with JavaScript to enhance interactivity.
- **Back-end Integration:** Assisting in connecting web applications with databases and ensuring smooth data flow.

- **Website Optimization:** Ensuring compatibility across various devices and improving page loading speed.

Skills Acquired:

- Strong understanding of front-end web development (HTML, CSS, JavaScript).
- Experience in cross-browser testing and debugging.
- Knowledge of UI/UX principles and responsive web design.

Example Task:

The student created a responsive landing page for a client's business, incorporating CSS animations and JavaScript for dynamic content.

Code Example:

```
<!DOCTYPE html>
<html>
<head>
  <title>Landing Page</title>
  <style>
    body { text-align: center; font-family: Arial, sans-serif; }
    .button { background: blue; color: white; padding: 10px 20px; border: none; cursor: pointer; }
    .button:hover { background: darkblue; }
  </style>
</head>
<body>
  <h1>Welcome to Our Website</h1>
  <button class="button" onclick="showMessage()">Click Me</button>
  <p id="message"></p>
  <script>
    function showMessage() {
      document.getElementById("message").innerText = "Hello, welcome to our website!";
```

```
        }
    </script>
</body>
</html>
```

CHAPTER FOUR

4.0 INDUSTRIAL EXPERIENCE

During my Industrial Training (SIWES) at Curl Links Technologies, I had the opportunity to work hands-on with CSS, HTML, and JavaScript—three core technologies essential for modern web development. This experience was invaluable as it allowed me to transition from theoretical knowledge gained in the classroom to real-world application. In this chapter, I will share my personal experience and the skills I developed in these technologies during my time at the company.

4.1 Overview of My Training Experience

Throughout my internship, I was involved in several web development projects where HTML, CSS, and JavaScript played a pivotal role. I worked on both static and dynamic websites, contributing to various tasks, from designing web pages to adding interactivity and making the websites responsive. This exposure gave me a deep understanding of the entire web development process and helped me improve my technical and problem-solving skills.

4.2 My Experience with HTML (HyperText Markup Language)

During my internship, I learned how to structure web pages using HTML. It was my first experience putting together a complete website using the core building blocks of the web. Here's what I worked on:

1. **Structuring Web Pages**
   I created the basic skeleton of several web pages using essential HTML tags like `<html>`, `<head>`, `<body>`, `<header>`, and `<footer>`. It was exciting to see how these simple elements came together to form a functional web page. I also learned how to organize content using more advanced HTML5 tags like `<section>`, `<article>`, and `<aside>`, making the pages more accessible and well-structured.
2. **Creating Forms and Inputs**
   I worked on designing forms using HTML elements like `<input>`, `<textarea>`, and `<button>`. This gave me the chance to understand how websites collect user data and

how to build user-friendly forms for various purposes, such as contact forms and user registration.

3. **Linking and Navigation**

   One of the tasks I worked on was creating navigation menus with anchor tags (`<a>`). I also linked to different web pages and embedded multimedia such as images and videos using HTML tags like `<img>`, `<video>`, and `<audio>`.

4. **HTML Accessibility and SEO**

   I learned how important it is to make websites accessible for all users, especially those with disabilities. I made sure to use appropriate alt text for images and ensured proper use of semantic tags to improve accessibility. Additionally, I gained knowledge of SEO (Search Engine Optimization) techniques, ensuring the websites I worked on had the proper meta tags and structure to rank well on search engines.

What I Learned:

- How to build the structure of a website using HTML.
- The importance of accessibility and SEO in web development.
- How to create forms and handle user input.

4.3 My Experience with CSS (Cascading Style Sheets)

Next, I dove into CSS, which is used to style and lay out web pages. I learned how to transform simple HTML pages into visually appealing and responsive websites. Here's what I focused on:

1. Styling Web Pages

   I gained experience in styling various elements such as text, buttons, images, and links. I experimented with different fonts, colors, margins, and padding to make the pages visually engaging. I also learned about CSS selectors and how to target specific elements on a page, making it easier to apply styles in a consistent way.

2. Box Model and Layout Techniques

   Understanding the CSS box model was crucial for designing layouts. I learned how the content, padding, border, and margin interact to affect the spacing and alignment of

elements. I also got hands-on experience with Flexbox and CSS Grid, two powerful layout systems that helped me create flexible and responsive designs.

3. Responsive Design

   One of the most exciting aspects of my work was learning how to make websites responsive. I used media queries to adjust the layout based on different screen sizes, ensuring that websites would look great on both desktop and mobile devices. I also used relative units like percentages, `em`, and `rem` to create flexible designs that scale smoothly.

4. CSS Animations and Transitions

   I experimented with CSS animations and transitions, adding dynamic effects to buttons, links, and other elements. These small touches made the websites I worked on more interactive and engaging for users.

What I Learned:

- How to create responsive and visually appealing websites using CSS.
- Advanced layout techniques like Flexbox and Grid.
- How to use animations and transitions to enhance the user experience.

4.4 My Experience with JavaScript

Lastly, JavaScript was the scripting language I used to add interactivity and functionality to websites. This was my first deep dive into JavaScript, and it was incredibly rewarding to see the results in action. Here's what I learned:

1. DOM Manipulation

   I worked with the Document Object Model (DOM), which allowed me to manipulate web page content dynamically. I learned how to use JavaScript to add, remove, and modify HTML elements on a page, making the websites more interactive. For example, I created buttons that, when clicked, would change the content of the page or show hidden elements.

2. Event Handling

   I gained experience handling user interactions such as clicks, form submissions, and hover events. I learned how to trigger specific JavaScript functions when these events

occurred, allowing me to create interactive features like dropdown menus, image sliders, and dynamic form validations.

3. Writing Functions and Logic

   I wrote several functions to handle different tasks, such as form validation and dynamically updating content. I also practiced using conditional statements (`if`, `else`) and loops (`for`, `while`) to control the flow of the website based on user actions.

4. Asynchronous JavaScript

   I was introduced to AJAX (Asynchronous JavaScript and XML), which allowed me to fetch data from external sources and update the web page without refreshing it. I learned how to use Promises and async/await to handle asynchronous operations more efficiently.

5. Integrating with APIs

   I also explored how to integrate third-party APIs into websites. I worked with JSON data to display information from external sources like weather forecasts or news updates, which I fetched asynchronously using JavaScript.

What I Learned:

- How to add interactivity to web pages using JavaScript.
- The importance of asynchronous programming and working with APIs.
- How to manipulate the DOM and handle user interactions.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

5.1 Summary of Attachment Activities

During my Industrial Training (SIWES) at Curl Links Technologies, I gained practical experience in web development, focusing on HTML, CSS, and JavaScript. I was involved in multiple web development projects, where I contributed to the creation of user-friendly websites by structuring web pages using HTML, styling them with CSS, and adding interactivity through JavaScript. This experience allowed me to apply theoretical knowledge gained in school to real-world projects, enhancing my skills in web design, responsive layouts, and dynamic content. I also learned to integrate external APIs and work with JavaScript for user interactions, event handling, and form validation. Through this hands-on work, I developed a deeper understanding of web development processes and strengthened my technical abilities.

In addition to technical skills, I gained valuable experience working in a collaborative environment. I worked alongside project managers, software developers, and training coordinators, which helped me understand the importance of teamwork and communication in achieving project goals. The mentorship I received throughout the training was instrumental in refining my skills and learning industry best practices. Overall, my attachment at Curl Links Technologies provided me with the opportunity to grow as a developer, preparing me for future challenges in the tech industry while building a solid foundation for my career.

5.2 Problems Encountered During the Program

During my Industrial Training (SIWES) at Curl Links Technologies, I encountered a few challenges that initially hindered my progress. One of the main issues was the steep learning curve with some of the advanced features of CSS and JavaScript. While I had a basic understanding of these technologies, applying them in real-world projects, especially when dealing with complex layouts and interactivity, proved to be more challenging than I anticipated. I struggled with mastering responsive design techniques, especially using CSS Grid and Flexbox, and had difficulties debugging JavaScript code when integrating APIs and handling

asynchronous tasks. This slowed down my work at times and required additional time and effort to overcome.

Another challenge I faced was adapting to the fast-paced work environment and meeting tight project deadlines. As I was working on multiple tasks simultaneously, managing time effectively became crucial. There were instances when I found it difficult to balance learning new concepts, writing code, and ensuring the quality of the work, especially when faced with unexpected issues such as browser compatibility or troubleshooting complex bugs. However, with the guidance and support from my mentors, I was able to work through these challenges, improve my problem-solving abilities, and develop a better understanding of real-world web development processes.

5.3 Suggestions for the Improvement of the Scheme

To improve the effectiveness of the Industrial Training (SIWES) scheme, I would suggest the following recommendations based on my personal experience:

Firstly, providing more structured training programs or pre-internship tutorials in core technologies such as HTML, CSS, and JavaScript would help interns hit the ground running. Many interns, like myself, had some foundational knowledge, but a more in-depth, hands-on introduction to the latest tools and frameworks used in the industry could improve their confidence and productivity. Offering a blend of theoretical and practical training before the actual internship could better prepare students for real-world challenges and reduce the initial learning curve.

Secondly, enhancing the mentorship aspect of the program could significantly improve its impact. Assigning each intern a dedicated mentor who can provide regular feedback, guide them through complex tasks, and offer personalized learning opportunities would be beneficial. Regular check-ins between the interns and their mentors could ensure that any issues are addressed promptly, helping interns stay on track with their development and contribute more effectively to the projects. Additionally, organizing group discussions or workshops where interns can share experiences and problem-solving strategies might foster a more collaborative and supportive learning environment.