



NATIONAL SKILLS QUALIFICATION

LEVEL 4

TITLE: WEB DEVELOPMENT

YEAR: 2024

NATIONAL SKILLS QUALIFICATION

NSQ LEVEL 4 CERTIFICATE IN WEB DEVELOPMENT

GENERAL INFORMATION

QUALIFICATION PURPOSE

This qualification is to equip learners with knowledge and skills in web development, enabling them to create, manage and deploy professional web applications.

QUALIFICATION OBJECTIVES

The learner should be able to: -

- i. Gain in-depth knowledge of HTML, CSS, JavaScript, and modern frameworks to develop responsive and interactive websites
- ii. Manage web development projects using version control (Git) and deploy applications to live servers.
- iii. Demonstrate competence through the development and deployment of a comprehensive web project as a capstone activity.
- iv. Develop problem-solving skills and collaborative capabilities for professional web development environments.
- v. Be proficient in advanced Web Development Skills
- vi. Have an in-depth knowledge of blockchain technology
- vii. Develop smart contract and token development
- viii. Manage NFT marketplaces and integrating it with other technologies
- ix. Enhance his/her professional Development

Mandatory Units

Unit No	Reference Number	NOS Title	Credit Value	Guided Learning Hours	Remark
UNIT 01	ICT/WEB/001/L4	Health, Safety and Environment	2	20	LEVEL 4
UNIT 02	ICT/WEB/002/L4	Communication System in a Work Environment	2	20	LEVEL 4
UNIT 03	ICT/WEB/003/L4	Client-Side Web Development	4	40	LEVEL 4
UNIT 04	ICT/WEB/004/L4	Server-Side Web Development	3	30	LEVEL 4
UNIT 05	ICT/WEB/005/L4	Version Control with Git	2	20	LEVEL 4
UNIT 06	ICT/WEB/006/L4	Web Application Deployment	3	30	LEVEL 4
UNIT 07	ICT/WEB/007/L4	Accessibility and Inclusive Design in Web Development	3	30	LEVEL 4
UNIT 08	ICT/WEB/008/L4	Leveraging Open-Source Technologies	3	30	LEVEL 4
UNIT 09	ICT/WEB/009/L4	Web server Configuration and performance Tuning	3	30	LEVEL 4
UNIT 10	ICT/WEB/010/L4	Payment Gateway Integration	4	40	LEVEL 4
UNIT 11	ICT/WEB/011/L4	Introduction to DevOps for Web Development	4	40	LEVEL 4
UNIT 12	ICT/WEB/012/L4	Agile Project Management for Web Development	4	40	LEVEL 4
TOTAL			37	370	

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UNIT 1: HEALTH, SAFETY AND ENVIRONMENT

Unit Reference Number: ICT/WEB/001/L4

NSQ Level: 4

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose: To ensure that learners understand and can apply health, safety, and environmental regulations in the context of web development, promoting a safe and sustainable working environment.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 001: HEATH, SAFETY AND ENVIRONMENT

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
LO 1: Understand key health and safety regulations	1.1	Identify relevant health and safety regulations								
	1.2	Explain the importance of these regulations								
	1.3	Apply regulations in a web development context								
	1.4	Monitor compliance with health and safety standards								
LO 2: Assess environmental impacts of web development	2.1	Identify potential environmental impacts								
	2.2	Conduct environmental impact assessments								
	2.3	Propose mitigation strategies								
	2.4	Implement environmentally friendly practices								
LO3: Develop and implement health, safety and environmental strategies	3.1	Develop safety protocols								
	3.2	Train team members on safety measures								
	3.3	Conduct regular safety audits								
	3.4	Respond to safety incidents effectively								

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UNIT 2: COMMUNICATION SYSTEM IN A WORK ENVIRONMENT

Unit Reference Number: ICT /WEB/002/L4

NSQ Level: 4

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose: To equip learners with the skills to effectively communicate within a work environment, ensuring clear and efficient information exchange.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 002: COMMUNICATION SYSTEM IN A WORK ENVIRONMENT

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UNIT 3: CLIENT-SIDE WEB DEVELOPMENT

Unit Reference Number: ICT/WEB/003/L4

NSQ Level: 4

Credit Value: 4

Guided Learning Hours: 40

Unit Purpose: To equip learners with skills in client-side web development using modern JavaScript frameworks and responsive design techniques, enabling them to create dynamic and user-friendly web applications.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

To equip learners with advanced skills in client-side web development using modern JavaScript frameworks and responsive design techniques, enabling them to create dynamic and user-friendly web applications.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

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UNIT 4: ADVANCED SERVER-SIDE WEB DEVELOPMENT

Unit Reference Number: ICT/WEB/004/L4

NSQ Level: 4

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose: This unit is to equip learners with skills and knowledge on server-side web development.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 004: ADVANCED SERVER-SIDE WEB DEVELOPMENT

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type				Evidence Ref. No.	Page No.	
The learner will:		The learner can:							
LO 1: Understand advanced server-side programming concepts	1.1	Explain the differences between server-side and client-side programming							
	1.2	Describe the architecture of server-side applications							
	1.3	Identify and use appropriate server-side programming languages and frameworks							
	1.4	Implement server-side logic to handle HTTP requests and responses							
LO 2: Implement secure and scalable web applications	2.1	Develop secure authentication mechanisms							
	2.2	Develop secure authorization mechanisms							
	2.3	Use encryption techniques to protect sensitive data							
	2.4	Implement input validation and error handling							
	2.5	Optimize server-side code for scalability and performance							
LO 3: Integrate server-side technologies and databases	3.1	Connect server-side applications to relational and NoSQL databases							
	3.2	Perform CRUD operations using server-side code							
	3.3	Implement ORM (Object-Relational Mapping) for database interactions							
	3.4	Use server-side caching mechanisms to improve performance							
LO 4: Deploy and maintain server-side applications	4.1	Deploy applications to cloud platforms (e.g., AWS, Azure)							
	4.2	Set up and configure web servers (e.g., Apache, Nginx)							
	4.3	Implement CI/CD pipelines for automated deployment							
	4.4	Monitor and troubleshoot server-side applications							

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UNIT 5: VERSION CONTROL WITH GIT

Unit Reference Number: ICT/WEB/005/L4

NSQ Level: 4

Credit Value: 2

Guided Learning Hours: 20

Unit Purpose: To provide learners with in-depth knowledge and practical skills in using Git for version control, focusing on advanced commands, branching strategies, and conflict resolution to manage collaborative development projects efficiently

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 005: ADVANCED VERSION CONTROL WITH GIT

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
LO 1: Utilize advanced Git commands	1.1	Use commands like rebase, cherry-pick, and bisect								
	1.2	Manage branches and tags								
	1.3	Perform interactive rebases								
	1.4	Resolve complex merge conflicts								
LO 2: Resolve merge conflicts	2.1	Identify causes of merge conflicts								
	2.2	Use Git tools to resolve conflicts								
	2.3	Communicate with team members to resolve conflicts								
	2.4	Document conflict resolution processes								
LO 3: Implement branching strategies	3.1	Develop branching strategies for projects								
	3.2	Use feature branches and pull requests								
	3.3	Merge branches effectively								
	3.4	Maintain a clean Git history								

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UNIT 6: WEB APPLICATION DEPLOYMENT

Unit Reference Number: ICT/WEB/006/L4

NSQ Level: 4.

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose: This unit aims to equip learners with skills and knowledge of tools to deploy web applications, including cloud services and CI/CD pipelines, ensuring they can manage and troubleshoot deployments effectively.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 006: WEB APPLICATION DEPLOYMENT

LEARNING OBJECTIVE (LO)			PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
LO 1: Deploy applications to cloud platforms		1.1	Deploy to AWS, Azure, or similar platforms								
		1.2	Configure deployment environments								
		1.3	Use deployment automation tools								
		1.4	Monitor deployment processes								
LO 2: Set up CI/CD pipelines		2.1	Configure CI/CD tools like Jenkins or GitHub Actions								
		2.2	Automate build and deployment processes								
		2.3	Implement testing in CI/CD pipelines								
		2.4	Monitor and troubleshoot CI/CD pipelines								
LO 3: Monitor and troubleshoot deployments		3.1	Use monitoring tools like New Relic or Datadog								
		3.2	Set up alerts for deployment issues								
		3.3	Troubleshoot deployment failures								
		3.4	Document deployment issues								
		3.5	Resolve deployment issues								

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**UNIT 7: ACCESSIBILITY AND INCLUSIVE DESIGN IN WEB
DEVELOPMENT**

Unit Reference Number: ICT/WEB/007/L4

NSQ Level: 4

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose: This unit aims to equip learners with the skills to create accessible and inclusive websites for all users, including those with disabilities.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 007: ACCESSIBILITY AND INCLUSIVE DESIGN IN WEB DEVELOPMENT

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type				Evidence Ref. Page No.			
The learner will:		The learner can:								
LO 1: Apply WCAG guidelines	1.1	Implement WCAG guidelines in designs								
	1.2	Conduct accessibility audits								
	1.3	Make necessary adjustments for compliance								
	1.4	Document accessibility improvements								
LO 2: Use ARIA roles effectively	2.1	Identify appropriate ARIA roles								
	2.2	Implement ARIA roles in web applications								
	2.3	Test ARIA roles for functionality								
	2.4	Ensure ARIA roles enhance accessibility								
LO 3: Design for inclusivity	3.1	Apply inclusive design principles								
	3.2	Conduct user research with diverse groups								
	3.3	Implement feedback from diverse users								
	3.4	Continuously improve inclusivity in designs								
LO 4: Foster emotional intelligence and interpersonal skills	4.1	Demonstrate empathy and active listening								
	4.2	Build and maintain professional relationships								
	4.3	Manage stress and emotional responses								
	4.4	Navigate workplace dynamics effectively								

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UNIT 08: LEVERAGING OPEN-SOURCE TECHNOLOGIES

Unit Reference Number: ICT/WEB/008/L4

NSQ Level: 4

Credit Value: 4

Guided Learning Hours: 40

Unit Purpose: This unit aims to equip learners with skills and knowledge to use open-source technologies in web development, including the integration of libraries, contribution to projects, and understanding of licensing, fostering a collaborative and innovative development environment.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

Direct Observation/oral questions (DO)

Question and Answer (QA)

Witness Testimony (WT)

Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 008: LEVERAGING OPEN-SOURCE TECHNOLOGIES

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA	Evidence Type				Evidence Ref. Page No.			
The learner will:		The learner can:								
LO 1: Integrate open-source libraries	1.1	Identify suitable open-source libraries.								
	1.2	Integrate libraries into projects								
	1.3	Test and validate library functionality								
	1.4	Maintain and update libraries								
LO 2: Contribute to open-source projects	2.1	Identify open-source projects to contribute to								
	2.2	Follow contribution guidelines								
	2.3	Submit pull requests								
	2.4	Engage with the open-source community								
LO 3: Understand open-source licensing	3.1	Identify different types of open-source licenses								
	3.2	Apply appropriate licenses to projects								
	3.3	Ensure compliance with license terms								
	3.4	Educate team members on licensing								

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UNIT 09: WEB SERVER CONFIGURATION AND PERFORMANCE TUNING

Unit Reference Number: ICT/WEB/009/L4

NSQ Level: 4

Credit Value: 3

Guided Learning Hours: 30

Unit Purpose: To equip learners with the skills to configure and optimize web servers, ensuring high performance and reliability of web applications through effective server management and performance tuning techniques.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 009: WEB SERVER CONFIGURATION AND PERFORMANCE TUNING

LEARNING OBJECTIVE (LO)		PERFORMANCE CRITERIA The learner can:	Evidence Type				Evidence Ref. Page No.			
LO 1: Configure web servers.	1.1	Set up and configure servers.								
	1.2	Install and configure necessary software.								
	1.3	Secure server configurations.								
	1.4	Document server setups								
LO 2: Implement load balancing	2.1	Set up load balancers.								
	2.2	Configure load balancing algorithms.								
	2.3	Monitor load balancer performance								
	2.4	Troubleshoot load balancing issues								
LO 3: Optimize server performance	3.1	Identify performance bottlenecks.								
	3.2	Implement caching strategies.								
	3.3	Optimize server configurations.								
	3.4	Monitor and improve server performance								

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UNIT 10: PAYMENT GATEWAY INTEGRATION

Unit Reference Number: ICT /WEB/010/L4

NSQ Level: 4

Credit Value: 4

Guided Learning Hours: 40

Unit Purpose: Aims to equip learners with the skills and knowledge to integrate payment gateways into web applications, ensuring secure and efficient handling of transactions, and managing payment-related errors and security protocols.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

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UNIT 11: INTRODUCTION TO DEVOPS FOR WEB DEVELOPMENT

Unit Reference Number: ICT/WEB/011/L4

NSQ Level: 4

Credit Value: 1

Guided Learning Hours: 10

Unit Purpose: Aims to equip learners with skills and knowledge on DevOps principles and practices.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 11: INTRODUCTION TO DEVOPS FOR WEB DEVELOPMENT

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: Understand DevOps principles	1.1	Explain key DevOps principles		
	1.2	Apply DevOps practices in projects		
	1.3	Collaborate with DevOps teams		
	1.4	Continuously improve DevOps processes		
LO 2: Use automation tools	2.1	Identify suitable automation tools		
	2.2	Implement automation in CI/CD pipelines		
	2.3	Monitor automation processes		
	2.4	Troubleshoot automation issues		
LO 3: Implement monitoring and logging.	3.1	Set up monitoring tools.		
	3.2	Implement logging solutions.		
	3.3	Monitor application performance.		
	3.4	Respond to monitoring alerts		

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**UNIT 12: AGILE PROJECT MANAGEMENT FOR WEB
DEVELOPMENT**

Unit Reference Number: ICT/WEB/012/L4

NSQ Level: 4

Credit Value: 1

Guided Learning Hours: 10

Unit Purpose: To equip learners with the skills and knowledge to apply Agile methodologies and the Scrum framework in web development projects, enabling them to manage projects effectively and adapt to changes dynamically.

Unit assessment requirements/ evidence requirements:

Assessment must be carried out in real workplace environment in which learning and human development is carried out.

Assessment methods to be used include:

1. Direct Observation/oral questions (DO)
2. Question and Answer (QA)
3. Witness Testimony (WT)
4. Assignment (ASS), etc.

(This depends on the Trade Areas to be assessed)

UNIT 12: AGILE PROJECT MANAGEMENT FOR WEB DEVELOPMENT

LEARNING OBJECTIVE (LO) The learner will:		PERFORMANCE CRITERIA The learner can:	Evidence Type	Evidence Ref. Page No.
LO 1: Apply Agile methodologies	1.1	Explain Agile principles		
	1.2	Implement Agile practices in projects		
	1.3	Conduct Agile ceremonies		
	1.4	Continuously improve Agile processes		
LO 2: Use the Scrum framework	2.1	Explain Scrum roles and responsibilities		
	2.2	Conduct Scrum ceremonies		
	2.3	Use Scrum tools effectively		
	2.4	Monitor and improve Scrum processes		
LO 3: Plan and execute sprints	3.1	Conduct sprint planning.		
	3.2	Execute sprint tasks.		
	3.3	Monitor sprint progress.		
	3.4	Conduct sprint reviews and retrospectives.		

PARTICIPANT FOR CRITIQUE WORKSHOP

S/N	Full Name	Organization	Address	Email	Telephone
1	OBIAHU, Okechukwu Othniel	Oando Energy Resources Nigeria Ltd.	No 43 NDDC Road 11, Rumukwurusi Pipeline, Rivers State	othnielobiahu@yahoo.com	08038869114
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