QUALIFICATION FILE–Standalone NOS

Fundamentals of Linux Device Driver Development

☐ Horizontal/Generic ☐Vertical/Specialization

☒ Upskilling ☐ Dual/Flexi Qualification ☐ For ToT ☐ For ToA

☒General ☐ Multi-skill (MS) ☐ Cross Sectoral (CS) ☐ Future Skills ☐ OEM

NCrF/NSQF Level: 5

Submitted By:

NATIONAL INSTITUTE OF ELECTRONICS AND INFORMATION TECHNOLOGY (NIELIT)

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Section 1: Basic Details

1.	**NOS-Qualification Name**	**Fundamentals of Linux Device Driver Development**	
2.	**Sector/s**	Electronics	
3.	**Type of Qualification ☒ New ☐ Revised**	**NQR Code & version of the existing /previous qualification:** NA	**Qualification Name of the existing/previous version:** *NA*
4.	**National Qualification Register (NQR) Code & Version**	NG-05-EH-02893-2024-V1-NIELIT	**5. NCrF/NSQF Level:** 5
6.	**Brief Description of the Standalone NOS**	This NOS offers a comprehensive introduction to Linux Kernel architecture and device driver development. Designed for software engineers, system administrators, and Linux enthusiasts, the course covers essential concepts, practical implementations, and debugging techniques related to device drivers in the Linux environment.	
7.	**Eligibility Criteria for Entry for a Student/Trainee/Learner/Employee**	**a. Entry Qualification & Relevant Experience:**	

S. No.	**Academic/Skill Qualification (with Specialization - if applicable)**	**Relevant Experience (with Specialization - if applicable)**
1	2nd year of UG in Electronics and Communication Engineering/ Electrical Engineering/CS/IT/Physics/Electronics and allied branches	NA
2	3 Years of Diploma in Electronics and Communication Engineering/ Electrical Engineering/CS/IT/Physics/Electronics and allied branches after class 10th	1.5 Years
3	2 Year of diploma in Electronics and Communication Engineering/ Electrical Engineering/CS/IT/Physics/Electronics and allied branches after class 12th	NA
4	NSQF Level 4.5 in Electronics and Communication Engineering/ Electrical Engineering/CS/IT/Physics/Electronics and allied branches	1.5 Years
5	NSQF Level 4 Electronics and Communication Engineering/ Electrical	1.5 Years

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<table>
<tr><td></td><td></td><td>
<table>
<tr><td></td><td>Engineering/CS/IT/Physics/Electronics and allied branches</td><td></td></tr>
</table>
b. Age:18 years
</td></tr>
<tr><td>8.</td><td>Credits Assigned to this NOS-Qualification, Subject to Assessment (as per National Credit Framework (NCrF))</td><td>2 Credits</td><td>9. Common Cost Norm Category (I/II/III) (wherever applicable):
Category I (Electronics System Design)</td></tr>
<tr><td>10.</td><td>Any Licensing Requirements for Undertaking Training on This Qualification (wherever applicable)</td><td colspan="2">NA</td></tr>
<tr><td>11.</td><td>Training Duration by Modes of Training Delivery (Specify Total Duration as per selected training delivery modes and as per requirement of the qualification)</td><td colspan="2">☒Offline ☐ Online ☐ Blended
<table>
<tr><th>Training Delivery Mode</th><th>Theory (Hours)</th><th>Practical (Hours)</th><th>Total (Hours)</th></tr>
<tr><td>Classroom (offline)</td><td>30</td><td>30</td><td>60</td></tr>
</table>
Training shall be conducted in any of the 3 modes depending on the regional need.

(Refer Blended Learning Annexure-V for details)</td></tr>
<tr><td>12.</td><td>Assessment Criteria</td><td colspan="2">
<table>
<tr><th>Theory (Marks)</th><th>Practical (Marks)</th><th>Project/ Presentation /Assignment (Marks)</th><th>Viva/ Internal Assessment (Marks)</th><th>Total (Marks)</th><th>Passing %age</th></tr>
<tr><td>100</td><td>60</td><td>20</td><td>20</td><td>200</td><td>50</td></tr>
</table>
The centralized online assessment is conducted by the Examination Wing, NIELIT Headquarters.</td></tr>
<tr><td>13.</td><td>Is the NOS Amenable to Persons with Disability</td><td colspan="2">☒ Yes ☐ No
If “Yes”, specify applicable type of Disability:

a. Locomotor Disability: Leprosy Cured Person, Dwarfism, Muscular Dystrophy and Acid Attack Victims
b. Visual Impairment: Low Vision</td></tr>
<tr><td>14.</td><td>Progression Path After Attaining the Qualification, wherever applicable</td><td colspan="2">Embedded Software Engineer</td></tr>
</table>

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15.	**How will the participation of women be encouraged?**	Participation by women can be ensured through Government Schemes. Occasionally, exclusive batches for women would be run for the proposed courses. Funding is available for women's participation under other schemes launched by the Government from time to time.	
16.	**Other Indian languages in which the Qualification & Model Curriculum are being submitted**	Qualification file available in English & Hindi Language.	
17.	**Is similar NOS available on NQR-if yes, justification for this qualification**	☐**Yes** ☒ **No**	
18.	**Name and Contact Details Submitting / Awarding Body SPOC** *(In the case of CS or MS, provide details of both Lead AB & Supporting ABs)*	**Name:** Rajesh M **Email:** rajesh.m@nielit.gov.in **Website:** https://nielit.gov.in/ **Name:** Anirban Jyoti Hati **Email:** anirban@nielit.gov.in **Website:** https://nielit.gov.in/ **Name:** Ankit Kumar **Email:** ankit@nielit.gov.in **Website:** https://nielit.gov.in/	
19.	**Final Approval Date by NSQC: 25.07.2024**	**20. Validity Duration: 3 years**	**21. Next Review Date:25.07.2027**

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Section 2: Training Related

1.	**Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)**	B.E./B. Tech in Electronics/ Electronics & Communication/ Electrical/ Electrical and Electronics/Instrumentation/ Electronics & Instrumentation / Instrumentation & Control /Computer Science/Information Technology Minimum 2 year of experience in the field of Embedded Systems Development
2.	**Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)**	B.E./B. Tech in Electronics/ Electronics & Communication/ Electrical/ Electrical and Electronics/Instrumentation/ Electronics & Instrumentation / Instrumentation & Control /Computer Science/Information Technology Minimum 3 year of experience in the field of Embedded Real Time systems
3.	**Tools and Equipment Required for the Training**	☒ Yes ☐No Available at Annexure-II
4.	**In Case of Revised NOS, details of Any Upskilling Required for Trainer**	Not Applicable

Section 3: Assessment Related

1.	**Assessor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	B.Tech or Equivalent as per NCrF + 3 years relevant experience
2.	**Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines), (wherever applicable)*	The assessor carries out theory online assessments through the remote proctoring methodology. Theory examination would be conducted online and the paper comprises MCQ. Conduct of assessment is through trained proctors. Once the test begins, remote proctors have full access to the candidate's video feeds and computer screens. Proctors authenticate the candidate based on registration details, pre-test image captured and I-card in possession of the candidate. Proctors can chat with candidates or give warnings to candidates. Proctors can also take screenshots, terminate a specific user's test session, or re-authenticate candidates based on video feeds.
3.	**Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	External Examiners/ Observers (Subject matter experts) are deployed including NIELIT scientific officers who are subject experts for evaluation of Practical examination/ internal assessment / Project/ Presentation/ assignment and Major Project (if applicable). Qualification is generally B.Tech
4.	**Assessment Mode***(Specify the assessment mode)*	Centralized online examination will be conducted
5.	**Tools and Equipment Required for Assessment**	Same as for training ☒ Yes ☐ No

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Section 4: Evidence of the Need for the Standalone NOS

1.	Government /Industry initiatives/ requirement (Yes/No): Yes, Available at Annexure-A: Evidence of Need
2.	Number of Industry validations provided: 8
3.	Estimated number of people to be trained: 500 persons per year shall be trained.
4.	Evidence of Concurrence/Consultation with Line/State Departments (In case of regulated sectors): NIELIT is recognized as AB and AA under Government Category. NIELIT is an HRD arm of MeitY, therefore, the Line Ministry Concurrence is not required.
5.	Latest Skill Gap Study (not older than 2 years) (Yes/No): Yes, Available in Annexure-A: Evidence of Need
6.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): Yes, Available at Annexure-A: Evidence of Need

Section 5: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name.

1.	**Annexure:** NCrF/NSQF level justification based on NCrF/NSQF descriptors *(Mandatory)*	*Available at* Annexure-I: Evidence of Level
2.	**Annexure:** List of tools and equipment relevant for NOS *(Mandatory, except in case of online course)*	*Available at* Annexure-II: Tools and Equipment
3.	**Annexure: Industry Validation**	*Available at* Annexure-III: Industry Validation
4.	**Annexure: Training Details**	*Available at* Annexure-IV: Training Details
5.	**Annexure:** Blended Learning *(Mandatory, in case the selected Mode of delivery is Blended Learning)*	*Available at* Annexure-V: Blended Learning
6.	**Annexure/Supporting Document:** Standalone NOS-Performance Criteria Details Annexure/Document with PC-wise detailing as per NOS format (Mandatory- Public view)	*Available at* Annexure-VI: Standalone NOS- Performance Criteria details
7.	**Annexure:** Performance and Assessment Criteria *(Mandatory)*	*Available at* Annexure-VII: Detailed Assessment Criteria
8.	**Annexure:** Assessment Strategy *(Mandatory)*	*Available at* Annexure-VIII: Assessment Strategy
9.	**Annexure:** Acronym and Glossary *(Optional)*	*Available at* Annexure-IX: Acronym and Glossary
10.	**Supporting Document:** Model Curriculum	*Available at* Annexure-C: Model Curriculum

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Annexure-I: Evidence of Level

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
Professional Theoretical Knowledge/Process	• Understanding the architecture and components of the Linux Kernel, including its role in managing system resources, processes, and hardware interactions. • Understanding the ioctl system call and its usage in managing device-specific functionalities and configurations. • Ability to develop and write USB device drivers, including interactions with the USB core and debugging techniques.	• Applying this knowledge involves analyzing and interpreting the kernel's architecture, configuring kernel settings, and managing kernel modules. • The practical application involves writing and implementing ioctl commands within device drivers to perform specific control operations.	5
Professional and Technical Skills/ Expertise/ Professional Knowledge	• Expertise in customizing kernel module parameters to optimize kernel behavior and performance. • Strong understanding of character device drivers, major/minor numbers assignment, and file operations (open, close, read, write). • Proficiency in writing and debugging USB device drivers, including interaction with the USB core.	• This outcome requires the ability to understand and manipulate kernel module parameters to tailor the kernel's behavior to specific needs. • Mastery in developing character device drivers showcases the ability to create and manage device-specific functionalities within the Linux environment, ensuring that custom devices interact correctly with the operating system.	5
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Understanding the Linux Kernel architecture is crucial for roles involving Linux system administration, device driver development, and software engineering on Linux-based platforms. • Being able to innovate and create novel solutions in Linux Kernel and device driver development can lead to entrepreneurial opportunities in developing custom hardware/software solutions.	1. A solid understanding of Linux Kernel architecture equips students with the foundational knowledge necessary for a variety of roles in system administration, device driver development, and software engineering. 2. Innovating within the Linux Kernel and device driver space can lead to the creation of unique hardware/software products, opening avenues for entrepreneurial ventures	5

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	• Being adaptable to new technologies, changes in the Linux Kernel, and emerging hardware trends is crucial for entrepreneurial ventures that require rapid prototyping and product development.		
Broad Learning Outcomes/ Core Skill	• Develop and maintain kernel modules for specific functionalities, ensuring compatibility and optimal system performance. • Implement and customize device drivers (character, block, USB) to enable hardware interaction, handle I/O operations, and ensure proper device functionality. • Debug and troubleshoot kernel module loading issues, device driver functionality, memory allocation problems, and optimize system performance for efficient resource utilization.	1. Proficiency in writing and customizing various types of device drivers, understanding hardware-software interactions. 2. Diagnosing and resolving issues that arise during module loading and driver execution. 3. Identifying and fixing problems related to memory allocation and driver functionality.	5
Responsibility	• Responsibility for developing and maintaining kernel modules to extend the functionality of the Linux Kernel. • Responsibility for designing, implementing, and maintaining character device drivers for hardware peripherals. • Responsibility for developing and optimizing block device drivers to manage data storage and retrieval efficiently.	1. Takes complete responsibility for delivery and quality of own work and output as also the subordinates. 2. Shares responsibility for the group tasks.	5

Annexure II: Tools and Equipment (lab set-up)

List of Tools and Equipment: **Batch Size: 30**

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	Classroom	1 (750 Sq. ft to 1000 Sq. ft.)	30
2	Students Chair	30	30
3	Students Table	15 (2 students sharing 1 table)	15

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4	Desktop computer with accessories / Laptop	Laptop with minimum specifications: Intel I3 or Celeron processor with at least 8GB RAM, 512GB SSD Hard disk integrated with graphics card, Display size 15.6-inch, Wi-Fi connectivity and Wired Optical Mouse	15
5	Internet Connectivity	Seamless internet connectivity with at least 100 Mbps without firewall	
6	Development Board & Tools	Computer with Linux OS, kernel source code, compiler toolchain, kernel debugging tools, and access to documentation on Linux kernel and device driver development.	15

Classroom Aids for offline and blended mode of training:

The aids required to conduct sessions in the classroom are:

1. LCD Projector/Smart Board

Annexure III: Industry Validations/ Government Recognition Summary

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID
1	Aajivika Global Skill Private Limited	Mukesh Kumar Verma	Director	Beside Vishal Trade, dasmile chowk, Khunti Road Ranchi, Jharkhand-835221	9507952882	aajivikaglobal@gmail.com
2	AISECT Ltd.	Teena Panthi	Assistant Manager	AISECT Ltd. 1-1-387, 3rd floor, Flat No. 403/404, GNR Heights, Above SBI,Bakaram Road, Musheerabad, Hydrabad-500020	7879982075	Teena.panthi@aisect.org
3	B. G. Infotech	Amal Das	Centre Head	Kakdihi, Mecheda, Purba, Medinipur	9434996748	Bginfotech2007@gmail.com
4	Devendra Nath Institute	Amit Kumar	Director	Uska Road, Near Naveen Sabji	8765562815	aktjob@gmail.com

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	of Information Mation Technology (DNIIT)	Tripathy		Mandi, Tetari Bazar, Siddharth Nagar-272207		
5	Inditech Software Wizard Pvt. Ltd.	Sandip Ghosh	Course Coordinator	Mohiari Chanpiritala, Po: Andul Mouri, PS: Domjur, Distt: Howrah, West Bengal-711302	9230027415	swizardrecruitment@gmail.com
6	Prasanthi Polytechnic	D. Prasad	Principal	Duppituru (Vill), Atchutapuram (Md). Visakhapatnam (Dist), Andhara Pradesh-531011	9849952573	prasadreddy.1279@gmail.com
7	Sidhi Vinayak Academy	Neha Verma	Director	Shiv Narayan Kunj, B Block, Shivaji Nagar, Hethu, Ranchi, JH-834002	8789837772	sidhiacadmey@gmail.com
8	Surekha IT Services	Anjani K	Manager	8-3-191/84/302, Sharan Residency, Vengalrao Nagar, Hyderabad-500038, Telangana	8125134134	info@surekhaitservices.com

Annexure IV: Training Details

Training Projections:

Year	Estimated Training # of Total Candidates	Estimated training# of Women	Estimated training# of People with Disability
2024-25	500	200	20
2025-26	500	200	20
2026-27	1000	200	20

Data to be provided year-wise for the next 3 years

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Annexure V: Blended Learning

Blended Learning Estimated Ratio & Recommended Tools:

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline : Online Ratio
1	Theory/ Lectures - Imparting theoretical and conceptual knowledge	Online interaction platforms like JitSi Meet, Bharat VC, Google Meet, MS Teams, etc.	70:30
2	Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	Online interaction platforms like JitSi Meet, Bharat VC, Google Meet, MS Teams, etc.	70:30
3	Showing Practical Demonstrations to the learners	Through Virtual Software and Online interaction platforms like JitSi Meet, Bharat VC, Google Meet, MS Teams, etc.	70:30
4	Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	Through Virtual Software and Online interaction platforms like JitSi Meet, Bharat VC, Google Meet, MS Teams, etc.	70:30
5	Tutorials/ Assignments/ Drill/ Practice	Online interaction platforms like JitSi Meet, Bharat VC, Google Meet, MS Teams, etc.	70:30
6	Proctored Monitoring/ Assessment/ Evaluation/ Examinations	NIELIT Remote Proctored Software	Online: 100% Theory Offline: 100% Practical
7	On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	Virtual Software Platform	Either 100% online in a virtual environment Or 100% offline in the Industry.

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Annexure VI: Standalone NOS- Performance Criteria details

1. Description

This NOS offers a comprehensive introduction to Linux Kernel architecture and device driver development. Designed for software engineers, system administrators, and Linux enthusiasts, the course covers essential concepts, practical implementations, and debugging techniques related to device drivers in the Linux environment

2. Scope

The scope of this course is to equip learners with the essential knowledge and skills required to understand, develop, and troubleshoot device drivers in the Linux operating system.

3. Elements and Performance Criteria

Kernel Module Basics:

- Demonstrate the ability to compile, load, and unload kernel modules successfully in a Linux environment.
- Modify and test kernel module parameters to observe changes in kernel behavior and functionality.
- Identify common errors during module loading and unloading, and troubleshoot issues effectively using debugging tools.

Character Device Drivers

- Develop character device drivers that support open, close, read, and write operations, ensuring proper functionality and error handling.
- Utilize the ioctl system call effectively within character device drivers to manage device-specific functionalities and configurations.
- Allocate and manage major and minor numbers for character devices accurately, ensuring proper device registration and accessibility.

Block Device Drivers:

- Implement I/O operations (request and response handling) in block device drivers, ensuring efficient data transfer and error handling.
- Optimize buffer cache usage and I/O scheduling algorithms in block device drivers to enhance data transfer performance and system responsiveness.

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- Analyze the performance of block device drivers under different load conditions, identify bottlenecks, and propose optimization strategies for improved performance.

4. **Knowledge and Understanding (KU):**

The individual on the job needs to know and understand:

Kernel Module Basics:

- Knowledge of the structure and components of kernel modules.
- Understanding of the process of compiling, loading, and unloading kernel modules.
- Ability to explain kernel module parameters and their impact on kernel behavior.

Character Device Drivers:

- Understanding of character devices and their interaction with user-space applications.
- Knowledge of major and minor numbers allocation and management for character devices.
- Familiarity with file operations (open, close, read, write) and the ioctl system call in character device drivers.

Block Device Drivers:

- Knowledge of block devices and their role in data storage and retrieval.
- Understanding of data structures used for block devices and their functions in handling I/O operations.
- Ability to explain buffer caches, I/O scheduling algorithms, and their influence on block device driver performance.

5. Generic Skills (GS):

User/individual on the job needs to know how to:

Problem-Solving:

- Ability to identify and troubleshoot issues related to kernel module loading, character device operations, and block device performance.
- Analytical skills to debug errors, optimize parameters, and improve the functionality of device drivers.

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Communication:

- Clear and effective communication of technical concepts related to kernel modules, device drivers, and system performance.
- Collaborative skills to work in teams on projects involving device driver development and optimization.

Critical Thinking:

- Evaluating different approaches to kernel module customization, device operation implementation, and performance optimization.
- Applying critical thinking skills to analyze and improve the efficiency and effectiveness of device drivers.

Annexure VII: Assessment Criteria

Detailed PC-wise assessment criteria and assessment marks for the NOS are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria	Theory Marks	Practical Marks	Project /Presentation /Assignment Marks	Viva/ Internal Assessment (Marks)
NOS1: Fundamentals of Linux Device Driver Development NOS Code: NIE/ELE/N0227	*Kernel Module Basics:*	**30**	**20**	-	**6**
	Demonstrate the ability to compile, load, and unload kernel modules successfully in a Linux environment.	-	-	-	-
	Modify and test kernel module parameters to observe changes in kernel behavior and functionality.	-	-	-	-
	Identify common errors during module loading and unloading, and troubleshoot issues effectively using debugging tools.	-	-	-	-
	Character Device Drivers	**40**	**20**	-	**7**
	Develop character device drivers that support open, close, read, and write operations, ensuring proper functionality and error handling.	-	-	-	-

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	Utilize the ioctl system call effectively within character device drivers to manage device-specific functionalities and configurations.	-	-	-	-
	Allocate and manage major and minor numbers for character devices accurately, ensuring proper device registration and accessibility.	-	-	-	-
	Block Device Drivers:	**30**	**20**	-	**7**
	Implement I/O operations (request and response handling) in block device drivers, ensuring efficient data transfer and error handling.	-	-	-	-
	Optimize buffer cache usage and I/O scheduling algorithms in block device drivers to enhance data transfer performance and system responsiveness.	-	-	-	-
	Analyze the performance of block device drivers under different load conditions, identify bottlenecks, and propose optimization strategies for improved performance	-	-	-	-
		100	**60**	**20**	**20**
	NOS Total	**200**			

Annexure VIII: Assessment Strategy

Assessment of the qualification evaluates candidates to ascertain that they can integrate knowledge, skills and values for carrying out relevant tasks as per the defined learning outcomes and assessment criteria.

The underlying principle of assessment is fairness and transparency. The evidence of the outcomes and assessment criteria. Competence acquired by the candidate can be obtained by conducting Theory (Online), Practical assessment, internal assessment, Project/Presentation/ Assignment, Major Project. The emphasis is on the practical demonstration of skills & knowledge gained by the candidate through the training. Each OUTCOME is assessed & marked separately. A candidate is required to pass all OUTCOMES individually based on the passing criteria.

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About Examination Pattern:

1. The question papers for the theory and practical exams are set by the Examination wing (assessor) of NIELIT HQS.

2. The assessor assigns roll number.

3. The assessor carries out theory online assessments through remote proctoring methodology. Theory examination would be conducted online and the paper comprise of MCQ. Conduct of assessment are through trained proctors. Once the test begins, remote proctors have full access to candidate's video feeds and computer screens. Proctors authenticate the candidate based on registration details, pre-test image captured and I-card in possession of the candidate. Proctors can chat with candidates or give warnings to candidates. Proctors can also take screenshots, terminate a specific user's test session, or re-authenticate candidates based on video feeds.

4. An External Examiner/ Observer may be deployed including NIELIT officials for evaluation of Practical examination/ internal assessment / Project/ Presentation/. Major Project (if applicable) would be evaluated preferably by external/ subject expert including NIELIT officials.

5. Pass percentage would be 50% marks in each component.

6. Candidates may apply for re-examination within the validity of registration (only in the assessment component in which the candidate failed).

7. For re-examination prescribed examination fee is required to be paid by the candidate only for the assessment component in which the candidate wants to reappear.

8. There would be no exemption for any paper/module for candidates having similar qualifications or skills.

9. The examination will be conducted in English language only.

Quality assurance activities: A pool of questions is created by a subject matter expert and moderated by other SME. Test rules are set beforehand. Random set of questions which are according to syllabus appears which may differ from candidate to candidate. Confidentiality and impartiality are maintained during all the examination and evaluation processes.

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Annexure IX: Acronym and Glossary

Acronym

Acronym	Description
AA	Assessment Agency
AB	Awarding Body
NCrF	National Credit Framework
NOS	National Occupational Standard(s)
NQR	National Qualification Register
NSQF	National Skills Qualifications Framework

Glossary

Term	Description
National Occupational Standards (NOS)	NOS define the measurable performance outcomes required from an individual engaged in a particular task. They list down what an individual performing that task should know and also do.
Qualification	A formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to given standards
Qualification File	A Qualification File is a template designed to capture necessary information of a Qualification from the perspective of NSQF compliance. The Qualification File will be normally submitted by the awarding body for the qualification.
Sector	A grouping of professional activities on the basis of their main economic function, product, service, or technology.

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