



## QUALIFICATION FILE

### Junior Cyber Security Associate

Short Term Training (STT)  Long Term Training (LT)  Apprenticeship

Upskilling  Dual/Flexi Qualification  For ToT  For ToA

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

NCrF/NSQF Level: 4

### Submitted By:

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**Section 1: Basic Details**

1. <b>Qualification Name</b>	Junior Cyber Security Associate	
2. <b>Sector/s</b>	IT-ITeS	
3. <b>Type of Qualification:</b> <input checked="" type="checkbox"/> New <input type="checkbox"/> Revised <input type="checkbox"/> Has Electives/Options <input type="checkbox"/> OEM	<b>NQR Code &amp; version of existing/previous qualification:</b> NA	<b>Qualification Name of existing/previous version:</b> NA
4. a. OEM Name b. Qualification Name (Wherever applicable)	-	
5. <b>National Qualification Register (NQR) Code &amp; Version</b> (Will be issued after NSQC approval)	QG-04-IT-00351-2023-V1-NIELIT	6. <b>NCrF/NSQF Level:</b> 4
7. <b>Award (Certificate/Diploma/Advance Diploma/ Any Other</b> (Wherever applicable specify multiple entry/exits also & provide details in annexure)	Certificate	
8. <b>Brief Description of the Qualification</b>	The enrolled apprentice in the course “ Junior Cyber Security Associate”, will come across study topics like Cryptography, Anatomy of Ethical hacking, Network Security and SOC / SIEM that would provide the apprentice a sound foundation with regards to the field of Cyber Security thus increasing the chances of employability.	
9. <b>Eligibility Criteria for Entry for Student/Trainee/Learner/Employee</b>	a. <b>Entry Qualification &amp; Relevant Experience</b>	

	S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)
	1.	<p>12th grade pass  <b>OR</b>            Completed 2nd year of 3-year diploma (after 10th) and pursuing regular diploma in CS/IT/EC/EE/ allied branches  <b>OR</b>            10th grade pass plus 2-year NTC in IT-ITeS sector  <b>OR</b>            10th grade pass plus 1-year NTC plus 1 year NAC in IT-ITeS sector  <b>OR</b>            10th grade pass and pursuing continuous schooling  <b>OR</b>            Previous NSQF Level-3         </p>	NA NA NA NA NA NA 2 Years of experience in IT-ITeS Sector
<b>b. Age:</b> No Bar			
10.	<b>Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))</b>	15 Credits	<b>11. Common Cost Norm Category (I/II/III) (wherever applicable):</b> Category II (Information and Communication Technology)
12.	<b>Any Licensing requirements for Undertaking Training on This Qualification (wherever applicable)</b>	NA	

<p><b>13. Training Duration by Modes of Training Delivery</b>  <i>(Specify <b>Total Duration</b> as per selected training delivery modes and as per requirement of the qualification)</i>  <b>*For the candidate possessing the relevant level 3.0 certificate with relevant experience</b></p>	<p><input checked="" type="checkbox"/> Offline <input type="checkbox"/> Online <input type="checkbox"/> Blended</p> <table border="1" data-bbox="900 176 2037 371"> <thead> <tr> <th>Training Delivery Modes</th> <th>Theory (Hours)</th> <th>Practica l (Hours)</th> <th>OJT/Project Mandatory (Hours)</th> <th>ES (Hours)</th> <th>Total (Hours )</th> </tr> </thead> <tbody> <tr> <td>Classroom (offline)</td> <td>120</td> <td>210</td> <td>60</td> <td>60</td> <td>450</td> </tr> </tbody> </table>	Training Delivery Modes	Theory (Hours)	Practica l (Hours)	OJT/Project Mandatory (Hours)	ES (Hours)	Total (Hours )	Classroom (offline)	120	210	60	60	450
Training Delivery Modes	Theory (Hours)	Practica l (Hours)	OJT/Project Mandatory (Hours)	ES (Hours)	Total (Hours )								
Classroom (offline)	120	210	60	60	450								
<p><i>(Refer Blended Learning Annexure for details)  The mode of delivery shall be based on the regional demand and can be offered in any of the above modes mentioned.</i></p>													
<p><b>14. Aligned to NCO/ISCO Code/s (if no code is available mention the same)</b></p>	<p><b>NCO-2015 Code:</b> 2522.0201 Security Analyst  <b>NCO-2015 Code:</b> 3513.0200 Computer Security Specialist</p>												
<p><b>15. Progression path after attaining the qualification</b>  <i>(Please show Professional and Academic progression)</i></p>	<p><b>Academic:</b>  Horizontal:  Level 4: Courses in Cyber Security: Foundation course in Information Security  Vertical:  Level 5: Cyber Security and Social Media Analyst  Level 6: Courses in Cyber Security: Information Security Specialist  Level 7: Courses in Cyber Security: Certificate Course in Ethical Hacking and Information Security  <b>Professional:</b>  Cyber Security Assistant-&gt; Junior Cyber Security Associate-&gt; Cyber Security Associate</p>												
<p><b>16. Other Indian languages in which the Qualification &amp; Model Curriculum are being submitted</b></p>	<p>Qualification File is available in English and Hindi.</p>												
<p><b>17. Is similar Qualification(s) available on NQR-if yes, justification for this qualification</b></p>	<p><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No, if yes then provide URLs of similar Qualifications:</p>												
<p><b>18. Is the Job Role Amenable to Persons with Disability</b></p>	<p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  If "Yes", specify applicable type of Disability:</p> <ul style="list-style-type: none"> <li>a. <i>Locomotor Disability</i> <ul style="list-style-type: none"> <li>1. <i>Leprosy-Cured Person</i></li> <li>2. <i>Dwarfism</i></li> <li>3. <i>Muscular Dystrophy</i></li> <li>4. <i>Acid Attack Victims</i></li> </ul> </li> <li>b. <i>Visual Impairment</i> <ul style="list-style-type: none"> <li>1. <i>Low Vision</i></li> </ul> </li> </ul>												

19. <b>How Participation of Women will be Encouraged</b>	Participation of Women Candidates will be ensured as per Government norms. Time to time exclusive batches for women would be run for the proposed course. Funding of women batches may be generated from IT for masses scheme /other schemes launched by Govt. of India from time to time.	
20. <b>Are Greening/ Environment Sustainability Aspects Covered (Specify the NOS/Module which covers it)</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
21. <b>Is Qualification Suitable to be Offered in Schools/Colleges</b>	Schools <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Colleges <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
22. <b>Name and Contact Details of Submitting / Awarding Body SPOC</b> <i>(In case of CS or MS, provide details of both Lead AB &amp; Supporting ABs)</i>	<b>Name:</b> Abhinav Mishra <b>Email:</b> abhinav@nielit.gov.in <b>Contact No.:</b> 8317093868 <b>Website:</b> nielit.gov.in/gorakhpur	
23. <b>Final Approval Date by NSQC:</b> 29/03/2023	<b>24. Validity Duration:</b> 3 years	<b>25. Next Review Date:</b> 29/03/2026

## Section 2: Module Summary

### NOS/s of Qualifications

1. Fundamentals of Network and Operating System
2. Fundamentals of Cyber Security.
3. Cryptography and Ethical Hacking
4. Network and Infrastructure Security
5. Employability Skills
6. Project / OJT

### Mandatory NOS/s:

Specify the training duration and assessment criteria at NOS/ Module level. For further details refer curriculum document.

*Th.-Theory Pr.-Practical OJT-On the Job Man.-Mandatory Training Rec.-Recommended Proj.-Project*

S. No	NOS/Module Name	NOS/Module Code & Version	Core/ Non-Core	NCrF/ NSQF Level	Credits as per NCrF	Training Duration (Hours)			Assessment Marks				
						Th.	Pr.	Total	Th.	Pr.	Total	Weightage (%) (if applicable)	
1	Fundamentals of Network and Operating System	NIE/ITS/N0907	Core	4	3	30	60	90	37.5	24.54	62.04	17.72	
2	Fundamentals of Cyber Security	NIE/ITS/N0908	Core	4	5	50	100	150	62.5	40.90	103.4	29.54	
3	Cryptography and Ethical Hacking	NIE/ITS/N0906	Core	4	2	25	35	60	66.6 <sup>6</sup>	16.36	83.02	23.72	
4	Network and Infrastructure Security	NIE/ITS/N0905	Core	4	1	15	15	30	33.3 <sup>3</sup>	8.18	41.51	11.86	
						<b>Sub-Total</b>	120	210	330	200	90	290	82.85
5	Employability Skills	DGT/VSQ/N0102	Non-Core	4	2	-	-	60	-	-	30	8.57	
6	Project/OJT	NA	Core	4	2	-	-	60	-	-	30	8.57	
Duration (in Hours) /Total Marks						14	120	210	<b>450</b>	200	90	<b>350</b>	<b>100</b>

## Assessment - Minimum Qualifying Percentage

**Minimum Pass Percentage – Aggregate at qualification level: 50 % (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)**

Assessment Components	NOS Included	Duration* (in mins)	Marks
Theory 1: Junior Cyber Security Associate Paper-1	NOS 1, NOS2	90	100
Theory 2: Junior Cyber Security Associate Paper-2	NOS 3 , NOS4	90	100
Practical Paper-1: Junior Cyber Security Associate	NOS 1, NOS2, NOS 3 , NOS4	180	90
Internal Assessment/Employability Skills	NOS5	-	30
OJT/Project	NOS6	-	30
<b>Grand Total</b>			<b>350</b>

**\*Assessment strategy shall be as per NIELIT Norms prevailing at times.**

### Section 3: Training Related

1.	<b>Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	O-Level (IT) / BCA / BSc (IT/CS) / Diploma in CS/IT/ allied area with 1 year of Experience in training or higher.
2.	<b>Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	B-LEVEL / MCA/ B.Tech in CS/IT/EC/EE/ allied areas with an experience of 2 years in training.
3.	<b>Tools and Equipment Required for Training</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ( <i>If "Yes", details to be provided in Annexure</i> )
4.	<b>In Case of Revised Qualification, Details of Any Upskilling Required for Trainer</b>	NA

### Section 4: Assessment Related

1.	<b>Assessor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	B-LEVEL / MCA/ B.Tech in CS/IT/EC/EE/ allied areas with an experience of 2 years in training.
2.	<b>Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	The assessor carries out theory online assessments through the remote proctoring methodology. Theory examination would be conducted online and the paper comprise of 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.	<b>Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	An External Examiner/ Observer (Subject matter expert) are deployed including NIELIT scientific officers who are subject expert for evaluation of Practical examination/ internal assessment / Project/ Presentation/ assignment and Major Project (if applicable). B. Tech in CS / IT / EC / EE / allied areas, MCA, B-Level 'IT' with 3 years of experience.
4.	<b>Assessment Mode (Specify the assessment mode)</b>	Online for Theory  Online/ Offline/ Blended for other assessment components depending on the region where the assessment is conducted

5.	<b>Tools and Equipment Required for Assessment</b>	<input checked="" type="checkbox"/> Same as for training <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No ( <i>details to be provided in Annexure-if it is different for Assessment</i> )
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### Section 5: Evidence of the need for the Qualification

Provide Annexure/Supporting documents name.

1.	<b>Latest Skill Gap Study (not older than 2 years) (Yes/No):</b> Yes Available in Annexure-B : Evidence of Need
2.	<b>Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):</b> Yes Available in Annexure-B : Evidence of Need
3.	<b>Government /Industry initiatives/ requirement (Yes/No):</b> Yes Available in Annexure-B : Evidence of Need
4.	<b>Number of Industry validation provided:</b> 5
5.	<b>Estimated nos. of persons to be trained and employed:</b> 1000 candidates will be trained in a year.
6.	<b>Evidence of Concurrence/Consultation with Line Ministry/State Departments:</b> 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.

### Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	<b>Annexure:</b> NCrF/NSQF level justification based on NCrF level/NSQF descriptors (Mandatory)	<b>Available at Annexure-I: Evidence of Level</b>
2.	<b>Annexure:</b> List of tools and equipment relevant for qualification (Mandatory, except in case of the online course)	<b>Available at Annexure-II: Tools and Equipment</b>
3.	<b>Annexure:</b> Industry Validation Summary	<b>Available at Annexure-III: Industry Validation Summary</b>
4.	<b>Annexure: Training and Employment details</b>	<b>Available at Annexure-IV: Training and Employment details</b>
5.	<b>Annexure:</b> Blended Learning (Mandatory, in case selected Mode of delivery is "Blended Learning")	<b>Available at Annexure-V: Blended Learning</b>
6.	<b>Annexure:</b> Detailed Assessment Criteria	<b>Available at Annexure-VI: Detailed Assessment Criteria</b>

7.	Annexure: Assesment Strategy	<b>Available at Annexure-VII: Assessment Strategy</b>
8.	<b>Supporting Document:</b> Career Progression (Mandatory - Public view)	<b>Available at Annexure-VIII: Career Progression</b>
9.	<b>Supporting Document:</b> Occupational Map (Mandatory)	<b>Available at Annexure-IX: Occupational Map</b>
10.	<b>Annexure: Acronym and Glossary</b>	<b>Available at Annexure X: Acronym and Glossary</b>
11.	<b>Supporting Document:</b> Model Curriculum (Mandatory – Public view)	<b>Available at Annexure-A: Model Curriculum</b>
12.	<b>Supporting Document:</b> Assessment SOP (Mandatory)	<b>Available at Annexure-C: Examination SoP</b>
13.	<b>Any other document you wish to submit:</b>	NA

#### 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
<b>Professional Theoretical Knowledge/Process</b>	<ol style="list-style-type: none"> <li>1. Gaining Knowledge of how to configure the network.</li> <li>2. Gaining Knowledge of how to install and operate Linux and Windows.</li> <li>3. Classification of Transmission Media and will have an in-depth idea about various networking devices.</li> <li>4. Conceptualization of OSI, TCP/IP Model, and Function of layers, learn about various types of networks.</li> <li>5. Students will be able to conceptualize cybersecurity at different levels.</li> <li>6. Students are able to define security solutions at the OS level</li> <li>7. Conceptualization of Cryptography, Classical and Modern Cryptography</li> <li>8. Conceptualization of Public Key Infrastructure (PKI).</li> <li>9. The student will learn about the Open-source intelligence (OSINT) framework.</li> </ol>	<ol style="list-style-type: none"> <li>1. Possesses specialized operational knowledge and understanding of the work.</li> <li>2. Have complete knowledge of the concept of time required for delivery; and Quality for a range of issues</li> </ol>	4

	<ul style="list-style-type: none"> <li>10. Students will understand the concept of Network Security and Network Security Protocols.</li> <li>11. The Students will understand the concept of Email and their protocols, Email Spoofing and Phishing Techniques, and concept of Fake E-mails.</li> <li>12. Students are able to think critically and apply the concept of cyber security in determining best practices.</li> </ul>		
<b>Professional and Technical Skills/ Expertise/ Professional Knowledge</b>	<ul style="list-style-type: none"> <li>1. Students will be able to Configure Network Settings and perform user and group management in Windows as well as Linux</li> <li>2. Knowledge about various network administration software Utilities and network troubleshooting.</li> <li>3. Knowledge about the implementation of security solutions at the OS level</li> <li>4. Students will be able to use the NMAP and Wireshark tools for scanning and sniffing.</li> <li>5. Students will be able to manage and implement network security solutions.</li> <li>6. Students will be able to Detect Network Attacks using Wireshark</li> <li>7. Knowledge of Cyber Security tools and techniques.</li> <li>8. Depth coverage of Cyber Security solutions ranging from their benefits to their implementation and scope and its pros and cons</li> </ul>	<ul style="list-style-type: none"> <li>1. Possesses specialized professional and technical skills; displays clarity of professional knowledge and technical skills in a broad range of activities/ tasks.</li> <li>2. Have knowledge of collecting and interpreting the available information, drawing conclusions &amp; communicating the same</li> </ul>	4
<b>Employment Readiness &amp; Entrepreneurship Skills &amp; Mind-set/Professional Skill</b>	<ul style="list-style-type: none"> <li>1. Introduction to Employability Skills</li> <li>2. Career Development &amp; Goal Setting</li> <li>3. Becoming a Professional in the 21st Century</li> <li>4. Constitutional values - Citizenship</li> <li>5. Basic English Skills</li> <li>6. Communication Skills</li> <li>7. Essential Digital Skills</li> <li>8. Financial and Legal Literacy</li> <li>9. Customer Service</li> <li>10. Entrepreneurship</li> <li>11. Diversity &amp; Inclusion</li> <li>12. Getting Ready for Apprenticeship &amp; Jobs</li> </ul>	<ul style="list-style-type: none"> <li>1. Can explain the Entrepreneurial Mindset and describe its importance of it in the context of opportunity curation for future jobs.</li> <li>2. Can comfortably use most of the basic software with proficiency.</li> <li>3. Have the ability to relate to the 5 pillars of Social Emotional Skills and describe the similarities between SES and Emotional Intelligence.</li> </ul>	4

<b>Broad Learning Outcomes/Core Skill</b>	<ol style="list-style-type: none"> <li>1. Able to troubleshoot in case of facing problems in the Operating system.</li> <li>2. Conceptualise Cyber Security Concepts and would be able to understand the cyber security relates issues and challenges in Cyber World</li> <li>3. Able to perform security operations on Linux and Windows OS</li> </ol>	<ol style="list-style-type: none"> <li>1. Students are able to use, create, configure the Network, and troubleshoot the network using TCP/IP command line utilities.</li> <li>2. Have knowledge of the Cyber Security Project Cycle and apply Cyber Security technology to improve the security postures of the object.</li> </ol>	4
<b>Responsibility</b>	<ol style="list-style-type: none"> <li>1. Helping computer users with security products and procedures</li> <li>2. Protects the system by defining access privileges, control structures, and resources.</li> <li>3. Recognizes problems by identifying abnormalities; reporting violations. Implements security improvements by assessing the current situation; evaluating trends; anticipating requirements</li> </ol>	Takes complete responsibility for delivery and quality of own	4

#### **Annexure II: Tools and Equipment (Lab Set-Up)**

**Batch Size:** 30

<b>S. No.</b>	<b>Tool / Equipment Name</b>	<b>Specification</b>	<b>Quantity for specified Batch size</b>
1	Classroom	1 (30 Sq.m)	30
2	Student Chair	30	30
3	Student Table	30	30
4	Desktop computer with accessories	16 GB RAM, Camera, Headset with Microphone CentOS/Ubuntu Linux	30

		Windows 10,, VirtualBox, Open-Source Antivirus Open Source or Native Firewall Software	
5	Desk jet printer	1 Nos.	01

### Classroom Aids

The aids required to conduct sessions in the classroom are:

1. LCD Projector
2. WhiteBoard

### Annexure III: Industry Validations Summary

Provide the summary information of all the industry validations in the table. This is not required for OEM qualifications.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID
1	Essential InfoSec Private Limited	Mr.Pawan Srivastava	Director	Essential InfoSec Private Limited, Mehrauli-Gurgaon Road Near Sultanpur Metro Station, Sultanpur, Delhi 110030	7985534793	<a href="mailto:pawan@essentialinfosec.com">pawan@essentialinfosec.com</a>
2	Accretive Technologies Private Limited	Mr. Manish Nanda	Managing Director	World Tech Tower, Plot No. C-203, Phase 8-B, Mohali 160 055 Punjab	9814302885	<a href="mailto:manish@accretivetchno.com">manish@accretivetchno.com</a>
3	OST Electronics Pvt Ltd.	Amarjit Singh	Manager - Tech Support	SCO 212, Sector 36-D, Sector 36, Chandigarh, 160036	9815936460	<a href="mailto:amarjit.singh@ostindia..com">amarjit.singh@ostindia..com</a>
4	Fore Solution (P) Ltd	Manu Mehta	Director	Fore Solution (P) Ltd SCO: 365-66, First Floor, Sector 35, Chandigarh, 160022	9814010307	<a href="mailto:manu@foresolution.net">manu@foresolution.net</a>

5	Spectra Computech Pvt. Ltd.	N.P Singh	Manager Marketing	4th Floor, Godrej Eternia Building Plot No. 70, Industrial Area Phase I, Chandigarh, 160002	9876023966	<a href="mailto:npsingh@spectracomputech.com">npsingh@spectracomputech.com</a>
6	Buannel Studio Pvt. Ltd	Lalrimguala	CEO	Aizwal, Mizoram	8732856261	<a href="mailto:pslalringual@gmail.com">pslalringual@gmail.com</a>
7	United Computer	Subhasis Choudhury	Chief Executive	Chotonilpur (Pirtala), P.O. Sripally, Burdwan-713103	9641820965	<a href="mailto:united-computer97@rediffmail.com">united-computer97@rediffmail.com</a>

#### Annexure IV: Training & Employment Details

##### Training and Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities	Estimated Training #	Estimated Employment Opportunities
2023	1000	100	200	100	10	2
2024	1000	100	200	100	10	2
2025	1000	100	200	100	10	2

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

## Annexure V: Blended Learning

## Blended Learning Estimated Ratio &amp; 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.	60:40
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.	60:40
3	Showing Practical Demonstrations to the learners	Online interaction platforms like JitSi Meet, Webex, Bharat VC, Google Meet, MS Teams, etc.	60:40
4	Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	NA	100:0
5	Tutorials/ Assignments/ Drill/ Practice	Online interaction platforms like JitSi Meet, Bharat VC, Google Meet, MS Teams, etc.	50:50
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	Simulated Platform	Either 100% online on virtual environment Or 100% offline in the Industry.

<sup>ss</sup>NOSs can also be covered completely online.

**Annexure VI: Detailed Assessment Criteria**

Detailed assessment criteria for each NOS/Module are as follows:

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks
NOS 1: Fundamentals of Network and Operating System	<ol style="list-style-type: none"> <li>1. Overview of OSI, TCP/IP Model, and Function of layers, learn about various types of networks.</li> <li>2. Knowledge about the Benefits of Networks, components of Computer Networks and also have an insight into various topologies used in networking.</li> <li>3. Explain various Transmission modes, Ethernet, and the Classification of Transmission Media.</li> <li>4. In-depth idea about various networking devices like Repeaters, Hubs, Bridges, Switches, and routers</li> <li>5. Introduction to TCP/IP Protocol Model in Depth, Port Numbers, Common TCP&amp; UDP Ports and also Some important TCP/IP protocols.</li> <li>6. IP addressing, Classes, IP Addressing Scheme, Subnetting Basics along with How to Create Subnets, Subnet Masks, Subnetting Class C Addresses, Subnetting Class B Addresses and VLSM.</li> <li>7. Configure ip addresses in Windows and Linux and also have a proper introduction to RIR, registries and IANA along with attaining knowledge about TCP/IP Troubleshooting utilities, Troubleshooting IP Addressing</li> <li>8. The in-depth idea about the Windows operating system and its File System</li> <li>9. The in-depth idea about the Linux operating system and its File System</li> <li>10. Working on Command Line Utilities,</li> <li>11. Managing Users and Groups,</li> <li>12. Configuring Permissions, Read, Write, and Execute:</li> <li>13. Preparing the File System for ACLs</li> <li>14. Configuring Administrator Tasks with sudo</li> <li>15. Working with Links: Working with Symbolic Links, Working with Hard Links</li> </ol>	37.5	24.54
NOS 2: Fundamental	<ol style="list-style-type: none"> <li>1. Gaining the basic idea of Information Security</li> </ol>	62.5	40.90

s of Cyber Security	<ol style="list-style-type: none"> <li>2. Introduction to Ethical Hacking</li> <li>3. Overview of Cryptography</li> <li>4. Exploring OS security</li> <li>5. Using Security Tools for Windows Operating System</li> <li>6. Gaining the idea of Wireless Networks and Wireless Security</li> <li>7. Gaining the idea of the Android and iPhone iOS Operating system</li> <li>8. Introduction to Web Application &amp; its terminologies</li> <li>9. Exploring Web Application Protocols</li> <li>10. Configuring Browser Security</li> <li>11. Introduction to Social Media &amp; its security</li> <li>12. Exploring Security in Digital Payment Systems</li> <li>13. Gaining the idea of Various kinds of fraud in banking and Cyber Crime</li> <li>14. Introduction to Cyber Law, Cyber Cell, and Cyber Fraud Helpline</li> </ol>		
NOS 3: Cryptography and Ethical Hacking	<ol style="list-style-type: none"> <li>1. Overview of Cryptography</li> <li>2. Gaining an idea of Public Key Infrastructure (PKI)</li> <li>3. Exploring Scanning and Information Gathering</li> <li>4. Exploring Open-source intelligence (OSINT) framework</li> <li>5. Gaining the idea to use the NMAP and Wireshark tools for scanning and sniffing.</li> <li>6. Gaining the idea of Detecting Network Attacks using Wireshark.</li> <li>7. Gaining the idea of MITM Attacks and their Countermeasures.</li> <li>8. Gaining an idea on the types of password attacks.</li> </ol>	66.66	16.36

	<ul style="list-style-type: none"> <li>9. Understand the Hash function, Hash algorithm, Password Hashes, and Password Cracking Countermeasures.</li> <li>10. Gaining the idea of the various types of Spoofing.</li> <li>11. Gaining an idea of Denial of Service and Countermeasures</li> <li>12. Gaining an idea of Steganography</li> <li>13. Gaining an idea of E-Mail Security</li> </ul>		
<b>NOS 4:</b> Network and Infrastructure Security	<ul style="list-style-type: none"> <li>1. Understand the concept of Network Security and Network Security Protocols.</li> <li>2. Understand the Attacks at Layer 3 and Layer 2 of OSI model</li> <li>3. Gaining the idea of the CAM Table and CAM Flooding Attacks.</li> <li>4. Gaining the idea and Configuring the Switch Port Security and Switch Port Violations.</li> <li>5. Preventing CAM Flooding Attacks by using Switch Port Security.</li> <li>6. Understand the concept of Network Security Controls and Network Access controls.</li> <li>7. Understand the concept of Firewalls, DMZ, VPN, IDS, IPS, and Network Traffic Monitoring and Analysis.</li> <li>8. Gaining the idea of IP Security, Protocols used in IPSec, the Security Architecture of IPSec, and Modes of IPSec.</li> <li>9. Understand the concept of Intrusion Detection.</li> <li>10. Understand the concept of SOC, NOC, and the Functions of SOC.</li> <li>11. Gaining the idea of SIEM and Security Operations and Management</li> </ul>	33.33	8.18

<b>NOS 7: Employability Skills</b>	Explanation of the following: 1. Need for employability skills 2. Various constitutional and personal values. 3. Different environmentally sustainable practices and their importance 4. 21st-century skills and their importance 5. How to use the basic spoken English language 6. Do's and don'ts of effective communication 7. Inclusivity and its importance 8. Different types of disabilities and appropriate communication and behaviour towards PwD 9. Different types of financial products and services 10. How to compute income and expenses 11. Importance of maintaining safety and security in financial transactions 12. Different legal rights and laws 13. How to operate digital devices and applications safely and securely 14. Ways to identify business opportunities 15. Types of customers and their needs 16. How to apply for a job and prepare for an interview 17. Apprenticeship scheme and the process of registering on the apprenticeship portal	30
<b>NOS 8: OJT/Project</b>	NOS 8: OJT/Project Demonstration of Cyber Security Project	30
<b>Grand Total</b>		350

### Annexure-VII: 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.

#### 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.

**Annexure-VIII: Career Progression:**

**Academic:**

**Horizontal:**

Level 4: Courses in Cyber Security: Foundation course in Information Security

**Vertical:**

Level 5: Cyber Security and Social Media Analyst

Level 6: Courses in Cyber Security: Information Security Specialist

Level 7: Courses in Cyber Security: Certificate Course in Ethical Hacking and Information Security

**Professional:**

Cyber Security Assistant-> Junior Cyber Security Associate-> Senior Cyber Security Associate

**Annexure-IX: Occupational Map**

<b>Cyber Security Assistant</b>	<b>Junior Cyber Security Associate</b> <b>Junior Cyber Security Engineer</b>	<b>Cyber Security Associate</b> <b>Cyber Security Engineer</b>	<b>Cyber Security Application developer</b> <b>Cyber Security Support</b> <b>Cyber Security Professional</b>
			

**Annexure X: Acronym and Glossary****Acronym**

<b>Acronym</b>	<b>Description</b>
<b>AA</b>	Assessment Agency
<b>AB</b>	Awarding Body
<b>ISCO</b>	International Standard Classification of Occupations
<b>NCO</b>	National Classification of Occupations
<b>NCrF</b>	National Credit Framework
<b>NOS</b>	National Occupational Standard(s)
<b>NQR</b>	National Qualification Register
<b>NSQF</b>	National Skills Qualifications Framework
<b>OJT</b>	On-the-Job Training

**Glossary**

<b>Term</b>	<b>Description</b>
<b>National Occupational Standards (NOS)</b>	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.
<b>Qualification</b>	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
<b>Qualification File</b>	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.
<b>Sector</b>	A grouping of professional activities on the basis of their main economic function, product, service or technology.
<b>Long Term Training</b>	Long-term skilling means any vocational training program undertaken for a year and above. <a href="https://ncvet.gov.in/sites/default/files/NCVET.pdf">https://ncvet.gov.in/sites/default/files/NCVET.pdf</a>