

## QUALIFICATION FILE

### Cloud Computing

- ☒ Short Term Training (STT) ☐ Long Term Training (LTT) ☐ Apprenticeship  
☒ Upskilling ☐ Dual/Flexi Qualification ☐ For ToT  
☐ For ToA

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

**NCrF/NSQF Level: 4.5**

**Submitted By: Namrata Kapur**

**IT-ITeS Sector Skills Council NASSCOM (SSC NASSCOM)**

**Plot No. – 7, 8, 9 & 10**

**Sector – 126, Noida, Uttar Pradesh - 201303**

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## Section 1: Basic Details

1.	Qualification Name	Cloud Computing													
2.	Sector/s	IT/ITeS													
3.	Type of Qualification: <input checked="" type="checkbox"/> New <input type="checkbox"/> Revised <input type="checkbox"/> Has Electives/Options <input type="checkbox"/> OEM	NQR Code & version of the existing /previous qualification: <i>(change to previous, once approved)</i>	Qualification Name of the existing/previous version: Cloud Computing												
4.	a. OEM Name b. Qualification Name <i>(Wherever applicable)</i>	Cloud Computing													
5.	National Qualification Register (NQR) Code &Version <i>(Will be issued after NSQC approval)</i>	QG-4.5-IT-01804-2024-V1-NASSCOM	6. NCrF/NSQF Level: 4.5												
7.	Award (Certificate/Diploma/Advance Diploma/ Any Other) <i>(Wherever applicable specify multiple entry/exits also &amp; provide details in annexure)</i>	Certificate													
8.	Brief Description of the Qualification	Individuals at this job are responsible for designing and implementing information technology infrastructure in a public cloud environment and also the business and functionality for architecting infrastructure design.													
9.	Eligibility Criteria for Entry for a Student/Trainee/Learner/Employee	<p>Entry Qualification &amp; Relevant Experience:</p> <table border="1"> <thead> <tr> <th>S.No.</th> <th>Academic/Skill Qualification (with Specialization - if applicable)</th> <th>Required Experience (with Specialization - if applicable)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Completed 1st year of 3-year/ 4-years UG</td> <td></td> </tr> <tr> <td>2</td> <td>Pursuing 1st year of 3-year/ 4-years UG and continuing education</td> <td></td> </tr> <tr> <td>3</td> <td>Previous relevant Qualification of NSQF Level 4</td> <td>1.5 Years of relevant experience</td> </tr> </tbody> </table> <p>Min Age: 19 Years</p>		S.No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1	Completed 1st year of 3-year/ 4-years UG		2	Pursuing 1st year of 3-year/ 4-years UG and continuing education		3	Previous relevant Qualification of NSQF Level 4	1.5 Years of relevant experience
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3	Previous relevant Qualification of NSQF Level 4	1.5 Years of relevant experience													

<b>10.</b>	<b>Credits Assigned to this Qualification, Subject to Assessment</b> ( <i>as per National Credit Framework (NCrF)</i> )	17 Credits	<b>11. Common Cost Norm Category (I/II/III)</b> ( <i>wherever applicable</i> ): II																					
<b>12.</b>	<b>Any Licensing Requirements for Undertaking Training on This Qualification</b> ( <i>wherever applicable</i> )	NA																						
<b>13.</b>	<b>Training Duration by Modes of Training Delivery</b> ( <i>Specify Total Duration as per selected training delivery modes and as per requirement of the qualification</i> )	<input checked="" type="checkbox"/> Offline Only <input checked="" type="checkbox"/> Online Only <input type="checkbox"/> Blended																						
		<table border="1"> <thead> <tr> <th>Training Delivery Mode</th><th>Theory (Hours)</th><th>Practical (Hours)</th><th>OJT (Mandatory) Hours</th><th>OJT (Recommended) Hours</th><th>Total (Hours)</th></tr> </thead> <tbody> <tr> <td>Classroom (offline)</td><td>140:00</td><td>340:00</td><td>30:00</td><td>00:00</td><td>510:00</td></tr> <tr> <td>Online</td><td>140:00</td><td>340:00</td><td>30:00</td><td>00:00</td><td>510:00</td></tr> </tbody> </table>					Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)	Classroom (offline)	140:00	340:00	30:00	00:00	510:00	Online	140:00	340:00	30:00	00:00	510:00
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		(Refer Blended Learning Annexure for details)																						
<b>14.</b>	<b>Aligned to NCO/ISCO Code/s</b> ( <i>if no code is available mention the same</i> )	NCO-2015/ NIL																						
<b>15.</b>	<b>Progression Path After Attaining the Qualification, wherever applicable</b> ( <i>Please show Professional and Academic progression</i> )	NA																						
<b>16.</b>	<b>Other Indian languages in which the Qualification &amp; Model Curriculum are being submitted</b>	NA																						
<b>17.</b>	<b>Is similar Qualification(s) available on NQR-if yes, justification for this qualification</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No   URLs of similar Qualifications:																						
<b>18.</b>	<b>Is the Job Amenable to Persons with Disability</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If "Yes", specify applicable type of Disability: Visual, Hearing or Speech impairment, Locomotor Disability																						
<b>19.</b>	<b>How will participation of women be encouraged?</b>	The program is gender neutral although to increase women's participation, organizations are keeping aside a few seats to encourage female candidates.																						

<b>20.</b>	<b>Are Greening/Environment Sustainability Aspects covered</b> ( <i>Specify the NOS/Module which Covers it</i> )	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
<b>21.</b>	<b>Is Qualification suitable to be offered in Schools/Colleges</b>	Schools: <input type="checkbox"/> Yes <input type="checkbox"/> No	Colleges <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<b>22.</b>	<b>Name and Contact Details 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> Namrata Kapur <b>Email:</b> Namrata@nasscom.in <b>Contact No.:</b> 0120-4990111 <b>Website:</b> https://nasscom.in	
<b>23.</b>	<b>Final Approval Date by NSQC: 06<sup>th</sup> February 2024</b>	<b>24. Validity Duration: 3 Years</b>	<b>25. Next Review Date: 06<sup>th</sup> February 2026</b>

## Section 2: Module Summary

### NOS/s of Qualifications

(In Exceptional cases these could be described as components)

#### 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 training **Man.**-Mandatory Training **Rec.**-Recommended **Proj.**- Project

S.No.	NOS Module Name	NOS/Module Code & Version (If Applicable)	Core/Non-Core	NCrF/NSQF Level	Credits as per NcrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.	Work organization and management for cloud computing	SSC/N8342 NOS Version 1	Non-Core	4.5	01	10:00	20:00	00:00	00:00	30:00	20	30	-		50	10
2.	Communication and interpersonal skills for cloud computing	SSC/N8343 NOS Version 1	Non-Core	4.5	01	10:00	20:00	00:00	00:00	30:00	20	30	-		50	10
3.	Problem solving, innovation, and creativity	SSC/N8344 NOS Version 1	Core	4.5	03	30:00	60:00	00:00	00:00	90:00	35	40	-		75	15
4.	Cybersecurity	SSC/N8345 NOS Version 1	Core	4.5	04	30:00	90:00	00:00	00:00	120:00	50	50	-		100	20
5.	Reliability, scalability, and elasticity	SSC/N8346 NOS Version 1	Core	4.5	05	30:00	90:00	30:00	00:00	150:00	30	45	-		75	15

S.No.	NOS Module Name	NOS/Module Code & Version (If Applicable)	Core/Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
6.	Performance and optimization	SSC/N8347 NOS Version 1	Core	4.5	01	10:00	20:00	00:00	00:00	30:00	15	35	-		50	10
7.	Operational considerations	SSC/N8348 NOS Version 1	Core	4.5	01	10:00	20:00	00:00	00:00	30:00	15	35	-		50	10
8.	Sustainability	SSC/N8349 NOS Version 1	Core	4.5	01	10:00	20:00	00:00	00:00	30:00	15	35	-		50	10
Duration (in Hours)/Total Marks					17	140:00	340:00	30:00	00:00	510:00	200	300	-		500	100

## Elective NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.																
2.																
Duration (in Hours) / Total Marks																

## Optional NOS/s:

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/Non-Core	NCrF/NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
1.																

S. No	NOS/Module Name	NOS/Module Code & Version (if applicable)	Core/Non-Core	NCrF/NS QF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Proj.	Viva	Total	Weightage (%) (if applicable)
2.																
Duration (in Hours) / Total Marks																

## Assessment - Minimum Qualifying Percentage

Please specify **any one** of the following:

**Minimum Pass Percentage – Aggregate at qualification level: 70%** (Every Trainee should score specified minimum aggregate passing percentage at qualification level to successfully clear the assessment.)

**Minimum Pass Percentage – NOS/Module-wise: \_\_\_\_%** (Every Trainee should score specified minimum passing percentage in each mandatory and selected elective NOS/Module to successfully clear the assessment.)

## Section 3: Training Related

1.	<b>Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	Post Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science/Physical Sciences with Minimum 5 years of relevant experience and 2 years of full-time training experience in programing languages such as HTML, CSS, JavaScript etc.
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2.	<b>Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)</b>	Post Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science/Physical Sciences with Minimum 7 years of relevant experience and 5 years of full-time training experience in relevant field programming languages such as HTML, CSS, JavaScript etc.
3.	<b>Tools and Equipment Required for the Training</b>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No (If "Yes", details to be provided in Annexure)
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>	Post Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science/Physical Sciences with Minimum 5 years of relevant experience and 2 years of full-time training experience in programming languages such as HTML, CSS, JavaScript etc.
2.	<b>Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines), (wherever applicable)</b>	Post Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science/Physical Sciences with Minimum 7 years of relevant experience and 5 years of full-time training experience in relevant field programming languages such as HTML, CSS, JavaScript etc.
3.	<b>Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) (as per NCVET guidelines)</b>	Post Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science/Physical Sciences with a Minimum 10 years of relevant experience and 7 years of full-time training experience in programming languages such as HTML, CSS, JavaScript etc.
4.	<b>Assessment Mode (Specify the assessment mode)</b>	Can be either in the classroom or online
5.	<b>Tools and Equipment Required for Assessment</b>	<input checked="" type="checkbox"/> Same as for training <input type="checkbox"/> Yes <input type="checkbox"/> No (details to be provided in Annexure-if it is different for Assessment)

## Section 5: Evidence of the Need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap study (not older than 2 years) (Yes/No): Yes
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): Yes
3.	Government/Industry initiatives/requirement (Yes/No): NA
4.	Number of industry validations provided: NA
5.	Estimated number of people to be trained and employed: 500
6.	Evidence of Concurrence/Consultation with Line/State Departments: NA  If “No”, why:

## 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/NSQF descriptors <i>(Mandatory)</i>	Evidence of Level
2.	<b>Annexure:</b> List of tools and equipment relevant for NOS <i>(Mandatory, except in case of online course)</i>	Tools and Equipment (lab set-up)
3.	<b>Annexure:</b> Detailed Assessment criteria <i>(Mandatory)</i>	Performance Criteria Details
4.	<b>Annexure:</b> Assessment Strategy <i>(Mandatory)</i>	Assessment Strategy
5.	<b>Annexure:</b> Blended Learning <i>(Mandatory, in case selected Mode of delivery is Blended Learning)</i>	NA
6.	<b>Annexure:</b> Multiple Entry Exit Details <i>(Mandatory, in case qualification has multiple entry-exit)</i>	NA
7.	<b>Annexure:</b> Acronym and Glossary <i>(Optional)</i>	NA
8.	<b>Supporting Document:</b> Model Curriculum <i>(Mandatory-Public View)</i>	Cloud_Computing Model Curriculum V1.0
9.	<b>Supporting Document:</b> Career Progression <i>(Mandatory-Public View)</i>	NA

10.	<b>Supporting Document:</b> Occupational Map ( <i>Mandatory</i> )	NA
11.	<b>Supporting Document:</b> Assessment SOP ( <i>Mandatory</i> )	Assessment Strategy
12.	<b>Any Other document you wish to submit:</b>	NA

### Annexure: 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 knowledge</b>	The individual on the job is responsible for designing and implementing information technology infrastructure in a public cloud environment and also the business and functionality for architecting infrastructure design.	Individuals at this job will play a pivotal role in evaluating, designing, and implementing cloud solutions that align with business requirements.	4.5
<b>Professional and Technical Skills/ Expertise/ Professional Knowledge</b>	The individual on the job needs to have advanced technical and managerial skills in: <ul style="list-style-type: none"> <li>Public cloud deployment models</li> <li>Infrastructure requirements and design</li> <li>Technology solutions to meet business objectives</li> <li>Securing systems and networks</li> <li>Principles and architectures for various deployment models</li> <li>Performance metrics</li> <li>System, network and application metrics</li> </ul>	This job requires advanced technical and managerial skills in the design, deployment and implementation of cloud computing.	4.5
<b>Employment Readiness &amp; Entrepreneurship Skills &amp; Mind-set/Professional Skill</b>	The individual on the job needs to have leadership qualities and effective resource management in: <ul style="list-style-type: none"> <li>Public cloud deployment</li> <li>Infrastructure requirements and design</li> <li>Meeting business objectives</li> </ul>	Individuals at this job need to have practical skills in implementing public cloud, optimizing infrastructure, aligning with business goals, and achieving operational objectives amid resource limitations.	4.5

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
	<ul style="list-style-type: none"> <li>Adopting best practices as per industry requirements</li> <li>Achieving operational objectives concerning resource constraints</li> </ul>		
<b>Broad Learning Outcomes/Core Skill</b>	The individual on the job needs specialized professional and technical skills involving complex variable environments and contexts related to cloud computing and implementation.	Individuals at this job need to have knowledge and skills related to cloud computing such as problem-solving, innovation, security, reliability, scalability, elasticity, performance, optimization, etc.	4.5
<b>Responsibility</b>	The individual on the job needs to be responsible for managing activities like planning, resourcing, processes, and people, within broad parameters and with complete accountability for determining, achieving and evaluating personal and group outcomes during the cloud computing and implementation process.	Individuals at this job need to be responsible for managing activities like planning, resourcing, processes, and people, within broad parameters and with complete accountability for determining, achieving and evaluating personal and group outcomes.	4.5

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

Batch Size:

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	PC/Laptop with internet	With Wifi (2MBPS Dedicated)	1 Unit per Trainee
2	Relevant Software	<ul style="list-style-type: none"> <li>Cloud computing platforms such as Microsoft Azure, Amazon (AWS, Virtual private cloud, etc.), Rackspace, IBM (Public cloud, Bluemix, Relay, etc.)</li> <li>BI tools such as MS Excel, Qlikview, Tableau, and OBIEE</li> <li>Workflow management software such as Evernote, Jira, VersionOne, Workzone, Scrum Mate, and Trello</li> <li>Documentation tools such as Adobe and MS-Word, etc.</li> </ul>	1 Unit per Trainee
3	Microphone/Voice System	For lecture & class activities	1 Unit for Trainer
4	White Board		1 Unit for Trainer

5	White Board Maker		1 Unit for Trainer
6	Projector		1 Unit

Annexure: Industry Validations Summary

Provide summary information of all the industry validation in table.

S. No	Organisation Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1							
2							
3							

Annexure: Training & Employment Details

Training & Employment Projections:

Year	Total Candidates		Women		People with Disability	
	Estimated Training #	Estimated Employed Opportunities	Estimated Training #	Estimated Employed Opportunities	Estimated Training #	Estimated Employed Opportunities
2023-24	500	350	200	140	50	35
2024-25	1000	700	400	280	100	70
2025-26	1500	1050	600	420	150	105

#The Estimated Data is an average for each state.

Training, Assessment, Certification, and Placement Data for previous versions of qualifications:

Qualification Version	Year	Total Candidates			Women			People with disability		
		Trained	Assessed	Certified	Trained	Assessed	Certified	Trained	Assessed	Certified
	2022-23	-	-	-	-	-	-	-	-	-

**Content availability for the previous version of qualifications:**

☐ Participant Handbook ☐ Facilitator Guide ☐ Digital Content ☐ Qualification Handbook ☐ Any Other:

**Language in which content is available:**

## Annexure: Blended Learning

**Blended Learning Estimated Ratio & Recommended Tools:**

Refer NCVET “Guidelines for Blended Learning for Vocational Education, Training & Skilling” available on:

<https://ncvet.gov.in/sites/default/files/Guidelines%20for%20Blended%20Learning%20for%20Vocational%20Education,%20Training%20&%20Skilling.pdf>

S. No.	Select the Components of the Qualification	List Recommended Tools – for all Selected Components	Offline: Online Ratio
1	<input checked="" type="checkbox"/> Theory/ Lectures - Imparting theoretical and conceptual knowledge	<ul style="list-style-type: none"> <li>Books/ e-books</li> <li>Presentations</li> <li>Reference Material</li> <li>Audio / Video Modules</li> </ul>	40:60
2	<input checked="" type="checkbox"/> Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	<ul style="list-style-type: none"> <li>Self-Learning Videos</li> <li>Broadcasts</li> <li>Mobile Learning</li> <li>Curated Digital content</li> </ul>	40:60
3	<input checked="" type="checkbox"/> Showing Practical Demonstrations to the learners	<ul style="list-style-type: none"> <li>Video Content</li> <li>E-Resource library</li> <li>AR/ VR/ XR</li> </ul>	40:60
4	<input checked="" type="checkbox"/> Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	<ul style="list-style-type: none"> <li>Training tools (tools list attached)</li> <li>Video Play</li> <li>Presentations</li> </ul>	40:60
5	<input checked="" type="checkbox"/> Tutorials/ Assignments/ Drill/ Practice	<ul style="list-style-type: none"> <li>Online Question Bank</li> <li>Mobile Quick test app</li> <li>MCQ based tests</li> </ul>	40:60

6	<input checked="" type="checkbox"/> Proctored Monitoring/ Assessment/ Evaluation/ Examinations	<ul style="list-style-type: none"> <li>Assessment engine for Essays</li> <li>Up-loadable file examinations</li> <li>Mock test sessions</li> </ul>	40:60
7	<input checked="" type="checkbox"/> On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	<ul style="list-style-type: none"> <li>Online tests</li> <li>Offline assessments</li> </ul>	40:60

### Annexure: 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	Project Marks	Viva Marks
SSC/N8342: Work organization and management for cloud computing	PC1. identify common deployment models with public cloud providers and how those models can apply to organization-specific requirements.	6	7	-	
	PC2. identify opportunities and create migrations plans to phase-in public cloud deployments and reduce risks.	6	8	-	
	PC3. create highly available, scalable, and secure IT architectural designs specific to each application, taking into account compute, storage, networking, database management, and deployment requirements.	5	7	-	
	PC4. take advantage of public cloud provider solutions to reduce operational burden associated with service deployments	3	8	-	
	<b>Total Marks</b>	<b>20</b>	<b>30</b>	<b>-</b>	
SSC/N8343: Communication and interpersonal skills for cloud computing	PC1. discover and document key requirements and how they relate to public cloud offerings.	5	6	-	
	PC2. discover and document technology-specific opportunities to leverage public cloud offerings.	5	6	-	
	PC3. translate business goals and objectives into briefs, designs, and plans, and present such documents to stakeholders and management teams.	5	6	-	
	PC4. clearly map departmental and technology-specific requirements and goals to public cloud solutions.	3	6	-	
	PC5. using project-specific migration plans, facilitate the implementation of an organizational transition to public cloud resources.	2	6	-	
	<b>Total Marks</b>	<b>20</b>	<b>30</b>	<b>-</b>	
SSC/N8344: Problem solving, innovation, and creativity	PC1. evaluate, select, and implement foundational cloud computing services such as compute, network, and storage.	9	10	-	
	PC2. evaluate, select, and implement advanced cloud computing services such as managed data services, caching services, and automated scaling and availability features.	8	10	-	

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC3. evaluate, select, and implement various network-related technologies to infrastructure design such as network communication protocols, sub netting, NAT, DNS, VPN, broadcast networking, and dynamic routing protocols.	9	10	-	
	PC4. automate infrastructure creation and modification through the use of scripting or programming, and the use of infrastructure templates	9	10	-	
	<b>Total Marks</b>	<b>35</b>	<b>40</b>	<b>-</b>	
SSC/N8345: Cybersecurity	PC1. design and implement authentication processes at departmental and organizational level, controlling access to public cloud administrative capabilities and system access.	5	5	-	
	PC2. develop policies and procedures for systems and application access to public cloud interfaces and services.	5	5	-	
	PC3. implement policies and procedures for auditing of public cloud activities and access.	10	10	-	
	PC4. create internal prescriptive guidance and requirements for procedures necessary to create, update, remove and access public cloud infrastructure and resources.	10	10	-	
	PC5. implement service and technology specific security controls on resources running within a public cloud environment as well as utilization of services provided by an IaaS vendor.	10	10	-	
	PC6. engage with business, development, and leadership staff to identify, recommend, and implement security best practices while ensuring an efficient user experience.	10	10	-	
	<b>Total Marks</b>	<b>50</b>	<b>50</b>	<b>-</b>	
SSC/N8346: Reliability, scalability, and elasticity	PC1. record, analyse, and interpret application, system, and network data to facilitate the recommendation of an appropriate architecture that sufficiently utilizes scalability and elasticity to meet the variable demands of internal and external users and systems.	5	10	-	
	PC2. implement different availability, scalability, and durability models in accordance with application and system design requirements.	5	10	-	
	PC3. design availability models that meet the business requirements of an organization, taking into account allowed recovery time and allowable service interruption parameters.	10	10	-	
	PC4. utilize public cloud services and features to aid the design and deployment of availability, durability, and scalability requirements.	10	15	-	
	<b>Total Marks</b>	<b>30</b>	<b>45</b>	<b>-</b>	
SSC/N8347: Performance and optimization	PC1. analyse and interpret performance metrics from compute, storage, network, and application levels for use in public cloud infrastructure design objectives.	3	5	-	
	PC2. utilize performance tuning techniques and packages to ensure optimal resource utilization.	2	5	-	
	PC3. implement microservice strategies to capitalize on technology advances in areas like container development.	2	5	-	



NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC4. pursue the decoupling of services to allow the separation of application components to facilitate a service-oriented architecture.	3	5	-	
	PC5. recommend and implement database and storage solutions that best fit the needs of an application.	3	5	-	
	PC6. implement serverless architecture	2	10	-	
	<b>Total Marks</b>	<b>15</b>	<b>35</b>	<b>-</b>	
SSC/N8348: Operational considerations	PC1. maintain functionality and availability within the requirements of a given system	4	9	-	
	PC2. maintain functionality and availability within the requirements of a given system's applications	4	8	-	
	PC3. use the metrics of a given system, network, and applications to assess the durability, availability, and performance of the infrastructure	3	9	-	
	PC4. respond to cybersecurity, availability, and performance-related incidents by applying given requirements, protocols, and procedures	4	9	-	
	<b>Total Marks</b>	<b>15</b>	<b>35</b>	<b>-</b>	
SSC/N8349: Sustainability	PC1. architect cloud workloads to maximize sustainability and minimize environmental impact	2	4	-	
	PC2. measure the impact of given cloud workloads and model the future impact of workloads	2	4	-	
	PC3. identify and estimate the sources of impacts across the lifetime of given products	2	4	-	
	PC4. compare productive output of given products with their impacts, per work unit	2	4	-	
	PC5. create KPIs for given products' improved productivity, evaluate the options for meeting the KPIs, including their cost implications, and estimate their relative impact over time	2	4	-	
	PC6. research new and alternative hardware and software to support energy efficiency, and identify their implications for design	1	5	-	
	PC7. review the implications for sustainability of using managed services across a wide customer base	2	5	-	
	PC8. explain and illustrate to customers their options for sustainable solutions, their relative cost benefit and wider implications	2	5	-	
	<b>Total Marks</b>	<b>15</b>	<b>35</b>	<b>-</b>	
<b>Grand Total Marks</b>		<b>200</b>	<b>300</b>	<b>-</b>	

## Annexure: Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

### Assessment System Overview

A uniform assessment of job candidates per industry standards facilitates the industry's progress by filtering employable individuals while simultaneously providing candidates with an analysis of personal strengths and weaknesses.

### Assessment Criteria

The Sector Skill Council will create criteria for assessment for each Qualification Pack. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC. The assessment for the theory part will be based on a knowledge bank of questions created by the SSC. Assessment will be conducted for all compulsory NOS and where applicable, on the selected elective/option NOS/set of NOS.

Guidelines for Assessment			
Testing Environment	Tasks and Functions	Productivity	Teamwork
<ul style="list-style-type: none"> <li>Carry out assessments under realistic work pressures found in the normal industry workplace (or simulated workplace).</li> <li>Ensure that the range of materials, equipment, and tools that learners use are current and of the type routinely found in the normal industry workplace (or simulated workplace) environments.</li> </ul>	<ul style="list-style-type: none"> <li>Assess that all tasks and functions are completed in a way, and to a timescale that is acceptable in the normal industry workplace.</li> <li>Assign workplace (or simulated workplace) responsibilities that enable learners to meet the requirements of the NOS.</li> </ul>	<ul style="list-style-type: none"> <li>Productivity levels must be checked to ensure that it reflects those that are found in the work situation being replicated.</li> </ul>	<ul style="list-style-type: none"> <li>Provide situations that allow learners to interact with the range of personnel and contractors found in the normal industry workplace (or simulated workplace).</li> </ul>

## Annexure: 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

<b>OJT</b>	On Job Training
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## 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 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 about 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 based on their main economic function, product, service, or technology.

## Annexure: Market Research & Gap Analysis

NA