QUALIFICATION FILE

Cloud Infrastructure Analyst

☒ 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: 6

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 Infrastructure Analyst	
2.	**Sector/s**	IT/IteS	
3.	**Type of Qualification:** ☐ New ☒ Revised ☐ Has Electives/Options ☐ **OEM**	**NQR Code & version of the existing /previous qualification:** *2021/ITES/ITSSC/04843 & Version 2*	**Qualification Name of the existing/previous version: Cloud Infrastructure Analyst**
4.	a. **OEM Name** b. **Qualification Name** *(Wherever applicable)*	*Cloud Infrastructure Analyst*	
5.	**National Qualification Register (NQR) Code &Version** *(Will be issued after NSQC approval)*	*QG-05-IT-01541-2023-V1.1-NASSCOM & Version 3*	**6. NCrF/NSQF Level:6**
7.	**Award (Certificate/Diploma/Advance Diploma/ Any Other)** *(Wherever applicable specify multiple entry/exits also & provide details in annexure)*	Certificate	
8.	**Brief Description of the Qualification**	Individuals in this job are responsible for designing, maintaining, evaluating, and testing architectures of cloud products and solutions. Cloud Architects also create enterprise policies and guidelines for cloud implementation and governance. They assess cloud vendors and third-party cloud service providers. They also assist in validating customer proposals and project plans for cloud implementation.	
9.	**Eligibility Criteria for Entry for a Student/Trainee/Learner/Employee**	a. **Entry Qualification & Relevant Experience:** *Relevant Experience in job roles related to IT/Computer Science/Cloud Computing The relevant experience would include work, internship and apprenticeship after completion of relevant educational qualification. ** PG or UG or diploma with courses related to Engg./ Science	

S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)

Cloud Infrastructure Analyst

1	Pursuing first year of 2-year PG Program after completing 3-year UG** degree	-
2	Pursuing 1-year PG diploma after 3-year UG** degree	-
3	Completed 4th year UG (in case of 4-year UG**with honours/ honours with research)	-
4	Pursuing 4th year UG (in case of 4-year UG**with honours/ honours with research) and continuing education	-
5	Completed 3-Year UG** Degree	1 year of relevant experience*
6	Previous Relevant qualification of NSQF level 5	3 years of relevant experience*

     b. Age: 21 Years

10.	**Credits Assigned to this Qualification, Subject to Assessment** *(as per National Credit Framework (NCrF))*	18 Credits	**11. Common Cost Norm Category (I/II/III)** *(wherever applicable)*: **II**
12.	**Any Licensing Requirements for Undertaking Training on This Qualification** *(wherever applicable)*	NA	
13.	**Training Duration by Modes of Training Delivery** *(Specify **Total Duration** as per selected training delivery modes and as per requirement of the qualification)*	☒ **Offline Only** ☒ **Online Only** ☐ **Blended** (table below) *(Refer Blended Learning Annexure for details)*	
14.	**Aligned to NCO/ISCO Code/s** *(if no code is available mention the same)*	NCO-2015/NIL	

Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)
Classroom (offline)	150	270	120		540
Online	150	270	120		540

15.	**Progression Path After Attaining the Qualification, wherever applicable** *(Please show Professional and Academic progression)*	This entry should refer to one or more of the following: **Professional progression**: access to related qualification(s) at the next NSQF level – Senior Infrastructure Analyst, Senior Site-Reliability Analyst, etc **Academic progression**: access to other qualifications at the same NSQF level – Site-Reliability Analyst etc.
16.	**Other Indian languages in which the Qualification & Model Curriculum are being submitted**	Hindi
17.	**Is similar Qualification(s) available on NQR-if yes, justification for this qualification**	☐ Yes ☒ No **URLs of similar Qualifications:**
18.	**Is the Job Amenable to Persons with Disability**	☐ Yes ☒ No **If "Yes", specify applicable type of Disability:**
19.	**How participation of women will be encouraged?**	The Program is gender neutral although to increase the women participation, organizations are keeping aside few seats to encourage the female candidates
20.	**Are Greening/Environment Sustainability Aspects covered** (*Specify the NOS/Module which Covers it*)	☒ Yes ☐ No, **SSC/N9014:** Maintain an inclusive, environmentally sustainable workplace
21.	**Is Qualification suitable to be offered in Schools/Colleges**	Schools: ☐ Yes ☒ No Colleges ☒ Yes ☐ No
22.	**Name and Contact Details Submitting / Awarding Body SPOC** *(In case of CS or MS, provide details of both Lead AB & Supporting ABs)*	**Name: Namrata Kapur** **Email: namrata@nasscom.in** **Contact No.: 0120-4990111** **Website: https://nasscom.in**
23.	**Final Approval Date by NSQC: 30th December 2021**	**24. Validity Duration: 3 Years** **25. Next Review Date: 30th December 2024**

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.	Provision, configure, test, and deploy cloud infrastructure.	SSC/N8313, V2.0	Core	6	03	36:00	54:00	00:00	00:00	90:00	30	70	-	-	100	16
2.	Maintain compute, network, and storage systems deployed on the cloud and ensure backup and recovery	SSC/N8314, V2.0	Core	6	02	20:00	40:00	00:00	00:00	60:00	32	68	-	-	100	16
3.	Automate cloud infrastructure management	SSC/N8315, V2.0	Core	6	02	20:00	40:00	00:00	00:00	60:00	30	70	-	-	100	16
4.	Migrate legacy/on-premises/cloud applications and data to new cloud platforms	SSC/N8316, V2.0	Core	6	02	20:00	40:00	00:00	00:00	60:00	34	66	-	-	100	16

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)
5.	Integrate cloud infrastructure with existing IT systems.	SSC/N8317, V2.0	Core	6	02	20:00	40:00	00:00	00:00	60:00	33	67	-	-	100	16
6.	Maintain an inclusive, environmentally sustainable workplace	SSC/N9014, V1.0	Non-Core	5	01	10:00	20:00	00:00	00:00	30:00	20	80	-	-	100	10
7.	Employability Skills (60 Hours)	DGT/VSQ/N0102, V1.0	Non-Core	4	02	24:00	36:00	00:00	00:00	60:00	20	30	-	-	50	10
8.	OJT	-	-		04	00:00	00:00	120:00	00:00	120:00	-	-	-	-	-	-
Duration (in Hours)/Total Marks					18	150:00	270:00	120:00	00:00	540:00	199	451			650	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/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)*
1.																
2.																
Duration (in Hours) / Total Marks																

Assessment - Minimum Qualifying Percentage

Assessment - Minimum Qualifying Percentage
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.)

Section 3: Training Related

1.	**Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science with a Minimum of 5 years relevant experience and 2 years of full-time training experience in IT/Computer Science/Cloud Computing
2.	**Master Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science with a Minimum of 5 years relevant experience and 2 years of full-time training experience in IT/Computer Science/Cloud Computing
3.	**Tools and Equipment Required for the Training**	☒Yes ☐No *(If "Yes", details to be provided in Annexure)*

4.	**In Case of Revised Qualification, details of Any Upskilling Required for Trainer**	NA

Section 4: Assessment Related

1.	**Assessor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science with a Minimum of 5 years relevant experience and 2 years of full-time training experience in IT/Computer Science/Cloud Computing
2.	**Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines), (wherever applicable)*	Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science with a Minimum of 5 years relevant experience and 2 years of full-time training experience in IT/Computer Science/Cloud Computing
3.	**Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years)** *(as per NCVET guidelines)*	Graduate in Engineering/Technology/ Statistics/ Mathematics/Computer Science with a Minimum of 5 years relevant experience and 2 years of full-time training experience in IT/Computer Science/Cloud Computing
4.	**Assessment Mode** *(Specify the assessment mode)*	Online or Offline
5.	**Tools and Equipment Required for Assessment**	☒ Same as for training ☐ Yes ☐ 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):
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No):
3.	Government/Industry initiatives/requirement (Yes/No):
4.	Number of industry validations provided:
5.	Estimated number of people to be trained and employed:

6.	Evidence of Concurrence/Consultation with Line/State Departments: If "No", why:

Section 6: Annexure & Supporting Documents Check List

Specify Annexure Name / Supporting document file name

1.	**Annexure:** NCrF/NSQF level justification based on NCrF/NSQF descriptors *(Mandatory)*	Evidence of Level
2.	**Annexure:** List of tools and equipment relevant for NOS *(Mandatory, except in case of online course)*	Tools and Equipment (lab set-up)
3.	**Annexure:** Detailed Assessment criteria *(Mandatory)*	Performance Criteria Details
4.	**Annexure:** Assessment Strategy *(Mandatory)*	Assessment Strategy (To be Developed by Training Partner)
5.	**Annexure:** Blended Learning *(Mandatory, in case selected Mode of delivery is Blended Learning)*	NA
6.	**Annexure:** Multiple Entry Exit Details *(Mandatory, in case qualification has multiple entry-exit)*	Acronym and Glossary
7.	**Annexure:** Acronym and Glossary *(Optional)*	Acronym and Glossary
8.	**Supporting Document:** Model Curriculum *(Mandatory-Public View)*	MC_English_Q8304_Cloud Infrastructure Analyst_V3
9.	**Supporting Document:** Career Progression *(Mandatory-Public View)*	Occupational Map-Cloud Computing
10.	**Supporting Document:** Occupational Map *(Mandatory)*	Occupational Map-Cloud Computing
11.	**Supporting Document:** Assessment SOP *(Mandatory)*	NA
12.	**Any Other document you wish to submit:**	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
Professional Theoretical Knowledge/Process	- Provision, configure, test and deploy cloud infrastructure and related components. - Implement multi-routing, switching and load-balancing solutions to ensure scalability of infrastructure. - Troubleshoot issues related to the provisioning of compute and storage systems. - Establish and implement services, processes and tools to support cloud infrastructure.	The individual in this role needs to have a comprehensive understanding of the infrastructure solution being developed by the organization. The individual should be able to use standard and non-standard processes to define the organisation's requirements and implement solutions for different use cases.	6
Professional and Technical Skills/ Expertise/ Professional Knowledge	- Knowledge of different deployment models and schemas - Knowledge of cloud native and cloud first frameworks - Knowledge of load-balancing techniques and tools - Knowledge of solution interoperability - Knowledge of compliance/regulatory standards and policies - Knowledge of infrastructure configurations - Principles of DevSecOps - Knowledge of configuration management tools and orchestration tools to automate systems deployment and management	The individual should have in-depth knowledge of the different types of business requirements from the solution and the various platforms on which the solution can be deployed.	6

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
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	- Leverage appropriate multi-cloud/hybrid cloud architecture and solutions - Build and deploy containers and virtual environments in the cloud - Implement multi-routing, switching and load balancing solutions to ensure scalability of infrastructure - Backup and maintain storage and systems configuration - Automate infrastructure operations - Recover data and storage in case of system failures.	The individual should also be able to write detailed component specifications for the solution and should understand how the components might evolve. They should also know how to write scripts to assess the data being used by the solution.	6
Broad Learning Outcomes/Core Skill	- Evaluate changes in cross-border data governance issues, PII regulations, GDPR, security and monitoring standards - Undertake impact analysis on major design options - Develop technical capabilities roadmap for upgrading cloud infrastructure - Identify data quality metrics and guide processes that track and measure performance of deployed systems - Identify potential risks, and define mitigation plans and processes in case of system failures - How to scale the cloud infrastructure.	The individual in this role is responsible for overseeing any changes in cloud infrastructure based on internal and external factors. The individual should be able to undertake impact analysis on the major design options to identify the most suitable one. The individual needs to make plans to scale the cloud infrastructure to accommodate user growth	6

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
Responsibility	• Make decisions on suitable courses • Pass on relevant information to others • Contribute to the quality of team working • Apply balanced judgments to different situations • Check your work is complete and free from errors • Ensure that software being developed is deployed across the IoT solution as per specifications	The role demands working in a team to create and maintain software. This may involve helping peers with their work from time to time and providing feedback and advice to help improve the quality of their work. Since this role is likely to have people reporting to it, the individual performing this role is supposed to take responsibility for the output and the development of the entire team.	6

Annexure: Tools and Equipment (lab set-up)

List of Tools and Equipment
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	• Development Language and SDKs such as C++, Python, R, C#, Java, JavaScript etc. • Integrated Development Environment such as • Apple Xcode, Microsoft Visual Code, Netbeans etc. • Continuous Integration/Delivery tools like Jenkins, CircleCI, GtiLab etc. • Configuration Management Tools like Puppet, Chef, Ansible, CFEngine, JUJU, Bamboo etc. • Container Management & Orchestration tools like Kubernetes, Apache Mesos, Amazon ECS, Azure Container Service etc.	1 Unit per Trainee

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		- Network Monitoring Software like Nagios, PRTG network monitor, Zabbix, OpenNMS etc. - Program Testing Software like Selenium, Junit, Jmeter, HP LoadRunner, YourKit Java Profiler etc. - Backup or Recovery Software like Oracle Data Guard, Veritas NetBackup, Oracle Recovery Manager etc.	

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. White Board
2. White Board Marker
3. Projector

Annexure: Industry Validations Summary

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

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1	Lowes	Nazish	Senior Manager, Analytics	NA	9561989327	nazish.fatima@lowes.com	-

2	SKANDYSYS	Narendra Nande	Head of SW Engineering	NA	9900086708	naren.nande@skandysys.com	-
3	GoSwift	Shyam	Co-Founder & CEO	NA	9672161212	shyam@goswift.in	-
4	Tower Research	Yash Khandelwal	SDE2	NA	8919616590	ykhandelwal@tower-research.com	-
5	Swiggy	Siddharth Behl	Sr. Product Manager	NA	9666814623	siddhartha.bahl@swiggy.in	-
6	Westpac	Sahil Punchi	SDE	NA	61452581776	sahil.punchhi@westpac.com.au	-
7	Amazon	Manu Agrawal	SDE2	NA	7752957673	manuagra@amazon.com	-
8	PIDATACENTERS	GS Raman Das	General Manager	NA	9052935556	ramandas@pidatacenters.com	-
9	SALESFORCE	Nitisha Reddy Jukareddy	Sr.Manager Dev Rel	NA	6309955963	njukareddy@salesforce.com	-
10	Cisco	Pradyumna Paralikar	Software Engineer	NA	94253 76550	pparalik@cisco.com	-
11	IBM	Latha Raj	Program Director – Talent Consultant	NA	9845288467	rlatha@in.ibm.com	-
12	ETHNUS	Goutham N	Chief Technology Officer	NA	9739663132	goutham@ethnus.com	-
13	RIGHTWATTS	Rahul	Director	NA	9582289686	rahul@rightwatts.com	-
14	CLOUDOPTIMO	Vaibhav Kamble	CEO	NA	9850958794	vaibhav@cloudoptimo.com	-
15	HUMANFRACTAL	Srinivasa Vivek J		NA	9008017420	vivek@humanfractal.io	-
16	WALMARTLABS	Nitin Kaulavkar	Director of Engg (Market Intelligence)	NA	9945699229	Nitin@walmartlabs.com/nkstar@gmail.com	-
17	Slintel	Ishan Saraswat	Senior PM	NA	99866 68819	Ishan.saraswat@slintel.com	-
18	GOOGLE	Karthik Surya		NA	7760698888	ksid@google.com	-
19	WIPRO	Ramachandran P	Vice President	NA	9663311750	ramachandran.pad@wipro.com	-
20	Baelworks	Paramita Biswas		NA	9986018390	paramita@baelworks.com	-
21	Directi (Zeta)	Shivangi Agrawal	Software Engineer	NA	9650969536	shivangi.dtu@gmail.com	-

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

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

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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

Applicable for revised qualifications only, data to be provided year-wise for the next 3 years.

List Schemes in which the previous version of qualification was implemented:

1.

Content availability for 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	☐Theory/ Lectures - Imparting theoretical and conceptual knowledge		
2	☐Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners		
3	☐Showing Practical Demonstrations to the learners		
4	☐Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training		
5	☐Tutorials/ Assignments/ Drill/ Practice		

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| 6 | ☐Proctored Monitoring/ Assessment/ Evaluation/ Examinations | | |
| 7 | ☐On the Job Training (OJT)/ Project Work Internship/ Candidate Training | | |

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/N8313 Provision, configure, test and deploy cloud infrastructure	PC1. Implement appropriate multi-cloud/hybrid cloud architecture and solutions	2	6	-	-
	PC2. Provision, configure, test, and deploy cloud infrastructure and related components	3	7	-	-
	PC3. Build, configure and deploy containers and virtual environments on the cloud	2	4	-	-
	PC4. Define and predict capacity requirements of the deployed virtual environment	3	7	-	-
	PC5. Implement multi-routing, switching, and load-balancing solutions to ensure the scalability of infrastructure	3	7	-	-
	PC6. Build automated operational processes to ensure scalable cloud deployments	3	7	-	-
	PC7. Ensure interoperability of the cloud platform with other cloud service providers and on-premises/legacy systems	2	4	-	-
	PC8. Implement cloud solutions by adhering to security standards	3	7	-	-
	PC9. Troubleshoot network infrastructure in case of failure	3	7	-	-
	PC10. Troubleshoot issues related to the provisioning of compute and storage systems	3	7		
	PC11. Establish and implement services, processes, and tools to support cloud infrastructure	3	7		
	Total Marks	**30**	**70**	**-**	**-**

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
SSC/N8314 Maintain compute, network, and storage systems deployed on the cloud and ensure backup and recovery	PC1. maintain configuration of compute, storage, and network systems deployed on the cloud	3	7	-	-
	PC2. test new deployment configurations for bugs and errors	3	7	-	-
	PC3. update compute and storage systems with security patches and updates	3	7	-	-
	PC4. perform network maintenance, upgrades, and refreshes after consultation with the cloud solution provider	3	5	-	-
	PC5. ensure security protocols are followed across deployed systems	3	7	-	-
	PC6. backup and maintain storage and systems configuration data	3	7	-	-
	PC7. execute recovery procedures in case of storage and systems failures	3	7	-	-
	PC8. troubleshoot and resolve issues related to the operation and provisioning of cloud systems using appropriate diagnostic and monitoring tools	3	5	-	-
	PC9. work closely with DevSecOps teams to build and support continuous integration and deployment	2	4		
	PC10. develop new processes to automate infrastructure operations	1	3		
	PC11. develop automation scripts for cloud provisioning and release management	1	1		
	PC12. leverage cloud configuration management tools to automate systems integration, deployment, and management	1	1		
	PC13. Leverage infrastructure automation tools to enable scaling up of infrastructure	3	7		
	Total Marks	**32**	**68**	**-**	**-**
SSC/N8315 Automate cloud infrastructure management	PC1. Automate and maintain infrastructure configuration and operating procedures for cloud provisioning and release management	4	12	-	-
	PC2. Integrate cloud automation tools with the deployed cloud systems and processes	5	11	-	-
	PC3. Leverage cloud configuration management tools and orchestration tools to automate systems deployment and management	5	11	-	-
	PC4. Implement, manage, and automate load balancing tools to scale up infrastructure on the cloud as and when required	3	7	-	-
	PC5. Leverage tools to automate the container creation process	5	11		
	PC6. Leverage container orchestration tools to automate container deployment and management	4	9		
	PC7. Ensure that automated processes are secure and adhere to the security policies of the organization	4	9		

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	Total Marks	**30**	**70**	**-**	**-**
SSC/N8316 Migrate legacy/on-premise/cloud applications and data to new cloud platforms.	PC1. Support the identification and estimation of application remediation and changes in the source code required for the preparation of migration	3	5	-	-
	PC2. Develop plans to create appropriate migration bundles and sequences and prepare data for interfaces	3	5	-	-
	PC3. Create, validate and execute fallback/ rollback plans in case the migration does not perform as intended	3	5	-	-
	PC4. Provision storage disks, virtual storage devices, compute systems, and all other resources on the cloud	2	4	-	-
	PC5. Configure servers including storage & network for migration	2	4	-	-
	PC6. Migrate servers, storage, and databases to the new environment	2	4	-	-
	PC7. Manage the migration of traffic	3	5	-	-
	PC8. Identify and leverage appropriate migration tools to execute migration procedures	3	5	-	-
	PC9. Follow and maintain Standard Operating Procedures (SOPs) for the execution of migration	2	4	-	-
	PC10. Ensure data integrity of the database and other storage information and identify gaps in desired data	2	4	-	-
	PC11. Implement checks and balances and identify protocols to validate successful migration	3	5	-	-
	PC12. Work closely with developers and database admins to align to governance policies and oversee their implementation	1	4	-	-
	PC13. Evaluate proofs-of-concept for server, storage, network, and security technologies to support the cloud infrastructure	1	4	-	-
	PC14. Ensure migrated data adhere to security standards and guidelines as per organizational and regulatory requirements	4	8	-	-
	Total Marks	**34**	**66**	**-**	**-**
SSC/N8317: Integrate cloud infrastructure with existing IT systems	PC1. Define and document integration needs, users, roles and permissions	4	7	-	-
	PC2. Create a plan to divide the integration activity into different phases	2	5	-	-
	PC3. Map the process flow and the transaction of data in between subsystems	4	7	-	-
	PC4. Plan to block erroneous data from being entered that disrupts the chronological events of a process	4	7	-	-
	PC5. Map upstream and downstream application integration points	4	7	-	-

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC6. Plan and execute data integration elements	4	7	-	-
	PC7. Research on off-the-shelf APIs (Application Programming Interfaces) that supports the integration of sub-systems	1	3	-	-
	PC8. Build APIs to integrate sub-systems	2	5	-	-
	PC9. Carry out unit tests to ensure desired performance from the APIs	2	5	-	-
	PC10. Perform systems tests to verify that the requirements are met	4	7	-	-
	PC11. Ensure the systems are secure before, during, and after integration	2	7	-	-
	Total Marks	**33**	**67**		
SSC/N9014: Maintain an inclusive, environmentally sustainable workplace	PC1. optimize usage of electricity/energy, materials, and water in various asks / activities / processes and plan the implementation of energy efficient systems in a phased manner	5	15	-	-
	PC2. segregate recyclable, non-recyclable and hazardous waste generated for disposal or efficient waste management	5	15	-	-
	PC3. understand the diversity policy of the organization and use internal & external communication to colleagues to improve	5	10	-	-
	PC4. comply with PwD inclusive policies for an adaptable and equitable work environment	-	10	-	-
	PC5. improve through specifically designed recruitment practices, PwD friendly infrastructure, job roles, etc.	-	20	-	-
	PC6. use and advocate for appropriate verbal/nonverbal communication, schemes, and benefits of PwD.	5	10	-	-
	Total Marks	**20**	**80**		
DGT/VSQ/N0102 Employability NOS for 60 Hours	PC1. Introduction to Employability Skills	1	1	-	-
	PC2. Constitutional values – Citizenship	1	1	-	-
	PC3. Becoming a Professional in the 21st Century	2	4	-	-
	PC4. Basic English Skills	2	3	-	-
	PC5. Career Development & Goal Setting	1	2	-	-
	PC6. Communication Skills	2	2	-	-
	PC7. Diversity & Inclusion	1	2	-	-
	PC8. Financial and Legal Literacy	2	3	-	-
	PC9. Essential Digital Skills	3	4	-	-
	PC10. Entrepreneurship	2	3	-	-

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NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC11. Customer Service	1	2	-	-
	PC12. Getting Ready for Apprenticeship & Jobs	2	3	-	-
	Total Marks	**20**	**30**	**-**	**-**
Grand Total Marks		**199**	**451**		

Annexure: Assessment Strategy

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

Assessment System Overview

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

Assessment Criteria

Criteria for assessment for each Qualification File will be created by the Sector Skill Council (SSC). 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**

• Carry out assessments under realistic work pressures that are found in the normal industry workplace (or simulated workplace). • 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.	• Assess that all tasks and functions are completed in a way, and to a timescale, that is acceptable in the normal industry workplace. • Assign workplace (or simulated workplace) responsibilities that enable learners to meet the requirements of the NOS.	• Productivity levels must be checked to ensure that it reflects those that are found in the work situation being replicated.	• Provide situations that allow learners to interact with the range of personnel and contractors found in the normal industry workplace (or simulated workplace).

Assessment Quality Assurance framework

NASSCOM provides two assessment frameworks NAC and NAC-Tech.

NAC (NASSCOM Assessment of Competence)

NAC follows a test matrix to assess Speaking & Listening, Analytical, Quantitative, Writing, and Keyboard skills of candidates appearing for assessment.

NAC-Tech

NAC-Tech test matrix includes assessment of Communication, Reading, Analytical, Logical Reasoning, Work Management, Computer Fundamentals, Operating Systems, RDBMS, SDLC, Algorithms & Programming Fundamentals, and System Architecture skills.

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Methods of Validation

To pass a QF, a trainee should score an average of 70% or more . In case of unsuccessful completion, the trainee may seek reassessment on the Qualification File.

Method of assessment documentation and access

The assessment agency will upload the result of assessment in the portal. The data will not be accessible for change by the assessment agency after the upload. The assessment data will be validated by SSC assessment team. After upload, only SSC can access this data.

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
OJT	On Job Training

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 based on their main economic function, product, service or technology.