

QUALIFICATION FILE

Blockchain Architect

- ☒ Short Term Training (STT) ☐ Long Term Training (LTT) ☐ Apprenticeship
☒ Upskilling ☐ Dual/Flexi Qualification ☐ For ToT
☐ For ToA
- ☐ General ☐ Multi-skill (MS) ☐ Cross Sectoral (CS) ☒ FutureSkills ☐ OEM

NCrF/NSQF Level: 6

Submitted By:

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	Blockchain Architect					
2.	Sector/s	IT/ITeS					
3.	Type of Qualification: ☐ New ☒ Revised ☐ Has Electives/Options ☐ OEM	NQR Code & version of the existing /previous qualification: QG-06-IT-01844-2024-V1.1-NASSCOM & Version 2		Qualification Name of the existing/previous version: Blockchain Architect			
4.	a. OEM Name b. Qualification Name (Wherever applicable)	Blockchain Architect					
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-06-IT-01844-2025-V2-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	The Blockchain Architect is responsible for designing, developing, and maintaining blockchain-based systems. This role involves defining project requirements, designing system architecture, and developing smart contracts focusing on security. The developer must assess vulnerabilities, ensure scalability, and integrate blockchain solutions with existing systems. Additionally, they establish governance models and adhere to best practices in blockchain management					
9.	Eligibility Criteria for Entry for a Student/Trainee/Learner/Employee	Entry Qualification & Relevant Experience: **Relevant experience in job roles related to Blockchain/Computer Science/IT The relevant experience would include work, internship and apprenticeship after completing relevant educational qualifications. *PG/UG/Degree/Diploma in (Engg./Science) <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> </tbody> </table>			S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)					

		1	Completed 4th year UG*	-																			
		2	Completed 3-Year UG*Degree	1.5 year of relevant experience**																			
		3	Previous Relevant qualification of NSQF level 5	1.5 years of relevant experience**																			
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	19 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 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>219</td><td>231</td><td>120</td><td>-</td><td>570</td></tr> <tr> <td>Online</td><td>219</td><td>231</td><td>120</td><td>-</td><td>570</td></tr> </tbody> </table>				Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)	Classroom (offline)	219	231	120	-	570	Online	219	231	120	-	570
Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)																		
Classroom (offline)	219	231	120	-	570																		
Online	219	231	120	-	570																		
		(Refer Blended Learning Annexure for details)																					
14.	Aligned to NCO/ISCO Code/s (if no code is available mention the same)	NCO- 2015/NIL																					
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 –Head, Blockchain																					
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: Visual, Hearing or Speech impairment, Locomotor Disability	
19.	How will participation of women be encouraged?	The Program is gender neutral although to increase women's participation, organizations are keeping aside a few seats to encourage female candidates.	
20.	Are Greening/Environment Sustainability Aspects covered (Specify the NOS/Module which Covers it)	☒ Yes ☐ No, DGT /VSQ/N0102: Employability Skills (60 Hours)	
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: Standards@nasscom.in Contact No.: 0120-4990111 Website: https://www.sscnasscom.com/	
23.	Final Approval Date by NSQC: 8 th May 2025	24. Validity Duration: 3 Years	25. Next Review Date: 8 th May 2028

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/N SQF 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.	Define project requirements, conduct feasibility studies, and select appropriate blockchain platforms.	SSC/N8732,V1.0	Core	6	01	10:00	10:00	10:00	00:00	30:00	30	50	-	20	100	15
2.	Design overall system architecture, including data flow, consensus mechanism, and node structure.	SSC/N8733,V1.0	Core	6	05	65:00	65:00	20:00	00:00	150:00	30	50	-	20	100	15
3.	Develop high-level smart contract specifications and security strategies & deploy the blockchain solution	SSC/N8734,V1.0	Core	6	03	40:00	30:00	20:00	00:00	90:00	30	50	-	20	100	15
4.	Identify vulnerabilities in various layers of blockchain and develop security features for them.	SSC/N8735,V1.0	Core	6	03	30:00	40:00	20:00	00:00	90:00	30	50	-	20	100	15
5.	Plan for scalability and integration with existing systems	SSC/N8736,V1.0	Core	6	03	30:00	30:00	30:00	00:00	90:00	30	50	-	20	100	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.	Establish governance models and best practices	SSC/N8737,V1.0	Non-Core	6	02	20:00	20:00	20:00	00:00	60:00	30	50	-	20	100	15
7.	Employability Skills (60 Hours)	DGT/VSQ/N0102, V1	Non-Core	4	02	24:00	36:00	00:00	00:00	60:00	20	30	-	-	50	10
Duration (in Hours) / Total Marks					19	219:00	231:00	120:00	00:00	570:00	200	330	-	120	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/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																

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)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & training experience: 2 years of industry experience in blockchain The industry experience would include work, internship, and apprenticeship undertaken after regular graduation Certification: "Trainer" mapped to the Qualification Pack "MEP/Q2601" Minimum accepted score is 80% aggregate
2.	Master Trainer's Qualification and experience in the relevant sector (in years) (as per NCVET guidelines)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & training experience: 4 years of industry experience in blockchain. The full-time experience would include work, internship, and apprenticeship undertaken after regular graduation. Certification: "Master Trainer" mapped to the Qualification Pack "MEP/Q2602" Minimum accepted score is 90% aggregate
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) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 2 years of industry experience in blockchain. The full-time experience would include work, internship, and apprenticeship undertaken after regular graduation. Certification: "Assessor" mapped to the Qualification Pack "MEP/Q2701" Minimum accepted score is 80% aggregate.
2.	Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines), (wherever applicable)</i>	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 2 years of industry experience in blockchain. The full-time experience would include work, internship, and apprenticeship undertaken after regular graduation. Certification: "Assessor" mapped to the Qualification Pack "MEP/Q2701" Minimum accepted score is 80% aggregate.
3.	Lead Assessor's/Proctor's Qualification and experience in relevant sector (in years) <i>(as per NCVET guidelines)</i>	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 4 years of industry experience in Blockchain . The full-time experience would include work, internship, and apprenticeship undertaken after regular graduation. Certification: "Lead Assessor" mapped to the Qualification Pack "MEP/Q2702" Minimum accepted score is 90% aggregate.
4.	Assessment Mode <i>(Specify the assessment mode)</i>	The assessment will consist of a blend of hands-on practical evaluations, viva-voce, and online proctored scenario-based multiple-choice questions ensuring a thorough evaluation of the individual's proficiency in learning outcomes, practical understanding, and real-world application of concepts.
5.	Tools and Equipment Required for Assessment	☒ Same as for training ☐ Yes ☐ No <i>(details to be provided in Annexure-if it is different for Assessment)</i>

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): NA
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): NA

3.	Government/Industry initiatives/requirement (Yes/No): NA
4.	Number of industry validations provided: 21
5.	Estimated number of people to be trained and employed: 500
6.	Evidence of Concurrence/Consultation with Line/State Departments: Awaited 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 (<i>Mandatory</i>)	Evidence of Level
2.	Annexure: List of tools and equipment relevant for NOS (<i>Mandatory, except in case of online course</i>)	Tools and Equipment (lab set-up)
3.	Annexure: Detailed Assessment criteria (<i>Mandatory</i>)	Performance Criteria Details
4.	Annexure: Assessment Strategy (<i>Mandatory</i>)	Assessment Strategy
5.	Annexure: Blended Learning (<i>Mandatory, in case selected Mode of delivery is Blended Learning</i>)	NA
6.	Annexure: Multiple Entry Exit Details (<i>Mandatory, in case qualification has multiple entry-exit</i>)	NA
7.	Annexure: Acronym and Glossary (<i>Optional</i>)	NA
8.	Supporting Document: Model Curriculum (<i>Mandatory-Public View</i>)	MC_SSC/Q8702_Blockchain Architect_V3.0
9.	Supporting Document: Career Progression (<i>Mandatory-Public View</i>)	NA
10.	Supporting Document: Occupational Map (<i>Mandatory</i>)	Blockchain Occupation Map
11.	Supporting Document: Assessment SOP (<i>Mandatory</i>)	Assessment Strategy
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
Process	- Determine appropriate blockchain solution to meet the business requirements in collaboration with R&D and development teams to incorporate latest trends in blockchain. - Define blockchain protocols and security pattern for the blockchain solution. - Define the possible methods and tools to analyse technical and operational performance of the blockchain solution. - Assess the policies, standards, and guidelines of the organization applicable to blockchain implementation. - Conduct research to identify the latest developments in blockchain technologies by working with the R&D team. - Determine the scope of interaction of the blockchain solution with other blockchain and non-blockchain platforms/ applications. - Outline performance testing and evaluation guidelines	The individual in this role must work in a constantly changing environment where he/she collaborates with both internal and external stakeholders to develop mechanisms for continuous integration and delivery. To perform his/her role effectively, the individual needs to combine a knowledge of the processes used within the organization, the tools used across the industry and develop mechanisms accordingly.	6
Professional knowledge	- Understand types of blockchain and different continuous integration tools such as Jenkins, Travis CI, Bamboo - Understand concepts and tools related to web services and web sockets. - Knowledge of popular blockchain platforms such as Ethereum	The individual in the role must have a vast amount of knowledge regarding various processes for establishing the solution architecture. These include defining the blueprint, defining the actual solution, and defining parameters for monitoring the solution.	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
	Understand concepts of blockchain technology such as nodes, proof of work, smart contracts, fork, cryptographic primitives, etc.		
Professional skill	- Translate business requirements into technical workflows - Knowledge of popular programming languages used in decentralized application development - Architecture knowhow: Event Driven Design- Microservices & SOA Architecture - Tools & Utils : JDK, J2SE, J2EE, JUnit, JTest, Eclipse, JDeveloper, Java, Unix Tools, Maven, SOAPUI, GitLab, Jenkins, security compliance tools	The role demands that the individual has acquired the practical skills to develop tools and mechanisms for defining the solution. The individual needs the analytical ability to apply these skills effectively to generate optimal solutions.	6
Core skill	- Define and communicate continuous delivery and integration strategies - Assess organizational risk associated with blockchain implementation - Identify opportunities for blockchain implementation and its adoption to new use cases - Gather needs of concerned people - Adapt arguments to consider diverse needs - Manage fluctuating stakeholder priorities and expectations - Identify the larger business and organizational context behind the requirements of the stakeholder	The individual must possess in depth knowledge of the technology trends, products and methodologies used both within the organization and outside it. He/she must understand larger business, technological and regulatory trends and stay updated in latest developments. This would enable him/her to develop the mechanisms in line with existing industry practices.	6
Responsibility	- Define enterprise processes to ensure satisfactory performance of the solution - Work with colleagues to deliver shared goals - Ask for clarification and advice from appropriate people - Build and maintain positive and effective relationships with clients	The role demands working in a team to define the architecture of the solution. 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	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
	- Check that your own and/or your peers' work meets customer requirements - Plan and organize own work to achieve targets and deadlines	responsibility for the output and the development of the entire team.	

Annexure: Tools and Equipment (lab set-up)

Batch Size:

S. No.	Tool / Equipment Name	Specification	Quantity for specified Batch size
1	PC/Laptops	NA	1 Unit per Trainee
2	Internet Connection	NA	1 Unit per Trainee
3	Projector or Large Display	NA	1 Unit Per Classroom
4	White Board	NA	1 Unit Per Classroom
5	Programming Languages	Solidity	To be installed on each PC/Laptop
6	Blockchain Platform	Ethereum	For each PC/Laptop/User ID
7	Development Environment	Remix IDE	For each PC/Laptop/User ID
8	Version Control	Git	For each PC/Laptop/User ID
9	Project Management tool	Jira	For each PC/Laptop/User ID
10	Documentation Tools	MS Word, Google Docs	For each PC/Laptop/User ID

Annexure: Industry Validations Summary

Provide summary information of all the industry validation in table.

S. No	Organization Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile (if available)
1	Wipro	Deepesh Gandhi	Head,Blockchain Delivery,Digital Transformation & Innovations at Wipro Limited	-	7066037907	deepesh.gandhi@wipro.com	https://www.linkedin.com/in/deepesh-gandhi-733ab54/
2	Q Acadmey	Deepak Gour	Product and Academic Head	-	9893554394	deepak@gacademy.ca	https://ca.linkedin.com/in/deepak-gour-8853968
3	IBM	Arpita Majumder	Tech Consultant	-	7894369677	Arpita.majumder@ibm.com	https://www.linkedin.com/in/arpita-majumder-85612a67/
4	iAccept Softwares Pvt Ltd	B Mohan Kumar	Founder, iaccept software	-	9845208784	mohan@iaccept.in	https://www.linkedin.com/in/bmohankumar/
5	Data Switch	Thilak hariharasudhan A	Product Engineer	Data Switch, Chennai	6393798750	thilakhariharan@gmail.com	https://www.linkedin.com/in/thilak-hariharasudhan-43a89b269/
6	Delta Electronics India	Kabilan R D	Project Manager	-	7010811080	kabilanrdurai@outlook.com	https://www.linkedin.com/in/kabilan-r-d-b09856122/
7	Draup	MD Mahabub Alam	Architect-Technology	-	9731517171	mahabubalam@draup.com	https://www.linkedin.com/in/md-mahabubalam/?originalSubdomain=in
8	Forbes Advisor	Naveenkumar Janakiraman	Data Research Analyst	-	9976773109	naveenkumarj4997@gmail.com	https://www.linkedin.com/posts/naveenkumar-janakiraman_mvp-dataresearch-forbesadvisor-activity-7128643208279969792-9ZyZ/
9	Accolite Digital	Ayushmaan Pandey	Senior Software Engineer	-	8077386365	ayushmaan.pandey@accolitedigital.com	https://www.linkedin.com/in/ayushmaanpandey
10	Intellibren	Kailash PD	Director, Technology	-	6374700185	kailash@intellibren.com	
11	Kornferry	Ragul Kumar	Data analyst	Kornferry, 1st Floor, Prestige Nebula, National	9659964881	ragulblooper143@gmail.com	https://www.linkedin.com/in/ragul-kumar-b2297a171/

				Informatics Centre, II, Infantry Rd, Bangalore , Karnataka ,			
12	Mindshare (Inclusive Minds)	Pamindar Singh	Team Lead	-	8713901984	paminder.singh@theminds.hare.in	https://www.linkedin.com/in/paminder-singh-7990b8101/
13	Engagely	Aniruthan.V	Senior software engineer	207-1208, Damji Shamji Business Gallaria, Kanjurmar g West, Mumbai, Maharashtra 400078	8098978284	Aniruthan.v@engagely.ai	https://www.linkedin.com/in/aniruthan-venkatavaradhan-79849b203/
14	Quantrello Digital Pvt. Ltd	Ayon Hazra	Founder & CEO	Kolkata Biotech Park, EN 24, Sector V, Salt Lake City, Kolkata 700091, India	89105 60570	info@bwslabs.com	https://www.linkedin.com/in/ayonhazra/
15	Synergy Software Systems	Aravind Raj	Functional Consultant	-	+971 555782899	aravindrjayachandran@gmail.com	https://www.linkedin.com/in/aravind-raj-17554071/

16	Infosys	Vivek Pilaniya	Program Manager	Infosys, delhi	9718423687	vivek.pilania@infosys.com	https://www.linkedin.com/in/vivekpilania-iimc/?originalSubdomain=in
17	Barq	Satheesh	Senior Decision Scientist	Barq, 2163 Al Urubah Rd, Northern Maathar District 7795, Riyadh 12334, Kingdom of Saudi Arabia	9444218513	satheeshk.sekar@gmail.com	
18	Bluevine	Krishn Gopal Rajput	Sr. Business operation analyst	-	9555863231	krishn.rajput@bluevine.com	https://www.linkedin.com/in/krishn-gopal-rajput-44a30611a/
19	Kwalee	Ravi Chaudhary	Software Engineering consultant	-	8750108744	ravi.chaudhary@kwalee.com	https://www.linkedin.com/in/ravi-xo/
20	Capegemini	Anuapm Srivastava	Sr. Director,Digital Transaformation	-	-	srivanupamk@gmail.com	https://www.linkedin.com/in/anupamksrivastava/
21	Skillsda	Dr. R Thirukumar Kottaram Ramesh	Head R&D Director-Engg.	-	9500123029	thiru@skillsda.com ram@skillsda.com	https://www.linkedin.com/in/kottaram-v-ramesh/ https://in.linkedin.com/in/dr-thirukkumaran-raman-1435a1216

Annexure: Training & Employment Details

Training & Employment Projections:

Year	Total Candidates	Women	People with Disability
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	Estimated Training #	Estimated Employed Opportunities	Estimated Training #	Estimated Employed Opportunities	Estimated Training #	Estimated Employed Opportunities
2025-26	500	-	-	-	-	-
2026-27	500	-	-	-	-	-
2027-28	500	-	-	-	-	-

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

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 past 3 years.

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

- 1.
- 2.

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	☐ Theory/ Lectures - Imparting theoretical and conceptual knowledge	NA	NA
2	☐ Imparting Soft Skills, Life Skills, and Employability Skills /Mentorship to Learners	NA	NA
3	☐ Showing Practical Demonstrations to the learners	NA	NA
4	☐ Imparting Practical Hands-on Skills/ Lab Work/ workshop/ shop floor training	NA	NA
5	☐ Tutorials/ Assignments/ Drill/ Practice	NA	NA
6	☐ Proctored Monitoring/ Assessment/ Evaluation/ Examinations	NA	NA
7	☐ On the Job Training (OJT)/ Project Work Internship/ Apprenticeship Training	NA	NA

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
1. SSC/N8732: Define project requirements, conduct feasibility studies, and select appropriate blockchain platform.	PC1. Identify the specific business problem or use case (e.g. product tracability, digital identity, NFT, insurance claim processing etc.) to address with blockchain	1	2	-	0.5
	PC2. Outline functional and non-functional requirements for the solution	1	2	-	0.5
	PC3. Define key objectives, success criteria, and expected outcomes	1	2	-	0.5
	PC4. Determine privacy, security, scalability and performance needs	1	2	-	0.5
	PC5. Identify integration requirements with existing systems	1	2	-	0.5
	PC6. Define regulatory compliance needs	1	2	-	0.5
	PC7. Analyze if blockchain is truly needed or if traditional databases would suffice	1	2	-	0.5
	PC8. Evaluate technical feasibility - can blockchain meet performance/scalability needs?	1	2	-	0.5
	PC9. Assess economic feasibility - costs vs benefits, ROI analysis	1	2	-	0.5
	PC10. Examine operational feasibility - impact on existing processes/systems	1	2	-	0.5

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC11.Evaluate legal/regulatory feasibility - compliance with relevant regulations	1	2	-	1
	PC12.Analyze organizational readiness - skills, culture, change management needs	1	2	-	1
	PC13.Determine public vs private blockchain needs	1	2	-	1
	PC14.Evaluate consensus mechanisms (PoW, PoS, etc.)	1	2	-	1
	PC15.Assess programming languages and development tools	1	2	-	1
	PC16.Compare transaction speeds and costs	1	2	-	1
	PC17.Evaluate smart contract capabilities	1	2	-	1
	PC18.Assess interoperability with other systems	1	2	-	1
	PC19.Compare security features and track record	1	2	-	1
	PC20. Evaluate community support and ecosystem	1	2	-	1
	PC21.Consider adoption rates and long-term viability	2	2	-	1
	PC22.Define project phases and milestones	2	2	-	1
	PC23.Allocate resources and budget	2	2	-	1
	PC24.Create risk mitigation plans	2	2	-	1
	PC25.Define governance model	2	2	-	1
	Total Marks	30	50	-	20
2. SSC/N8733: Design overall system architecture, including data flow, consensus mechanism, and node structure.	PC1.Design the overall system architecture, including on-chain and off-chain components	6	9	-	4
	PC2.Design the network architecture that supports the blockchain application, including node configuration, network protocols, and communication channels	5	9	-	4
	PC3.Evaluate different consensus mechanisms like Proof of Work (PoW), Proof of Stake (PoS), or delegated Proof of Stake (DPoS) based on security, decentralisation, scalability, and energy efficiency	6	8	-	3
	PC4.Define the structure and flow of blockchain data within the blockchain network	5	8	-	3
	PC5.Define the execution layer for processing of transactions and smart contracts.	4	8	-	3
	PC6.Define the application layer, it provides interfaces for users and applications to interact with the blockchain.	4	8		3
	Total Marks	30	50	-	20
3. SSC/N8734: Develop high-level smart contract specifications and security strategies & deploy the	PC1.Define Contract Purpose and Functionality (For eg.Token creation and management,Decentralized exchange mechanisms,Supply chain tracking,Decentralized finance (DeFi) protocols)	3	6	-	1
	PC2.Identify key components and their interactions	3	6	-	1
	PC3.Determine inheritance patterns and contract relationships	3	5	-	1
	PC4.Define the core data that the contract will manage	3	5	-	2
	PC5.Specify roles and permissions within contract	3	5	-	1
	PC6.Implement Secure Coding Practices	3	5	-	2

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
blockchain solution	PC7. Write extensive unit tests for all functions	3	4	-	2
	PC8. Conduct multiple rounds of audits	3	4	-	2
	PC9. Implement Fail-Safe Mechanisms	3	4	-	2
	PC10. Ensure the security of any off-chain elements interacting with the contract	1	2	-	2
	PC11. Implement real-time monitoring for suspicious activities	1	2	-	2
	PC12. Use multi-signature wallets for critical functions and deploy the solution	1	2	-	2
	Total Marks	30	50	-	20
4. SSC/N8735: Identify vulnerabilities in various layers of blockchain and develop security features for them	PC1. Collaborate with the core blockchain development team to secure various layers of blockchain (data layer, network layer, consensus layer, incentive layer, smart contract layer, etc.) and incorporate security features in them	5	7	-	2
	PC2. Develop security monitoring and management controls for core blockchain	3	5	-	2
	PC3. Conduct security and vulnerability assessments, including penetration testing, to identify risks and weaknesses in core blockchain	4	6	-	2
	PC4. Perform security testing to ensure that proper cryptographic encryption and consensus mechanism is followed for each transaction through individual nodes	4	6	-	2
	PC5. Research on the latest blockchain attacks as well as the methods to prevent them	3	5	-	2
	PC6. Support and guide incident response activities	2	4	-	2
	PC7. Act as a subject matter expert for queries related to blockchain security	2	4	-	2
	PC8. Provide strategic guidance by developing data-backed reports on security risks, recommendations, standard operating procedures, policies, controls and programs pertaining to blockchain security	3	5	-	2
	PC9. Create documents and develop a knowledge base of threat models, security risks and their mitigation plans	2	4	-	2
	PC10. Prepare reports on existing security posture and suitable recommendations for various stakeholders	2	4	-	2
	Total Marks	30	50	-	20
5 SSC/N8736: Plan for scalability and integration with existing systems	PC1. Implement blockchain integration gradually to minimize disruption to existing system	5	7	-	3
	PC2. Create middleware to facilitate communication between the blockchain and legacy systems	5	7	-	3
	PC3. Leverage APIs for seamless integration between blockchain and existing systems	4	7	-	3
	PC4. Implement industry-standard protocols for data exchange (Eg. Interoperability solutions like Polkadot or Cosmos for cross-chain communication)	5	7	-	3
	PC5. Develop adapters for legacy systems that cannot directly interact with the blockchain	4	7	-	3
	PC6. Implement Layer 2 scaling solutions to offload transaction processing from the main blockchain (for eg. state chain, sidechains, Plasma chains)	4	7	-	3
	PC7. Implement sharding to improve scalability by partitioning the blockchain network	3	8	-	2

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	Total Marks	30	50	-	20
6. SSC/N8737: Establish governance models and best practices	PC1.Incorporate regulatory standards that are applicable for the blockchain solution based on its use case (HIPAA for healthcare industry, etc) in the solution design	3	6	-	2
	PC2.Ensure compliance with the government regulations, and plan audits/ reviews to monitor the same	3	5	-	2
	PC3.Assess the policies, standards and guidelines of the organization applicable to blockchain implementation	3	5	-	2
	PC4.Define enterprise processes to ensure satisfactory performance of the solution	2	4	-	2
	PC5.Incorporate on-chain and off-chain governance standards	3	5	-	2
	PC6.Define a plan for conducting code audits and security compliance, and define standards for the same	3	5	-	2
	PC7.Establish governance models for decentralized systems.	3	5	-	2
	PC8.Ensure compliance with relevant regulations (e.g., GDPR, KYC/AML)	3	5	-	2
	PC9.Implement necessary measures for data privacy and protection.	3	4	-	1
	PC10.Conduct research to identify the latest developments in blockchain technologies by working with the R&D team	2	2	-	1
	PC11.Identify opportunities for blockchain implementation and its adoption to new use cases	1	2	-	1
	PC12.Create whitepapers collating the research data	1	2	-	1
	Total Marks	30	50	-	20
7. DGT/VSQ/ N0102 Employability Skills (60 Hrs)	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		
	PC11 Customer Service	1	2		
	PC12 Getting Ready for Apprenticeship & Jobs	2	3		
	Total Marks	20	30	-	-
Grand Total Marks		200	330	-	120

Annexure: Assessment Strategy

Assessment Process Overview

Batch Creation & Assessment Request:

Training Providers (TP) or Training Centers (TC), including any other authorized partner of Ministry/ Department create batches / push batches on the SIDH portal. Assessment requests are submitted through the SIDH portal or via email or other media as authorized from time to time. For NON-SIDH schemes, assessment requests are received electronically or through respective State Skill Mission portals. TP/TC initiates the assessment request through the InSDMS portal and processes the payment (where applicable).

Batch Alignment & Confirmation:

Upon payment confirmation, batches are assigned to the Assessment Agency based on factors like:

- Assessment readiness
- Availability of certified assessors for the specific job role
- Assessment capping to an assessment agency as prescribed from time to time for an AB An email communication / prescribed mode communication is sent to TP/TC for confirmation of the assessment date, with IT-ITeS SSC in the loop. Once confirmation is received, the Assessment Agency designates a TOA-certified assessor to conduct or facilitate the assessment.
- Batches are only formed when the Qualification is active.

Candidate Verification & Assessment Execution:

Candidate details are verified and documented at the beginning of the assessment by a certified assessor. A Quality Assurance (QA) mechanism is enforced, requiring an undertaking from the TC. Regular feedback is collected from TP/TC to ensure continuous improvement.

Evidence Collection & Validation:

Proctors or assessors capture date/time-stamped and geo-tagged photographs of the assessment location during the process. Attendance is also ensured offline. A PC-wise result analysis is conducted to refine assessment standards.

Monitoring & Compliance:

Batch monitoring follows established protocols, ensuring adherence to assessment guidelines. Sample based surprise visits are conducted at TC locations during both training and assessments to verify compliance. This structured approach ensures transparency, quality control, and validation throughout the assessment process.

Testing Environment:

- Check the Assessment location, date and time
- If the batch size is more than 30, then there should be 2 Assessors.
- Check that the allotted time to the candidates to complete Theory & Practical Assessment is correct.

Assessment Quality Assurance levels/Framework:

IT-ITeS SSC nasscom is responsible for the development and periodic review of the question bank developed for a specific job role. We publish an openly accessible sample /model question paper on our website for all stakeholders. The quality of the Question Bank created by the assessment designer is validated by a Subject matter experts on the following parameters:

- Appropriateness of the Question Bank in terms of facts, data and information.
- Checks for grammar, spellings, scripting and formatting.
- The information provided should be specific enough to remove any ambiguity in answers/solutions to the question.
- Relevance – Assessing the topic well w.r.t. the job role.
- Check if the difficulty level of each question is as per the matrix.
- Check if the images used in the question are clear and relevant.
- All variables, symbols and abbreviations used must be declared.
- The correct answer option should be unique, and the options should not be overlapping

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 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 about 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.