



QUALIFICATION FILE

Data Scientist

- ☒ 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:

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	Data Scientist	
2.	Sector/s	IT/ITeS	
3.	Type of Qualification: ☐ New ☒ Revised ☒ Has Electives/Options ☐ OEM	NQR Code & version of the existing /previous qualification: QG-05-IT-01526-2023-V1.1-NASSCOM & Version 3	Qualification Name of the existing/previous version: Data Scientist
4.	a. OEM Name b. Qualification Name (Wherever applicable)	Data Scientist	
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-06-IT-045952025-V2-NASSCOM & Version 4	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	A data scientist is a skilled professional responsible for collecting, cleaning, analyzing, and interpreting large volumes of data to derive actionable insights that support business decision-making. They employ statistical methods, machine learning algorithms, and various data processing tools to explore data, build predictive models, and validate results. Data scientists also develop scalable data pipelines, ensure data quality, and create visualizations and dashboards to communicate findings effectively. Their role spans across understanding business requirements, designing data strategies, implementing algorithms, deploying models into production environments, and continually monitoring and refining those models to adapt to changing data patterns. Overall, a data scientist bridges the gap between raw data and strategic insights, empowering organizations to make informed, data-driven decisions.	
9.	Eligibility Criteria for Entry for a Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: *Relevant Experience in job roles related to IT/AI/Big Data Analytics/Programming	

		The relevant experience would include work, internship, and apprenticeship after completing relevant educational qualifications. ** PHD or PG or UG or diploma with courses related to 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> <tr> <td>1</td><td>Completed 4 Year UG degree**</td><td>-</td></tr> <tr> <td>2</td><td>Completed 3 Year UG Degree**</td><td>1.5 years of relevant experience*</td></tr> <tr> <td>3</td><td>Previous Relevant qualification of NSQF level 5.5</td><td>1.5 years of relevant experience*</td></tr> </tbody> </table> b. Age: NA (not mandatory)						S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)	1	Completed 4 Year UG degree**	-	2	Completed 3 Year UG Degree**	1.5 years of relevant experience*	3	Previous Relevant qualification of NSQF level 5.5	1.5 years of relevant experience*						
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)																							
1	Completed 4 Year UG degree**	-																							
2	Completed 3 Year UG Degree**	1.5 years of relevant experience*																							
3	Previous Relevant qualification of NSQF level 5.5	1.5 years of relevant experience*																							
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	21 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>188</td><td>322</td><td>120</td><td>0</td><td>630</td></tr> <tr> <td>Online</td><td>188</td><td>322</td><td>120</td><td>0</td><td>630</td></tr> </tbody> </table> (Refer Blended Learning Annexure for details)						Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)	Classroom (offline)	188	322	120	0	630	Online	188	322	120	0	630
Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)																				
Classroom (offline)	188	322	120	0	630																				
Online	188	322	120	0	630																				
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: • Academic Progression: Access to other qualifications at the same NSQF level – Data Sciences Consultant, Product Manager • Professional Progression: Access to related qualification(s) at the next NSQF level – Chief Data Officer	
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 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, DGT/VSQ/N0102: Employability Skill (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 Kapoor Email: standards@nasscom.in Contact No.: 0120-4990111 Website: https://www.sscnasscom.com/	
23.	Final Approval Date by NSQC: 07th October 2025	24. Validity Duration: 3 Years	25. Next Review Date: 07 th October 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/ NSQF Level	Credits as per NCrF	Training Duration (Hours)					Assessment Marks					
						Th.	Pr.	OJT-Man.	OJT-Rec.	Total	Th.	Pr.	Pr oj.	Vi va	Total	Weightage (%) (if applicable)
1.	Collect & process data and ensure data quality standards are achieved	SSC/N8157, V1.0	Core	5	04	44:00	61:00	15:00	00:00	120:00	30	50	-	20	100	18
2.	Perform exploratory and Inferential analysis of the data	SSC/N8103, V3.0	Core	5	04	30:00	60:00	30:00	00:00	120:00	30	50	-	20	100	18
3.	Perform research, design & validation of algorithmic models	SSC/N8104 V4.0	Core	6	05	45:00	75:00	30:00	00:00	150:00	30	50	-	20	100	18
4.	Risk Analysis & Mitigation for Algorithmic Models	SSC/N8106 V3.0	Core	6	02	15:00	30:00	15:00	00:00	60:00	30	50	-	20	100	18
5.	Define business outcomes and create visualizations from results of the analysis	SSC/N8108 V3.0	Core	5	04	30:00	60:00	30:00	00:00	120:00	30	50	-	20	100	18
6.	Employability Skill (60 Hrs)	DGT/VSQ/N 0102 V1.0	Non-Core	4	02	24:00	36:00	00:00	00:00	60:00	20	30	-	-	50	10

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)
Duration (in Hours) / Total Marks					21	188:00	322:00	120:00	00:00	630:00	170	280	-	100	550	100

Elective 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

Elective

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.																
Duration (in Hours) / Total Marks (Including 1 Elective)																

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)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & training experience: 2 years of industry experience in AIBDA. 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 AIBDA. 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) (as per NCVET guidelines)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 2 years of industry experience in AIBDA. 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) (as per NCVET guidelines), (wherever applicable)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 2 years of industry experience in AIBDA. 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) (as per NCVET guidelines)	Educational Qualification: Graduate (Engineering/ Technology/ Computer Science) Industry & Training Experience: 4 years of industry experience in AIBDA. 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): 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): Industry Initiative
4.	Number of industry validations provided: 21
5.	Estimated number of people to be trained and employed: NA
6.	Evidence of Concurrence/Consultation with Line/State Departments: Applied 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
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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
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)	NA
7.	Annexure: Acronym and Glossary (Optional)	Acronym and Glossary
8.	Supporting Document: Model Curriculum (Mandatory-Public View)	MC_SSCQ8104_Data Scientist_V4
9.	Supporting Document: Career Progression (Mandatory- Public View)	AI BDA Occupational Map
10.	Supporting Document: Occupational Map (Mandatory)	AI BDA Occupational Map
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
Process, professional knowledge and professional skill	- develop a hypothesis based on the objective of the analysis - conduct research on existing statistical models to evaluate fitment with the objective - depending on the use case, identify if neural networks or deep learning models can be built	The individual in this role needs to have a comprehensive understanding of the objective of the analysis and should know how to develop algorithmic models to satisfy the objective.	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
	• design and prototype algorithmic model • define data flows such as human-in-the-loop constraints required to reinforce algorithmic models • different Bayesian thinking concepts such as conditional probability, priors and posteriors, and maximum likelihood estimation • different programming languages that can be used to design algorithmic models such as Python, C++, Java • research experience in deep learning, reinforcement learning and other machine learning algorithms and their usage • different use cases and the suitability of various algorithmic models to address them		
Core Skill and Responsibility	• identify suitable statistical models based on data volumes and key variables • determine and collect the training data • define and quantify success metrics for the algorithmic model • retrain datasets that have been used for supervised learning on a continuous basis	The individual in this role is responsible for overseeing major aspects of algorithm design. The individual should be able to identify suitable statistical models, collect the right training data, understand when to retrain datasets and define and utilize success metrics to improve the quality of output or	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
	- iterate the process to fine tune the model till the desired quality of output or performance is achieved - how to develop experimental and analytical plans for data modelling - conduct impact analysis of the various actions performed and disseminate relevant information to others - different types of information that people might need and the importance of providing this information when required	performance of the algorithmic model. The role also requires the individual to design plans for data modelling and analysis, conduct impact analysis on the actions performed and recognize the necessary information that must be communicated to the relevant stakeholders to ensure smooth and timely operations.	

Annexure: Tools and Equipment (lab set-up)

List of Tools and Equipment

Batch Size:

S. No.	Tool / Equipment Name (Open Source)	Specification	Quantity for specified Batch size
1	PC/Laptop with internet		
2	Python (pandas, NumPy, openpyxl) R (dplyr, tidyr)	Data import/export, cleansing, transformation	
3	Tableau Public / Power BI Desktop	Visual data quality monitoring (free versions)	
4	Apache NiFi	Flow-based data ingestion, transformation, and movement	
5	Google Colab	Cloud-based Python notebook with free GPU support	
6	Orange Data Mining	Visual builder for ML workflows	
7	H2O.ai	AutoML and scalable ML platforms	

8	Deep Learning Workbench	Visualization and debugging	
9	Git & GitHub / GitLab	Version control	
10	Flask / FastAPI	Model API deployment	
11	Docker	Containerization	
12	Kubernetes & KubeFlow	Scalable orchestration	
13	Prometheus + Grafana	Monitoring dashboards	
14	Metabase	Open-source analytics and dashboards	

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	Infosys	Vivek Pilaniya	Program Manager	Infosys, delhi	9718423687	vivek.pilania@infosys.com	https://www.linkedin.com/in/vivekpilania-iimc
2	IBM	Arpita Majumder	Tech Consultant	IBM DLF Park 1	7894369677	Arpita.majumder@ibm.com	https://www.linkedin.com/in/arpita-majumder-85612a67/
3	Mindshare (Inclusive Minds)	Pamindar Singh	Team Lead		8713901984	paminder.singh@themindshare.in	https://www.linkedin.com/in/paminder-singh-7990b8101/
4	Neoquant	Rishi Agrawal	CTO	-	7702191049	agrishi@gmail.com	https://www.linkedin.com/in/agrishi/

5	Acolyte	Saranya	Research Analyst		9944313170	saranyakathir128@gmail.com	
6	Verizon	Sudeesh Sankaravel	Fellow Data Scientist	-	9176433113	sudeesh.sankaravel@verizon.com	https://www.linkedin.com/in/sudeesh-sankaravel
7	Amazon	Asvin Ragav R	Data Associate		9994308478	asvinragav16@gmail.com	
8	Sutherland	Nausath Raja	Sr. Director-Platform Solutions Group	-	9940113955	naushathraja.mohammed@sutherlandglobal.com	https://www.linkedin.com/in/naushath-raja-mohammed-4b7080b6/
9	Forbes	Naveenkumar Janakiraman	Data Research Analyst		9976773109	naveenkumarj4997@gmail.com	https://www.linkedin.com/in/naveenkumar-janakiraman
10	Frontier	Santhosh kumar S	DevOps L1		9655747400	santhoshselvaraj24031998@gmail.com	
11	Accolite Digital	Ayushmaan Pandey	Senior Software Engineer	-	8077386365	ayushmaan.pandey@accolitedigital.com	https://www.linkedin.com/in/ayushmaanpandey
12	Impekable	sreepathi.D	Lead Market Research and Business Development		9655036999	sanjeevsree22@gmail.com	
13	Data Switch	Thilak hariharaSudhan A	Product Engineer	DataSwitch, Chennai	6393798750	thilakhariharan@gmail.com	https://www.linkedin.com/in/thilak-hariharasudhan-43a89b269/
14	Kornferry	Ragul	Data analyst	-	9659964881	ragulblooper143@gmail.com	https://www.linkedin.com/in/ragul-kumar-b2297a171/
15	RndSoft	Tamilselvan	IT Support Manager	-	9361784871	dtamilselvan1004@gmail.com	

16	Intellibren	Kailash PD	Director	Intellibren services LLP	6374700185	kailash@intellibren.com	-
17	Openweaver	Ashok Balasubramanian	Founder & CEO	-	9962548366	ashok@openweaver.com	https://www.linkedin.com/in/ashok-balasubramanian/
18	Upgrad	Samneesh Sharma	Sr Manager-project delivery		8679334000	shamneesh.sharma@upgrad.com	https://www.linkedin.com/in/shamneeshsharma1987/
19	Q Acadmey	Deepak Gour	Product and Academic Head	-	9893554394	deepak@qacademy.ca	https://ca.linkedin.com/in/deepak-gour-8853968
20	Tata consultancy services	Karthiga N	Test Analyst	-	7092257551	karthiga0115@gmail.com	
21	Wipro	Narendra Nande	Practice Director (VLSI SW and PSV Practice)	-	9900086708	narendra.nande@wipro.com	https://www.linkedin.com/in/narendra-nande-84402a2/

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 the next 3 years.

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

Qualification	Year	Total Candidates	Women	People with disability
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Version		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		
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/N8157 Collect & process data and ensure data quality standards are achieved	PC1. Determine clear criteria for data quality dimensions (accuracy, completeness, consistency, timeliness, validity, relevancy) and acceptable benchmarks, tailored to organizational needs	3	5	-	2
	PC2. Create and implement processes, automated scripts, validation rules, and controls to regularly assess data against the defined standards.	3	5	-	2
	PC3. Define data structures aligning with organizational databases, and encode rules to validate incoming data to ensure it meets quality criteria before entry.	3	5	-	2
	PC4. Transfer validated data into data warehouses or databases, ensuring seamless merging with existing datasets, and employ real-time solutions where applicable.	3	5	-	2
	PC5. Use tools to automate monitoring, generate alerts, and visualize data quality metrics in real time for quick detection and response to issues.	3	5	-	2
	PC6. Schedule and perform audits to validate data compliance, analyze discrepancies, and perform gap analysis to identify areas for improvement.	3	5	-	2
	PC7. Gather insights from audits, monitoring, and end-users to refine standards, processes, and controls continually.	3	5	-	2
	PC8. Work closely with IT, data science, and business teams to align efforts and develop training programs to foster a culture of data quality.	3	5	-	2
	PC9. Keep detailed records of data quality standards, procedures, incidents, and improvement actions for transparency and audit readiness.	3	5	-	2
	PC10. Encourage a proactive approach toward continuous improvement, leveraging new technologies, and fostering staff awareness of data quality principles.	3	5	-	2
	Total Marks	30	50	-	20
	PC1. Identify the data types for each variable of the dataset	2	3	-	1

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
SSC/N8103 Perform exploratory and Inferential analysis of the data	PC2. Identify the key variables required for modelling or analysis	2	4	-	2
	PC3. Use statistical techniques to summarize the key variables in the dataset	2	7	-	2
	PC4. Describe summary statistics for key variables using graphical formats	2	3	-	1
	PC5. Perform dimension reduction to optimize the variables in the dataset, if required	2	3	-	1
	PC6. Define the correlation factors using clustering and other techniques	3	4	-	2
	PC7. Validate data using appropriate tools and processes	3	4	-	2
	PC8. Repeat the analysis iteratively to arrive at optimal results	2	3	-	1
	PC9. Validate the final output in consultation with the relevant stakeholders	2	3	-	1
	PC10. Gain inferences from the final output of the data analysis	2	4	-	2
	PC11. Develop a hypothesis model to explain the discovered inferences	2	4	-	2
	PC12. Evaluate the results of the analysis and define business outcomes	3	4	-	2
	PC13. Define prescriptive actions based on the defined business outcomes	3	4	-	1
	Total Marks	30	50	-	20
SSC/N8104: Perform research, design & validation of algorithmic models	PC1. Identify and clearly define the analysis objectives based on business needs.	2	2	-	1
	PC2. Develop hypotheses and select appropriate libraries, frameworks, and tools to address the objectives.	2	2	-	1
	PC3. Conduct research on existing statistical and machine learning models for suitability.	2	3	-	1
	PC4. Choose the mode of learning (supervised, unsupervised, reinforcement) based on data and objectives.	2	4	-	1
	PC5. Prototype and develop the algorithmic models aligned with project requirements.	2	4	-	2
	PC6. Validate models using proper testing techniques, ensuring accuracy, robustness, and fairness.	2	4	-	2
	PC7. Optimize models through hyperparameter tuning and iterative improvements.	3	5	-	2
	PC8. Address issues like overfitting, underfitting, residual errors, and dispersion errors.	3	5	-	2
	PC9. Document model design, assumptions, and versioning for future reference.	3	5	-	2
	PC10. Set success metrics for model performance and evaluate models against these metrics.	3	5	-	2
	PC11. Establish data flows and manage data inputs needed for model training and testing.	3	6	-	2
	PC12. Implement continuous retraining where applicable to maintain model relevance	3	5	-	2
	Total Marks	30	50	-	20
SSC/N8106 Risk Analysis & Mitigation for	PC1. Define the objectives, expected outcomes, and applicable performance metrics.	3	6	-	2
	PC2. Identify data sources, assumptions, and potential biases in model design.	3	6	-	2
	PC3. Test models across different inputs/scenarios to understand variability and risks.	3	6	-	2
	PC4. Quantify potential risks such as unexpected outcomes, bias, or model failures.	3	6	-	2

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
Algorithmic Models	PC5. Develop mitigation strategies, checks, and validation processes to minimize risks.	3	6	-	2
	PC6. Document risk assessments, mitigation measures, and validation outcomes.	7	7	-	4
	PC7. Engage stakeholders to validate risk management plans.	5	7	-	4
	PC8. Implement corrective actions and iteratively improve risk controls.	3	6	-	2
	Total Marks	30	50	-	20
SSC/N8108 Define business outcomes and create visualizations from results of the analysis	PC1. Identify the objective of the analysis	4	6	-	2
	PC2. Establish the purpose, scope, and target audience to report the business outcomes	4	6	-	3
	PC3. Define the delivery mode and format such as excel sheets, reports, APIs to report the business outcomes	4	6	-	3
	PC4. Summarize the defined business outcomes into a narrative	4	7	-	3
	PC5. Select suitable visualizations to represent the defined business outcomes	4	7	-	3
	PC6. Present outcomes through selected visualizations using standard templates and agreed language standards	4	6	-	2
	PC7. Validate visualizations with appropriate people	3	6	-	2
	PC8. Publish visualizations for consumption across all agreed formats	3	6	-	2
	Total Marks	30	50	-	20
DGT/VSQ/N0102 Employability Skill (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	-	-
	PC11. Customer Service	1	2	-	-
	PC12. Getting Ready for Apprenticeship & Jobs	2	3	-	-
	Total Marks	20	30	-	-
Grand Total		170	280	-	100

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 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.