

QUALIFICATION FILE

AI Machine Learning 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: 5

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	AI Machine Learning Analyst	
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-01532-2023-V1.1-NASSCOM & Version 3	Qualification Name of the existing/previous version: AI- Machine Learning Analyst
4.	a. OEM Name b. Qualification Name (Wherever applicable)	AI- Machine Learning Analyst	
5.	National Qualification Register (NQR) Code &Version (Will be issued after NSQC approval)	QG-05-IT-045832025-V2-NASSCOM & Version 4	6. NCrF/NSQF Level: 5
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 Machine Learning Analyst is crucial in designing, developing, deploying, and maintaining machine learning models that transform data into actionable insights for addressing business challenges. This professional combines expertise in software engineering, data analysis, and machine learning principles to create systems capable of learning from data and making predictions. Key responsibilities include preparing and processing data to ensure high quality, selecting and creating features, exploring various algorithms for specific tasks, and implementing neural networks using appropriate frameworks. Model training and evaluation are crucial, utilizing hyperparameter tuning and metrics such as accuracy and F1 score to ensure performance. After deployment, the engineer establishes monitoring systems to track performance, data quality, and utilization, identifying signals for model retraining and implementing automated pipelines. Additionally, they ensure efficient deployment through best practices and containerization while creating API endpoints for seamless model interaction. Effective documentation of the development process and stakeholder collaboration are also essential, ensuring that machine learning solutions align with business objectives. Ultimately, a Machine Learning Engineer is vital in harnessing data-driven insights and driving innovation through advanced machine learning technologies.	

9.	Eligibility Criteria for Entry for a Student/Trainee/Learner/Employee	a. Entry Qualification & Relevant Experience: ** Relevant Experience- AI/Computer Science/IT. The relevant experience would include work, internship and apprenticeship undertaken post-completion of relevant educational qualification. *PG/UG/diploma with courses related to Engg./ Science <table border="1" data-bbox="1003 384 2107 603"> <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 UG Diploma*</td> <td>-</td> </tr> <tr> <td>2</td> <td>Completed 3-Year Diploma* after 10th</td> <td>1.5 Year of relevant experience**</td> </tr> <tr> <td>3</td> <td>Previous Relevant qualification of NSQF level 4.5</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 UG Diploma*	-	2	Completed 3-Year Diploma* after 10th	1.5 Year of relevant experience**	3	Previous Relevant qualification of NSQF level 4.5	1.5 years of relevant experience**						
S. No.	Academic/Skill Qualification (with Specialization - if applicable)	Required Experience (with Specialization - if applicable)																						
1	Completed UG Diploma*	-																						
2	Completed 3-Year Diploma* after 10th	1.5 Year of relevant experience**																						
3	Previous Relevant qualification of NSQF level 4.5	1.5 years of relevant experience**																						
10.	Credits Assigned to this Qualification, Subject to Assessment (as per National Credit Framework (NCrF))	16 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" data-bbox="1003 900 2094 1070"> <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>162</td> <td>228</td> <td>90</td> <td>-</td> <td>480</td> </tr> <tr> <td>Online</td> <td>162</td> <td>228</td> <td>90</td> <td>-</td> <td>480</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)	162	228	90	-	480	Online	162	228	90	-	480
Training Delivery Mode	Theory (Hours)	Practical (Hours)	OJT (Mandatory) Hours	OJT (Recommended) Hours	Total (Hours)																			
Classroom (offline)	162	228	90	-	480																			
Online	162	228	90	-	480																			
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 – Data Architect, AI-Solution Architect, Product Manager	
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 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 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/NS QF 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.	Handle and preprocess data	SSC/N8161, V1	Core	5	5	60:00	60:00	30:00	00:00	150:00	30	50	-	20	100	30
2.	Develop & deploy the machine learning models	SSC/N8121, V3	Core	5	5	48:00	72:00	30:00	00:00	150:00	30	50	-	20	100	30
3.	Monitor and maintain machine learning models post-deployment	SSC/N8122, V3	Core	5	4	30:00	60:00	30:00	00:00	120:00	30	50	-	20	100	30
4.	Employability skill (60 Hours)	DGT/VSQ/N01 02, V1	Non-Core	4	2	24:00	36:00	00:00	00:00	60:00	20	30	-	-	50	10
Duration (in Hours) / Total Marks					16	162:00	228:00	90:00	00:00	480:00	110	180	-	60	350	100

Elective 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																

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)
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		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 (Specify the assessment mode)	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 (details to be provided in Annexure-if it is different for Assessment)

Section 5: Evidence of the Need for the Qualification

Provide Annexure/Supporting documents name.

1.	Latest Skill Gap study (not older than 2 years) (Yes/No): Yes
2.	Latest Market Research Reports or any other source (not older than 2 years) (Yes/No): Yes
3.	Government/Industry initiatives/requirement (Yes/No): Industry Initiative
4.	Number of industry validations provided: 21
5.	Estimated number of people to be trained and employed:
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
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>	Acronym and Glossary
8.	Supporting Document: Model Curriculum <i>(Mandatory-Public View)</i>	MC_SSCQ8113_AI Machine Learning Analyst_V4
9.	Supporting Document: Career Progression <i>(Mandatory-Public View)</i>	AI BDA Occupational Map
10.	Supporting Document: Occupational Map <i>(Mandatory)</i>	AI BDA Occupational Map
11.	Supporting Document: Assessment SOP <i>(Mandatory)</i>	-
12.	Any Other document you wish to submit:	

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	Define technical specifications and limitations of the autonomous system	The individual in this role must work in a constantly changing environment where he/she needs to develop software code while actively engage with	5

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
	• Evaluate the design of data flows and core algorithmic models in the autonomous system • Evaluate the parallel programming constraints of the autonomous system • Create documentation on developed software code for relevant stakeholders • Validate developed code with relevant stakeholders • Evaluate the defects in the code and identify corrective actions • Implement corrective actions to optimize code performance • Submit tested and optimized code for approval by appropriate people • Modify and test the algorithmic model to fit speed, runtime and memory limitations of the system • Update documentation on the algorithmic model • Provide feedback on model performance to the team responsible for designing and developing the model	other stakeholders within the company such as Data Scientists, Test Analysts and Data Architects. To perform his/her role and to collaborate with other stakeholders effectively, the individual requires a vast understanding of the processes used to build software. The individual needs to combine a knowledge of the processes along with a solid understanding of their contexts.	
Professional and Technical Skills/ Expertise/ Professional Knowledge	• Different data flows and structures • Different algorithmic models and their design	The individual in the role must have a vast amount of knowledge across the different aspects of software development. Some of these include	5

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
	• Different parallel computing systems such as SISD (Single Instruction Single Data Stream), SIMD (Single Instruction Multiple Data Streams), MISD (Multiple Instructions Single Data Stream), MIMD (Multiple Instructions Multiple Data Streams) • How to work on various operating systems such as linux, ubuntu, or windows • Organizational policies and procedures for documenting algorithmic models • Organizational policies, procedures and guidelines for evaluating the technical performance of algorithmic models	algorithmic models, parallel computing systems, operating systems, and software testing. This knowledge across various disciplines must be accompanied with an in-depth understanding of each discipline to perform this role effectively.	
Broad Learning Outcomes/Core Skill	• Develop software code using a range of code generations tools and unit testing tools • Create, review and execute unit test cases • Optimize software code performance and improve future designs by using corrective actions • Identify and interpret the technical specifications and limitations of a system • Evaluate the speed, runtime and memory dependencies of algorithmic models	The individual must apply his/her software development skills along with a sound understand larger business, technological and regulatory trends. This would enable him/her to build code effectively in line with industry best practices.	5
Employment Readiness & Entrepreneurship Skills & Mind-set/Professional Skill	• Identify and interpret the technical specifications and limitations of an autonomous system	• Identify and interpret the technical specifications and limitations of an autonomous system	5

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
	• Measure algorithmic model performance using different methodological approaches • Integrate technical specifications, data flows, core algorithmic models and parallel programming constraints and convert them into reusable code • Define technical specifications and limitations of the system running the algorithmic model • Define the data flows and evaluate the data structures in the algorithmic model • Evaluate the parallel programming constraints of the system	• Measure algorithmic model performance using different methodological approaches • Integrate technical specifications, data flows, core algorithmic models and parallel programming constraints and convert them into reusable code • Define technical specifications and limitations of the system running the algorithmic model • Define the data flows and evaluate the data structures in the algorithmic model • Evaluate the parallel programming constraints of the system	
Responsibility	• Listen effectively and orally communicate information accurately with attention to details • Check your work is complete and free from errors • Make decisions on suitable courses of action • Apply balanced judgements to different situations • Ask for clarification and advice from appropriate people • Build and maintain positive and effective relationships with clients • Check that your own and/or your peers' work meets customer requirements	The role demands working in a team to deploy algorithmic models. 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.	5

NCrF/NSQF Level Descriptors	Key requirements of the job role/ outcome of the qualification	How the job role/ outcomes relate to the NCrF/NSQF level descriptor	NCrF/NSQF Level
	- Plan and organize your own work to achieve targets and deadlines - Work with colleagues to deliver shared goals		

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	-	
2	Scripting language	Python etc.	
3	Collaboration & Version control tools	GitLab etc.	
4	Tools for Creating flow charts	Lucid Chart etc.	
5	Visualisations tools	Power BI etc.	
6	Tools for data cleaning, transformation, and exploration	Openrefine etc.	
7	Tools for data integration & scalability	Apache Kafka	
8	Tools for data integration, data cleaning, Automation, scheduling, collaboration	Talend	
9	Data Sources	Databases like MySQL, Postman API, Web Scraping	
10	Tools for workflow orchestration, data pipeline management, and monitoring	Apache airflow	
11	Tools for for big data processing, integration with technologies	Apache spark	

12	ML Flow for ML Lifecycle	-	
13	Flask framework for creating Restful API	-	
14	Docker (for containerisation of applications)	-	
15	Jenkins (for automation server)	-	
16	Prometheus (for tracking performance metrics and resource utilisation)	-	

*tools are open source

Classroom Aids

The aids required to conduct sessions in the classroom are:

1. Whiteboard and Markers
2. Chart paper and sketch pens
3. Projector and Laptop for presentations
4. Internet connection

Annexure: Industry Validations Summary

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

S. No	Organisation Name	Representative Name	Designation	Contact Address	Contact Phone No	E-mail ID	LinkedIn Profile
1	Infosys	Vivek Pilaniya	Program Manager	Infosys, delhi	9718423 687	vivek.pilania@infosys.com	https://www.linkedin.com/in/vivek-pilania-iimc
2	IBM	Arpita Majumder	Tech Consultant	IBM DLF Park 1	7894369 677	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	Freelance SME (Ex-3i Infotech)	Rishi Agrawal	Ex-SVP and Global Delivery Head – Automations, Applications and Analytics	-	7702191049	agrishi@gmail.com	https://www.linkedin.com/in/agris hi/
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 Advisor	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	Navitas life sciences Chennai	Gowtham K V	Junior Research associate	-	9994594693	gg17165322@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	-	9893554 394	deepak@qacademy.ca	https://ca.linkedin.com/in/deepak-gour-8853968
20	Tata consultancy services	Karthiga N	Test Analyst	-	7092257 551	karthiga0115@gmail.com	
21	Wipro	Narendra Nande	Practice Director (VLSI SW and PSV Practice)	-	9900086 708	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 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	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/ Candidate 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
SSC/N8161: Handle and preprocess the data	PC1. Collaborate with stakeholders to define the business problem and objectives.	3	5	-	2
	PC2. Understand the importance of data quality and integrity	3	5	-	2
	PC3. Demonstrate methods to collect data from various sources.	3	5	-	2
	PC4. Gather data from various sources relevant to the business problem and merge it into single coherent dataset	3	5	-	2
	PC5. Conduct exploratory data analysis (EDA) to understand the data structure and statistical properties.	3	5	-	2

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC6. Identify and rectify errors in the data such as missing values and duplicates	3	5	-	2
	PC7. Select a representative subset of data for analysis or training models	3	5	-	2
	PC8. Understand how to develop efficient and reproducible data pipelines.	3	5	-	2
	PC9. Maintain and track the evolution of datasets	3	5	-	2
	PC10. Document the data handling processes and decisions made during preprocessing.	3	5	-	2
	Total Marks	30	50	-	20
SSC/N8121: Develop & deploy the machine learning Models	PC1. Ensure data is properly prepared by cleaning and transforming raw data to make it suitable for training and validation.	3	5	-	2
	PC2. Select or create features that enhance model performance based on the data and the specific problem context.	3	5	-	2
	PC3. Explore various machine learning algorithms including supervised unsupervised and reinforcement learning to determine the best fit for the task.	3	5	-	2
	PC4. Design the model architecture especially for deep learning models by defining layers nodes and activation functions and develop or customize algorithms if needed.	3	5	-	2
	PC5. Build and train the models using training data and optimize parameters through techniques like grid search or random search to improve accuracy and generalization.	3	5	-	2
	PC6. Evaluate the effectiveness of the models using metrics such as accuracy precision recall ROC AUC and confusion matrix to assess performance thoroughly.	3	5	-	2
	PC7. Apply techniques such as K fold cross validation and regularization to ensure the robustness of the models and prevent overfitting.	3	5	-	2
	PC8. Improve the models iteratively based on evaluation results and consider combining multiple models through methods like bagging or boosting to enhance performance.	3	5	-	2
	PC9. Transition the trained models into production by building APIs or integrating them into existing applications to ensure seamless deployment.	3	5	-	2
	PC10. Implement continuous integration and continuous deployment practices to automate model deployment and updates and enable other applications to interact with the models for real-time predictions.	3	5	-	2
	Total Marks	30	50	-	20
SSC/N8122: Monitor and maintain machine learning models post-deployment	PC1. Implement systems to continuously monitor the performance of deployed machine learning models.	3	5	-	2
	PC2. Use monitoring tools to collect and visualize key performance metrics such as accuracy and latency.	3	5	-	2
	PC3. Define relevant key performance indicators and set up alerts for issues like performance drops or increased prediction latency.	3	5	-	2

NOS/Module Name	Assessment Criteria for Performance Criteria/Learning Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
	PC4. Log prediction inputs outputs and metadata to facilitate troubleshooting and diagnostics.	3	5	-	2
	PC5. Monitor for changes in data distribution over time using statistical tests and evaluate their impact on model performance.	3	5	-	2
	PC6. Regularly assess the model's predictive accuracy and other metrics to ensure it maintains expected performance levels.	3	5	-	2
	PC7. Create feedback channels to gather qualitative insights from users and compare predictions against actual outcomes for accuracy.	3	5	-	2
	PC8. Analyze errors such as false positives and false negatives to identify limitations and areas for improvement.	3	5	-	2
	PC9. Automate data collection preprocessing and retraining pipelines to keep the model current and prevent performance decay.	3	5	-	2
	PC10. Track changes using tools like Git and DVC and establish procedures for rolling back to previous versions if necessary.	3	5	-	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		110	180	-	60

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.