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Model Curriculum

QP Name: AI – Machine Learning Engineer

QP Code: SSC/Q8113

QP Version: 3.0

NSQF Level: 5

Model Curriculum Version: 3.0

IT-ITeS Sector Skill Council || IT-ITeS Sector Skill Council, NASSCOM, Plot No - 7, 8, 9 & 10, 3rd Floor, Sector 126, Noida
Uttar Pradesh – 201303

Contents

Training Parameters

Sector	IT-ITeS
Sub-Sector	Future Skills
Occupation	Artificial Intelligence & Big Data Analytics
Country	India
NSQF Level	5
Aligned to NCO/ISCO/ISIC Code	NCO-2015/NIL
Minimum Educational Qualification and Experience	* Relevant Field- AI/Computer Science/IT The relevant experience would include work, internship and apprenticeship undertaken post-completion of relevant educational qualification. ** UG or diploma with courses related to Engg./ Science Completed 2nd year of 3-year/ 4-year UG** OR Completed 3-Year Diploma** after 10th with 1 year of relevant experience* OR Previous Relevant qualification of NSQF level 4 with 3 years of relevant experience*
Pre-Requisite License or Training	NA
Minimum Job Entry Age	18 years (not mandatory)
Last Reviewed On	22/09/2020
Next Review Date	22/09/2025
NSQC Approval Date	22/09/2020
QP Version	3.0
Model Curriculum Creation Date	22/09/2020
Model Curriculum Valid Up to Date	22/09/2025

Model Curriculum Version	3.0
Minimum Duration of the Course	480 hours
Maximum Duration of the Course	480 hours

Program Overview

This section summarizes the end objectives of the program along with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Describe the use cases of AI & Big Data Analytics in various industries and define the various roles under this occupation
- Describe product engineering concepts such as translating requirements into products and ensuring their timely delivery.
- Define basic statistical concepts used for analysis such as measures of central tendency like mean, median, or mode, or statistical anomalies like missing values, bias, or outliers.
- Use development tools, frameworks, platforms, libraries and packages to develop software code.
- Evaluate the running time and memory consumption of the model and modify it to suit the speed and memory constraints of the system.
- Develop software code that can support the deployment of algorithmic models based on the requirements and constraints of the system.
- Plan project schedules and timelines based on the nature of work.
- Demonstrate effective communication and collaboration with colleagues.
- Apply measures to maintain standards of health and safety at the workplace.
- Use different approaches to effectively manage and share data and information
- Develop strong relationships at the workplace through effective communication and conflict management.
- Identify best practices to maintain an inclusive, environmentally sustainable workplace

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration (In Hours)	Practical Duration (In Hours)	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration (In Hours)
Module 1 (Bridge Module): Artificial Intelligence & Big Data Analytics – An Introduction	04:00	08:00	00:00	00:00	12:00
Module 2 (Bridge Module): Product Engineering Basics	08:00	18:00	00:00	00:00	26:00
Module 3 (Bridge Module): Basic Statistical Concepts	08:00	16:00	00:00	00:00	24:00
Module 4 (Bridge Module): Development Tools and Usage	10:00	18:00	00:00	00:00	28:00
SSC/N8121 – Evaluate technical performance of algorithmic models NOS Version No. 2 NSQF Level 5	**40:00**	**50:00**	**0:00**	**0:00**	**90:00**
Module 5: Performance Evaluation of Algorithmic Models	40:00	50:00	00:00	00:00	90:00

SSC/N8122 – Develop software code to support deployment of algorithmic models **NOS Version No. 2** **NSQF Level 5**	**40:00**	**80:00**	**0:00**	**0:00**	**120:00**
Module 6: Code Development	40:00	80:00	00:00	00:00	120:00
SSC/N9014 – Maintain an inclusive, environmentally sustainable workplace NOS Version No. 1 **NSQF Level 5**	**10:00**	**20:00**	**0:00**	**0:00**	**30:00**
Module 12: Inclusive and environmentally sustainable workplaces	10:00	20:00	00:00	00:00	30:00
DGT/VSQ/N0102 **Employability Skill 60 Hours** **NOS Version No.1** **NSQF Level 4**	**24:00**	**36:00**	**00:00**	**00:00**	**60:00**
Module 6: Introduction to Employability Skills	00:30	01:00	00:00	00:00	01.50
Module 7: Constitutional values – Citizenship	00:30	01:00	00:00	00:00	01.50
Module 8: Becoming a Professional in the 21st Century	01:00	01:30	00:00	00:00	02.50
Module 9: Basic English Skills	04:00	06:00	00:00	00:00	10.00
Module 10: Career Development & Goal Setting	01:00	01:00	00:00	00:00	02.00
Module 11: Communication Skills	02:00	03:00	00:00	00:00	05.00
Module 12: Diversity & Inclusion	01:00	01:30	00:00	00:00	02.50
Module 13: Financial and Legal Literacy	02:00	03:00	00:00	00:00	05.00
Module 14: Essential Digital Skills	04:00	06:00	00:00	00:00	10.00
Module 15: Entrepreneurship	03:00	04:00	00:00	00:00	07.00
Module 16: Customer Service	02:00	03:00	00:00	00:00	05.00
Module 17: Getting ready for apprenticeship & Jobs	03:00	05:00	00:00	00:00	08.00
OJT	**00:00**	**00:00**	**90:00**	**00:00**	**90:00**
Total Duration	**144:00**	**246:00**	**90:00**	**00:00**	**480:00**

Module Details

Module 1: Artificial Intelligence & Big Data Analytics – An Introduction
Bridge Module

Terminal Outcomes:

- Explain a general overview of AI & Big Data Analytics and the various roles under this occupation

Duration (In Hours): *04:00*	Duration (In Hours): *08:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Explain the relevance of AI & Big Data Analytics for the society - Explain the various use-cases of AI & Big Data in the industry - Define "general" and "narrow" AI - Describe the fields of AI such as image processing, computer vision, robotics, NLP, etc.	- Outline a career map for roles in AI & Big Data Analytics - Analyse the differences between key terms such as Supervised Learning, Unsupervised Learning and Deep Learning
Classroom Aids:	
- Whiteboard and Markers - LCD Projector and Laptop for presentations - Chart paper and sketch pens	
Tools, Equipment and Other Requirements	
Labs equipped with the following: - Labs equipped with the following: - PCs/Laptops - Internet with Wi-Fi (Min 2 Mbps Dedicated)	

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Module 2: Product Engineering Basics
Bridge Module

Terminal Outcomes:

- Develop product development roadmaps
- Demonstrate product optimization using cost models and revenue forecasts

Duration (In Hours): 08:00	Duration (In Hours): 18:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Categorize the activities performed in various stages of product development - Discuss product management processes such as ideation, market research, wireframing, prototyping and user stories - Discuss ways to explore new product ideas and manage new products - Evaluate product risks and define responses to those risks	- Demonstrate the budgeting and scheduling of products - Apply product cost models and forecasts to optimize sample readily available products
Classroom Aids:	
- Whiteboard and Markers - Chart paper and sketch pens - LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements	
Labs equipped with the following: - PCs/Laptops - Internet with Wi-Fi (Min 2 Mbps Dedicated) Tools and Programming Languages: - Data management tools such as MS-Excel	

Module 3: Basic Statistical Concepts
Bridge Module

Terminal Outcomes:

- Distinguish between various basic statistical concepts
- Apply different statistical techniques

Duration (In Hours): *8:00*	Duration (In Hours): *16:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Distinguish between different probability distributions such as Normal, Poisson, Exponential, Bernoulli, etc. - Identify correlation between variables using scatterplots and other graphical techniques	- Apply basics of descriptive statistics including measures of central tendency such as mean, median and mode - Apply different correlation techniques such as Pearson's Correlation Coefficient, Methods of Least Squares etc. - Apply different techniques for regression analysis including linear, logistic, ridge, lasso, etc. - Use hypothesis testing to draw inferences and measure statistical significance
Classroom Aids:	
- Whiteboard and Markers - Chart paper and sketch pens - LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements	
Labs equipped with the following: - PCs/Laptops - Internet with Wi-Fi (Min 2 Mbps Dedicated) Tools and Programming Languages: - IDEs such as RStudio, Jupyter Notebooks, etc. - Software libraries such as NumPy and Pandas, etc. - Statistical software tool such as IBM SPSS Statistics, SataCorp Stata, Mathworks	

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Module 4: Development Tools and Usage
Bridge Module

Terminal Outcomes:

- Discuss the fundamentals of good code design and quality
- Use appropriate tools and scripting languages to automate, configure and test software programs

Duration (In Hours): 10:00	Duration (In Hours): 18:00
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Develop good programming style and documentation habits - Identify software development needs and changes - Explain the fundamentals of various computing platforms such as mobile platform, client/server platform (web servers), and OS (windows, unix, etc.) - Explain the basics of relevant software packages or IDEs such as Jupyter Notebooks - Discuss basic commands, editor, shell, file system, filters in appropriate software packages/ IDEs	- Use relevant IDEs or software packages to write simple programs - Use appropriate tools for building, debugging, testing, tuning, and maintaining programs - Use scripting languages such as Perl, Javascript, Python, etc. to automate tasks - Demonstrate methods for various operating system configurations
Classroom Aids:	
- Whiteboard and Markers - LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements	
Labs equipped with the following: - PCs/Laptops - Chart paper and sketch pens - Internet with Wi-Fi (Min 2 Mbps Dedicated) Tools and Programming Languages: - IDEs for programming languages for machine learning (e.g., C++, Python, R, C#, Java) such as Jupyter Notebook, RStudio, Apache Maven, etc.	

Module 5: Performance Evaluation of Algorithmic Models
Mapped to SSC/N8121 (Version No. 2)

Terminal Outcomes:

- Define technical parameters for the algorithmic models
- Perform efficiency measurement of deployed algorithmic models using chosen parameters

Duration (In Hours): *40:00*	**Duration (In Hours)**: *50:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Differentiate between supervised and unsupervised learning algorithms - Identify technical parameters for an algorithmic model given a set of specified requirements - Evaluate various data and computational structures that can be used to develop an algorithmic model - Assess various system limitations (such as runtime, memory and parallel programming constraints) while running an algorithmic model - Evaluate the speed and memory interdependencies of a system and an algorithmic model - Distinguish between naïve and efficient algorithms	- Develop data flow diagrams for proposed algorithmic models - Use Big O notation and asymptotic notation to evaluate the runtime and memory requirements of the model - Demonstrate the testing and debugging of sample algorithmic models - Analyze performance indicators (such as runtime, memory usage, model efficiency, etc.) of sample algorithmic models - Develop documentation to record the results of model performance analysis
Classroom Aids:	
- Whiteboard and Markers - Chart paper and sketch pens - LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements	
Labs equipped with the following: - PCs/Laptops - Internet with Wi-Fi (Min 2 Mbps Dedicated) Tools and Programming Languages: - IDEs for programming languages for machine learning (e.g., C++, Python, R, C#, Java) such as Jupyter Notebook, RStudio, Apache Maven, etc. - Machine learning and Analytics software/frameworks such as Spark, KNIME, etc. - Machine learning and Neural Network frameworks and libraries such as PyTorch, Caffe, TensorFlow, Keras, etc.	

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Module 6: Code Development
Mapped to SSC/N8122 (Version No. 2)

Terminal Outcomes:

- Evaluate various types of business and technical requirements for code developments
- Develop software code using appropriate tools

Duration (In Hours): *40:00*	Duration (In Hours): *80:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Evaluate designs of core algorithmic models in sample autonomous systems - Evaluate data flow diagrams of sample algorithmic models - Evaluate the various available resources to productionise algorithmic models - Assess parallel programming requirements (such as MISD, MIMD, etc.) for sample algorithmic models - Discuss the principles of code and design quality - Discuss technical requirements such as scalability, reliability and security - Discuss the process of converting technical specifications into software code - Discuss the importance of designing testable, version controlled and reproducible software code - Evaluate best practices around deploying Machine Learning models and monitoring model performance	- Develop software code to support the deployment of sample algorithmic models - Develop continuous and automated integrations to deploy algorithmic models - Use appropriate tools / software packages while integrating data flows, data structures and core algorithmic models - Develop different types of test cases for the code - Demonstrate unit test case execution to analyse code performance - Develop automated test cases using test automation tools such as Selenium - Document test case results - Perform optimization of sample software code based on test results

Classroom Aids:

- Whiteboard and Markers
- Chart paper and sketch pens
- LCD Projector and Laptop for presentations

Tools, Equipment and Other Requirements

Labs equipped with the following:
- PCs/Laptops
- Internet with Wi-Fi (Min 2 Mbps Dedicated)

Tools and Programming Languages:
- IDEs for programming languages for machine learning (e.g., C++, Python, R, C#, Java) such as Jupyter Notebook, RStudio, Apache Maven, etc.
- Machine learning and Analytics software/frameworks such as Spark, KNIME, etc.

- Machine learning and Neural Network frameworks and libraries such as PyTorch, Caffe, TensorFlow, Keras, etc.
- Test Automation Software such as Selenium

Module 7: Inclusive and environmentally sustainable workplaces
Mapped to SSC/N9014 (Version No. 1)

Terminal Outcomes:

- Illustrate sustainable practices at workplace for energy efficiency and waste management
- Apply different approaches to maintain gender equality and increase inclusiveness for PwD

Duration (In Hours): *10:00*	Duration (In Hours): *20:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
- Describe different approaches for efficient energy resource utilisation and waste management - Describe the importance of following the diversity policies - Identify stereotypes and prejudices associated with people with disabilities and the negative consequences of prejudice and stereotypes - Discuss the importance of promoting, sharing and implementing gender equality and PwD sensitivity guidelines at organization level	- Practice the segregation of recyclable, non-recyclable and hazardous waste generated - Demonstrate different methods of energy resource use optimization and conservation - Demonstrate essential communication methods in line with gender inclusiveness and PwD sensitivity
Classroom Aids:	
- Whiteboard and Markers - Chart paper and sketch pens - LCD Projector and Laptop for presentations	
Tools, Equipment and Other Requirements	
Labs equipped with the following: - PCs/Laptops - Internet with Wi-Fi (Min 2 Mbps Dedicated)	

Module 8: Introduction to Employability Skills
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Discuss the Employability Skills required for jobs in various industries
- List different learning and employability related GOI and private portals and their usage

Duration:1.5 Hours (0.5 Theory + 1 Practical)

Module 9: Constitutional values - Citizenship
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Explain the constitutional values, including civic rights and duties, citizenship, responsibility towards society and personal values and ethics such as honesty, integrity, caring and respecting others that are required to become a responsible citizen
- Show how to practice different environmentally sustainable practices

Duration:1.5 Hours (0.5 Theory + 1 Practical)

Module 10: Becoming a Professional in the 21st Century
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Discuss importance of relevant 21st century skills.
- Exhibit 21st century skills like Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn etc. in personal or professional life.
- Describe the benefits of continuous learning

Duration:2.5 Hours (1 Theory + 1.5 Practical)

Module 11: Basic English Skills
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Show how to use basic English sentences for everyday conversation in different contexts, in person and over the telephone
- Read and interpret text written in basic English
- Write a short note/paragraph / letter/e -mail using basic English

Duration: 10 Hours (4 Theory + 6 Practical)

Module 12: Career Development and Goal Setting
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Create a career development plan with well-defined short- and long-term goals

Duration: 2 Hours (1 Theory + 1 Practical)

Module 13: Communication skills
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Demonstrate how to communicate effectively using verbal and nonverbal communication etiquette.
- Explain the importance of active listening for effective communication
- Discuss the significance of working collaboratively with others in a team

Duration: 5 Hours (2 Theory + 3 Practical)

Module 14: Diversity and Inclusion
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Demonstrate how to behave, communicate, and conduct oneself appropriately with all genders and PwD
- Discuss the significance of escalating sexual harassment issues as per POSH

Duration: 2.5 Hours (1 Theory+ 1.5 Practical)

Module 15: Financial and Digital Literacy
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Outline the importance of selecting the right financial institution, product, and service
- Demonstrate how to carry out offline and online financial transactions, safely and securely

Duration: 5 Hours (2 Theory+ 3 Practical)

Module 16: Essential Digital Skills
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Describe the role of digital technology in today's life
- Demonstrate how to operate digital devices and use the associated applications and features, safely and securely
- Discuss the significance of displaying responsible online behaviour while browsing, using various social media platforms, e-mails, etc., safely and securely
- Create sample word documents, excel sheets and presentations using basic features

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- utilize virtual collaboration tools to work effectively

Duration: 10 Hours (4 Theory+ 6 Practical)

Module 17: Entrepreneurship
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Explain the types of entrepreneurship and enterprises
- Discuss how to identify opportunities for potential business, sources of funding and associated financial and legal risks with its mitigation plan
- Describe the 4Ps of Marketing-Product, Price, Place and Promotion and apply them as per requirement
- Create a sample business plan, for the selected business opportunity

Duration: 7 Hours (3 Theory+ 4 Practical)

Module 18: Customer Service
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Describe the significance of analysing different types and needs of customers
- Explain the significance of identifying customer needs and responding to them in a professional manner.
- Discuss the significance of maintaining hygiene and dressing appropriately

Duration: 5 Hours (2 Theory+ 3 Practical)

Module 19: Getting Ready for Apprenticeship and Jobs
Mapped to NOS DGT/VSQ/N0102 (Version No. 1)

Key Learning Outcomes:

- Create a professional Curriculum Vitae (CV)
- Use various offline and online job search sources such as employment exchanges, recruitment agencies, and job portals respectively
- Discuss the significance of maintaining hygiene and confidence during an interview
- Perform a mock interview
- List the steps for searching and registering for apprenticeship opportunities

Duration: 8 Hours (3 Theory+ 5 Practical)

Annexure

Trainer Requirements

1.	**Trainer's Qualification and experience in the relevant sector (in years)** *(as per NCVET guidelines)*	**Educational Qualification:** Graduate in any discipline, preferably Science/Computer Science/Electronics and Engineering /Information Technology **Industry Experience:** Minimum 2 years of relevant experience in data analysis, data science, big data, or AI **Training Experience:** Minimum 1 year of full-time training experience in data analysis, data science, big data, or AI **Certification:** "Trainer" mapped to the Qualification Pack "MEP/Q2601, V2.0" 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 in any discipline, preferably Science/Computer Science/Electronics and Engineering /Information Technology **Industry Experience:** Minimum 2 years of relevant experience in data analysis, data science, big data, or AI **Training Experience:** Minimum 1 year of full-time training experience in data analysis, data science, big data, or AI **Certification:** " Trainer" mapped to the Qualification Pack "MEP/Q2602, V2.0" 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

Assessor Requirements

1.	Assessor's Qualification and experience in relevant sector (in years) *(as per NCVET guidelines)*	**Educational Qualification:** Graduate in any discipline, preferably Science/Computer Science/Electronics and Engineering /Information Technology **Industry Experience:** Minimum 2 years of relevant experience in data analysis, data science, big data, or AI **Training Experience:** Minimum 1 year of full-time training experience in data analysis, data science, big data, or AI **Certification:** "Assessor" mapped to the Qualification Pack "MEP/Q2701, V2.0" 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 in any discipline, preferably Science/Computer Science/Electronics and Engineering /Information Technology **Industry Experience:** Minimum 2 years of relevant experience in data analysis, data science, big data, or AI **Training Experience:** Minimum 1 year of full-time training experience in data analysis, data science, big data, or AI **Certification:** "Assessor" mapped to the Qualification Pack "MEP/Q2702, V2.0" 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 in any discipline, preferably Science/Computer Science/Electronics and Engineering /Information Technology **Industry Experience:** Minimum 2 years of relevant experience in data analysis, data science, big data, or AI **Training Experience:** Minimum 1 year of full-time training experience in data analysis, data science, big data, or AI **Certification:** "Assessor" mapped to the Qualification Pack "MEP/Q2702, V2.0" Minimum accepted score is 90% aggregate
4.	Assessment Mode *(Specify the assessment mode)*	Either Online or in Classroom
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)*

Assessment Strategy

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

Assessment System Overview

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

Assessment Criteria

Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down the proportion of marks for Theory and Skills Practical for each PC.

The assessment for the theory part will be based on a knowledge bank of questions created by the SSC. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.

Guidelines for Assessment			
Testing Environment	**Tasks and Functions**	**Productivity**	**Teamwork**
• Carry out assessments under realistic work pressures that are found in the normal industry workplace (or simulated workplace). • Ensure that the range of materials, equipment and tools that learners use are current and of the type routinely found in the normal industry workplace (or simulated workplace) environments.	• Assess that all tasks and functions are completed in a way, and to a timescale, that is acceptable in the normal industry workplace. • Assign workplace (or simulated workplace) responsibilities that enable learners to meet the requirements of the NOS.	• Productivity levels must be checked to ensure that it reflects those that are found in the work situation being replicated.	• Provide situations that allow learners to interact with the range of personnel and contractors found in the normal industry workplace (or simulated workplace).

Assessment Quality Assurance framework

NASSCOM provides two assessment frameworks NAC and NAC-Tech.

NAC (NASSCOM Assessment of Competence)

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

NAC-Tech

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

Methods of Validation

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

Method of assessment documentation and access

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

Recommended Supplemental Readings

The learning modules covered in the Model Curriculum for AI-Machine Learning Engineer are designed to meet the expected outcomes as per the QP. While the modules aligned to NOS are focused on technical/ behavioral competencies, bridge modules cover the prerequisite/ preparatory topics that are indispensable to complete the course. However, to provide additional QP specific knowledge to the learners, the following supplemental readings on related topics are recommended. These readings will equip the learners with an understanding of advanced or ancillary concepts to take up more complex tasks as listed in the QP.

QP	Recommended Supplemental Reading
SSC/Q8113: AI- Machine Learning Engineer	1) Predictive Modelling and Analytics 2) Machine Learning Algorithms and Modelling 3) Applied AI 4) Deep Learning

References

Glossary

Term	Description
Key Learning Outcome	Key learning outcome is the statement of what a learner needs to know, understand and be able to do in order to achieve the terminal outcomes. A set of key learning outcomes will make up the training outcomes. Training outcome is specified in terms of knowledge, understanding (theory) and skills (practical application).
Training Outcome	Training outcome is a statement of what a learner will know, understand and be able to do **upon the completion of the training**.
Terminal Outcome	Terminal outcome is a statement of what a learner will know, understand and be able to do **upon the completion of a module.** A set of terminal outcomes help to achieve the training outcome.
National Occupational Standard	National Occupational Standard specify the standard of performance an individual must achieve when carrying out a function in the workplace
Persons With Disability	Persons with Disability are those who have long-term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.
Integrated Development Environment	An integrated development environment is a software application that provides comprehensive facilities to computer programmers for software development.
Natural Language Processing	Natural Language Processing or NLP is a field of Artificial Intelligence that gives the machines the ability to read, understand and derive meaning from human languages.

Acronyms and Abbreviations

Term	Description
QP	Qualification Pack
NSQF	National Skills Qualification Framework
NSQC	National Skills Qualification Committee
NOS	National Occupational Standards
SSC	Skill Sectors Councils
NASSCOM	National Association of Software & Service Companies
PwD	Persons with Disability
IDE	Integrated development environment
NLP	Natural Language Processing