Model Curriculum

QP Name: Database Administrator
(Electives: Database Administration/Clusters Administration)

QP Code: SSC/Q8109

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

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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-2015/2522.0100**
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** **Completed 2nd year of UG (UG Diploma) (UG Program of 3 or 4 years) (Engineering/ Science)** **OR** **Completed 2nd year of diploma (after 12th)** **OR** **Previous relevant Qualification of NSQF Level 4 with 3 Years of relevant experience** in relevant field***
Pre-Requisite License or Training	**NA**
Minimum Job Entry Age	**22 years**
Last Reviewed On	**03/05/2023**
Next Review Date	**03/05/2026**
NSQC Approval Date	**03/05/2023**
QP Version	**3.0**
Model Curriculum Creation Date	**03/05/2023**
Model Curriculum Valid Up to Date	**03/05/2026**
Model Curriculum Version	**3.0**
Minimum Duration of the Course	**450 hours**
Maximum Duration of the Course	**510 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.

Compulsory:

- Describe the use cases of AI & Big Data Analytics in various industries and define the various roles under this occupation
- Assess global standards and regulations pertaining to data administration and governance.
- Define the applications and limitations of various types of databases.
- Design new databases based on different parameters such as data segmentation, schema, querying requirements, storage, etc.
- Perform database maintenance procedures such as updating or deleting information, migration and troubleshooting.
- Use different tools, frameworks, platforms, libraries, packages for database development, maintenance and administration.
- Plan their schedules and timelines based on the nature of work.
- Demonstrate how to communicate and work effectively with colleagues.
- Use different approaches to effectively manage and share data and information.
- Develop strong relationships at the workplace through effective communication and conflict management.
- Apply the principles of persuasive communication for negotiations and discussions.
- Identify best practices to maintain an inclusive, environmentally sustainable workplace

Electives:

- Apply different approaches to manage access rules and capacity planning for traditional databases.
- Apply different approaches to manage access rules and capacity planning for computing clusters.

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): Global Regulations and Standards	04:00	00:00	00:00	00:00	04:00
Module 3 (Bridge Module): Administration Tools and Usage	07:00	07:00	00:00	00:00	14:00
SSC/N8115 – Create new databases NOS Version No. 3 NSQF Level 5	**40:00**	**80:00**	**00:00**	**00:00**	**120:00**
Module 4: Data Sources and Databases	20:00	40:00	00:00	00:00	60:00
Module 5: Database Development	20:00	40:00	00:00	00:00	60:00
SSC/N8116 – Maintain existing databases NOS Version No. 4 NSQF Level 5	**20:00**	**40:00**	**00:00**	**00:00**	**60:00**
Module 6: Database Maintenance	20:00	40:00	00:00	00:00	60:00
SSC/N9014 Maintain an inclusive, environmentally sustainable workplace NOS Version No. 1 NSQF Level 5	**10:00**	**20:00**	**00:00**	**00:00**	**30:00**
Module 7: 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 8: Introduction to Employability Skills	00:30	01:00	00:00	00:00	01.50
Module 9: Constitutional values – Citizenship	00:30	01:00	00:00	00:00	01.50
Module 10: Becoming a Professional in the 21st Century	01:00	01:30	00:00	00:00	02.50
Module 11: Basic English Skills	04:00	06:00	00:00	00:00	10.00
Module 12: Career Development & Goal Setting	01:00	01:00	00:00	00:00	02.00

Module 13: Communication Skills	02:00	03:00	00:00	00:00	05.00
Module 14: Diversity & Inclusion	01:00	01:30	00:00	00:00	02.50
Module 15: Financial and Legal Literacy	02:00	03:00	00:00	00:00	05.00
Module 16: Essential Digital Skills	04:00	06:00	00:00	00:00	10.00
Module 17: Entrepreneurship	03:00	04:00	00:00	00:00	07.00
Module 18: Customer Service	02:00	03:00	00:00	00:00	05.00
Module 19: 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	**109:00**	**191:00**	**90:00**	**00:00**	**390:00**

Elective Modules

Elective 1: Traditional Databases

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)
SSC/N8117 – Manage database access and configuration NOS Version No. 2 NSQF Level 5	**20:00**	**40:00**	**00:00**	**00:00**	**60:00**
Elective Module 1: Database Administration – Access and Capacity Planning	20:00	40:00	00:00	00:00	60:00
Total Duration	**20:00**	**40:00**	**00:00**	**00:00**	**60:00**

Elective 2: Clusters

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)
SSC/N8118 – Manage computing cluster administration NOS Version No. 2 NSQF Level 5	**20:00**	**40:00**	**00:00**	**00:00**	**60:00**
Elective Module 2: Cluster Administration - Access and Capacity Planning	20:00	40:00	00:00	00:00	60:00
Total Duration	**20:00**	**40:00**	**00:00**	**00:00**	**60:00**

Module Details

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

Bridge Module

Terminal Outcomes:

- Explain fundamental use cases of AI/Bigdata, types of AI systems and types of 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 • 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 2: Global Data Regulations and Standards

Bridge Module

Terminal Outcomes:

- Identify general principles and basic concepts of data management standards across the globe

Duration (In Hours): *04:00*	**Duration (In Hours)**: *00:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Discuss the need for data regulations and standards • Analyse commonly used global data regulation policies (such as GDPR) • Discuss the roles and responsibilities of key actors involved in enforcing data regulations and standards • Explain best practices used by various organizations in the enforcement of data regulations and standards	
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 3: Administration Tools and Usage

Bridge Module

Terminal Outcomes:

- Analyse the applications and their limitations for managing different administration tools and frameworks

Duration (In Hours): *07:00*	**Duration (In Hours)**: *07:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Distinguish between different data administration tools, frameworks and microservices • Explain the basics of different infrastructure components such as storage devices, networking hardware, server-storage connectivity, virtualization technologies • Analyse the applications and limitations of different types of the following: – computing platforms – microservices – frameworks – libraries – packages – server authentication, network security and virus protection tools – tools for configuration management, continuous integration, development and test automation	• Apply the basic functionalities of different data administration tools, computing platforms, frameworks, libraries, packages, and microservices
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: • Database Management System such as MongoDB, Oracle PL/SQL, Teradata, Amazon DynamoDB, Apache Hive, MySQL, Teradata Active EDW, IBM DB2etc.	

Module 4: Data Sources and Databases

Mapped to SSC/N8115 (Version No. 3)

Terminal Outcomes:

- Evaluate the various commonly known sources of data
- Evaluate the various types file systems and databases that can store data

Duration (In Hours): *20:00*	**Duration (In Hours)**: *40:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Identify relevant internal data sources to leverage such as data warehouses, web servers, structured / unstructured flat files, others • Explain the importance of identifying the stakeholders involved • Describe commonly known public, open source, private and paid data sources in case of external data requirements • Discuss the uses and characteristics of different data sources • Interpret the applications of relational and NoSQL databases / data sources .	• Use different file systems to store structured, unstructured or semi-structured data across file types • Illustrate the methods to select suitable SQL and noSQL databases based on the objective
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: • Database Management System such as MongoDB, Oracle PL/SQL, Teradata, Amazon DynamoDB, Apache Hive, MySQL, NoSQL, Teradata Active EDW, IBM DB2, etc. • Database Reporting Software such as Microsoft SQL Server Reporting Services, Oracle SQL Plus, SAP Crystal Reports, etc. • DBaaS such as AWS, Hortonworks, Cloudera, Microsoft Azure, etc.	

Module 5: Database Development

Mapped to SSC/N8115 (Version No. 3)

Terminal Outcomes:

- Evaluate databases based on various criteria
- Demonstrate how to perform basic database functions

Duration (In Hours): *20:00*	**Duration (In Hours)**: *40:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Explain different databases based on the defined data segmentation, schema, querying requirements, storage, availability and speed requirements • Discuss the methods to select the right database type to meet the requirements of the analysis • Explain the usage of common relational and NoSQL databases • Describe the limitations of SQL and noSQL databases	• Demonstrate the process of installing and creating new databases • Use different functions, methods and sources to import, store, update, retrieve and delete data from SQL and NoSQL databases or data stores • Conduct validation of databases according to set criteria • Create sample documentations related to new databases
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: • Database Management System such as MongoDB, Oracle PL/SQL, Teradata, Amazon DynamoDB, Apache Hive, MySQL, NoSQL, Teradata Active EDW, IBM DB2, etc. • Database Reporting Software such as Microsoft SQL Server Reporting Services, Oracle SQL Plus, SAP Crystal Reports • DBaaS such as AWS, Hortonworks, Cloudera, Microsoft Azure, etc.	

Module 6: Database Maintenance

Mapped to SSC/N8116 (Version No. 4)

Terminal Outcomes:

- Explain various processes to maintain and migrate databases

Duration (In Hours): *20:00*	**Duration (In Hours)**: *40:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Identify different functions and methods to query SQL/NoSQL databases • Identify the various techniques to migrate existing databases to new environments • Discuss different automation techniques and procedures • Evaluate the opportunities of automation in back-up, optimization and indexing procedures	• Use the CRUD function to add, delete, modify or update data in databases • Perform pre-migration validation using database documentation and apply different approaches to migrate databases • Apply different maintenance procedures and back-up routines for databases, and automate suitable processes • Develop procedures to identify and counter issues with databases • Demonstrate the methods to assess and troubleshoot issues related to database completeness and veracity
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: • Database Management System such as MongoDB, Oracle PL/SQL, Teradata, Amazon DynamoDB, Apache Hive, MySQL, NoSQL, Teradata Active EDW, IBM DB2, etc. • Database Reporting Software such as Microsoft SQL Server Reporting Services, Oracle SQL Plus, SAP Crystal Reports, etc. • DBaaS such as AWS, Hortonworks, Cloudera, Microsoft Azure, etc.	

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 60 Hours (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 60 Hours (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 60 Hours (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 60 Hours (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 60 Hours (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 60 Hours (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 60 Hours (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 60 Hours (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 60 Hours (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
- utilize virtual collaboration tools to work effectively

Duration: 10 Hours (4 Theory+ 6 Practical)

Module 17: Entrepreneurship

Mapped to NOS 60 Hours (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 60 Hours (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 60 Hours (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)

Elective Module 1: Database Administration – Access and Capacity Planning

Mapped to SSC/N8117 (Version No. 2)

Terminal Outcomes:

- Assess different stakeholder requirements for database access, availability and usage
- Develop plans to ensure adequate capacity for different stakeholders using the database

Duration (In Hours): *20:00*	**Duration (In Hours)**: *40:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Assess the need for encrypting the database • Summarize the issues that may arise in case of a distributed denial of service (DDoS) attack • Select the right tools and mechanisms to monitor and database capacity • Select suitable metrics to measure database utilization, availability and performance • Assess various database vulnerabilities	• Create encryption standards for the database • Apply different approaches to perform load / stress testing and ensure database functionality in case of a DDoS attack • Develop checks and measures to remediate database vulnerabilities • Devise a disaster recovery strategy for the database environment • Apply different approaches to recover lost or corrupted data from databases
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: • Database Management System such as MongoDB, Oracle PL/SQL, Teradata, Amazon DynamoDB, Apache Hive, MySQL, NoSQL, Teradata Active EDW, IBM DB2, etc. • Database Reporting Software such as Microsoft SQL Server Reporting Services, Oracle SQL Plus, SAP Crystal Reports, etc. • DBaaS such as AWS, Hortonworks, Cloudera, Microsoft Azure, etc. • Backup or Archival Software such as Oracle Data Guard, Veritas NetBackup, Oracle Recovery Manager, etc. • Authentication Server Software such as Diameter, IBM Tivoli Identity Management, RADIUS, etc.	

Elective Module 2: Cluster Administration - Access and Capacity Planning

Mapped to SSC/N8118 (Version No. 2)

Terminal Outcomes:

- Assess stakeholder requirements for cluster availability and usage
- Apply different approaches to deploy, monitor and encrypt the clusters

Duration (In Hours): *20:00*	**Duration (In Hours)**: *40:00*
Theory – Key Learning Outcomes	**Practical – Key Learning Outcomes**
• Evaluate different capacity planning considerations for clusters such as data redundancy, overhead and compression, IOPS • Evaluate the methods and tools employed in cluster creation, configuration and management • Discuss the importance of validating computing clusters with relevant stakeholders • Discuss the need for defining encryption standards for the cluster • Differentiate between the encryption requirements for data at rest and in motion	• Illustrate the use of various open-source and paid-for tools in deploying clusters, and monitoring cluster performance • Recommend different measures to improve cluster efficiency • Demonstrate the methods to create access rules for the cluster • Develop checks and measures to remediate cluster vulnerabilities
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: • Cluster Management Software such as Kubernetes, Apache Mesos, Docker Swarm, CoreOS	

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate in any discipline	Preferably Science/Computer Science/Electronics and Engineering /Information Technology	5	Experience/ internship in Database Administrator or related roles that involve database querying or management	2	Experience/ internship in Database Administrator or related roles that involve database querying or management	

Trainer Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Database Administrator" mapped to QP: "SSC/Q8109, V2.0". Minimum accepted score is 80%	Recommended that the trainer is certified for the Job role "Trainer" mapped to the Qualification Pack "MEP/Q2601". Minimum accepted score is 80% aggregate

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Graduate in any discipline	Preferably Science/Computer Science/Electronics and Engineering /Information Technology	5	Experience/ internship in Database Administrator or related roles that involve database querying or management	2	Experience/ internship in Database Administrator or related roles that involve database querying or management	

Assessor Certification	
Domain Certification	**Platform Certification**
Certified for Job Role: "Database Administrator" mapped to QP: "SSC/Q8109, V2.0". Minimum accepted score is 80%	Recommended that the trainer is certified for the Job role "Assessor" mapped to the Qualification Pack "MEP/Q2701". Minimum accepted score is 80% aggregate

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-Database Administrator 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/Q8109: AI- Database Administrator	1) Database Management Concepts 2) Database Security

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