

PERFORM DATABASE ADMINISTRATION

ISCED UNIT CODE: 0612 551 14A

TVET CDACC UNIT CODE: IT/OS/NSA/CR/02/6/MA

UNIT DESCRIPTION:

This unit covers the competencies required to Perform Database Administration. It involves the following: Install Database, Design Database and Backup Database.

Elements	Performance Criteria
These describe the key outcomes which make up workplace functions	These are assessable statements which specify the required level of performance for each of the elements <i>(Bold and italicized terms are elaborated in the range)</i>
1. Install Database	1.1 Database software is installed and configured to meet organizations needs 1.2 Database system resource allocation is performed as per work procedure. 1.3 Database testing is performed as per work procedure. 1.4 Database storage and retrieval as per work procedure 1.5 Performance monitoring and optimization is conducted as per work procedure 1.6 Data migration is conducted as per work procedure 1.7 Trouble shooting and problem resolution is conducted as per work procedure
2.Design Database	2.1 Database structure and organization is designed per organizations needs. 2.2 Database security measures are performed to protect data as per work procedure 2.3 Database storage is setup for easy of retrieval as per work procedure.

3. Backup Database	3.1 Database backup is Established as per work procedure. 3.2 Database backup is maintained as per work procedure 3.3 Database recovery procedures are set to safeguard data against loss or corruption as per work procedure.
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RANGE

This section provides work environments and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

1. Database software may include but not limited to:	• Oracle • MySQL • PostgreSQL • MongoDB • Redis • MariaDB
2. Database testing may include but not limited to:	• Microsoft SQL Server • DTM Data generator • HammerDB
3. Database structure may include but not limited to:	• Flat table schema • Normalized schema • Star schema • Hierarchical schema • Document database schema
4. Security measures may include but not limited to:	• Authentication • Encryption • Passwords
5. Database backup may include but not limited to:	• Full backup • Incremental backup • Differential backup

REQUIRED KNOWLEDGE AND SKILLS

This section describes the knowledge and skills required for this unit of competency:

Required knowledge

- Network architecture

- Network components and devices
- Network types
- Network security measures
- Network monitoring procedures
- Network protocols
- Network testing procedures
- Understanding operating system
- Safety awareness
- Environmental conservation
- Workplace safety and health
- Basics electronics

Required skills

- Computer Literacy
- Critical thinking
- Communication skills
- Computational mathematics skills
- Problem-solving skills
- Analytical skills
- Creativity and innovation
- Network testing techniques
- Network security configuration
- Network configuration techniques
- Network Monitoring
- Technical proficiency
- Scripting and automation
- Project management
- Cloud services management
- Storage solutions
- Operating systems proficiency
- Server Administration
- Virtualization
- Basic programming

EVIDENCE GUIDE

This provides advice on assessment and must be read in conjunction with the performance criteria, required knowledge and skills range.

1. Critical aspects of competency	Assessment requires evidence that the candidate: • Installed Database as per work procedure • Designed database as per work procedure • Backed up database as per work procedure
2. Resource implications	The following resources should be provided: • Appropriately simulated environment where assessment can take place • Access to relevant work environment • Resources relevant to the proposed activities or tasks; including computers, media, routers, switches, ports etc
3. Methods of assessment	Competency in this unit may be assessed through: • Observation • Oral questioning • Portfolio of evidence • Interviews • Third party report • Practical assessment • Written tests
4. Context of assessment	Competency may be assessed: 4.1 On the job 4.2 In a simulated work place
5. Guidance information for assessment	Holistic assessment with other units relevant to the industry sector, workplace and job role is recommended.