NEW ZEALAND QUALIFICATIONS FRAMEWORK
TE TAURA HERE TOHU MĀTAURANGA O AOTEAROA

Qualification details

Qualification number/Te nama o te tohu mātauranga	2602		
English title/Rā whakamutunga kia uru ki ngā hōtaka	New Zealand Diploma in Database Administration (Level 6)		
Māori title/Rā whakamutunga mō te aromatawai			
Version number/Te putanga	2	**Qualification type/Te momo tohu**	Diploma
Level/Te kaupae	6	**Credits/Ngā whiwhinga**	120
NZSCED/Whakaraupapa	020303 Information Technology > Information Systems > Database Management		
Qualification developer/Te kaihanga tohu	IT Professionals New Zealand (ITP) and NZQA National Qualifications Services		
Review Date /Te rā arotake	N/A		
This qualification has been reviewed and will not be replaced.			

Outcome statement/Te tauāki ā-hua

Strategic Purpose statement/ Te rautaki o te tohu
The purpose of this qualification is to provide Aotearoa New Zealand with people who are able to create, implement and operate database systems. The qualification is designed to prepare people for employment in an entry-level database administrator role in a range of organisational contexts, or to proceed to further study. Graduates will be capable of configuring, maintaining, and monitoring performance of databases with skills that will be internationally relevant. They will also be able to operate within the applicable professional standards, independently within a small business and as part of a team in a larger organisation. Businesses, organisations and communities will benefit from having IT professionals who are qualified in the administration of database systems, in all sectors of the economy and society.

Graduate Profile/Ngā hua o te tohu

Graduates will be able to:

Technical Skills:

- Perform data modelling of complex business structures to document business data.
- Design and implement a database, and perform queries and reporting, to meet organisational requirements.
- Operate and administer database management systems in a range of application areas to meet organisational requirements.
- Perform monitoring and tuning of database systems to meet organisational service levels.
- Apply appropriate database administration techniques and organisational policies to ensure integrity of system and maintain continuity of service to meet organisational requirements.
- Analyse, select and implement business intelligence tools and methods to add value to an organisation.
- Apply broad knowledge of systems infrastructure to optimise database operations.
- Apply a range of technical and theoretical knowledge and skills to explore and analyse database administration issues or opportunities in an organisation.

Core Skills:

- Behave with integrity as a responsible Information Technology professional to contribute positively to society.
- Apply communication, information design, personal and interpersonal skills, clearly and professionally to enhance working effectiveness, efficiency, and quality outcomes in an organisational environment.
- Apply project management tools and techniques to an IT related project, to analyse and solve problems.

Education Pathway/ Ngā huarahi mātauranga

The qualification may provide a pathway to further specialist computer science, software engineering or IS related degree qualifications. It may also equip learners to attempt optional industry certifications at the appropriate level and area of specialty.

This qualification provides an education pathway from the:

- New Zealand Diploma in Information Technology Technical Support (Level 5) [Ref: 2596] or
- New Zealand Diploma in Information Systems (Level 5) [Ref: 2597].

Employment, Cultural, Community Pathway/ Ko ngā huarahi ā-mahi, ā-ahurea, ā-whānau, ā-hapū, ā-iwi, ā-hapori anō hoki

Graduates of this diploma will have the skills and knowledge to work in entry-level database administrator roles such as management information systems (MIS) administrator, customer relationship management (CRM) administrator, or student management system administrator.

Qualification Specifications/ Ngā tauwhāititanga o te tohu

Qualification Award/ Te whakawhiwhinga o te tohu	This qualification may be awarded by any education organisation with an approved programme towards this qualification accredited under section 250 of the Education Act 1989. The graduate will be awarded the qualification by the education organisation when the accredited and approved programme has been successfully completed. The formal document certifying the award of this qualification will display the full qualification title, date of award, the NZQF logo and may also include the name and/or logo of the qualification developer or programme owner or other awarding education organisation.
Evidence requirements for assuring consistency/ Ngā taunaki hei whakaū i te tauritenga	New Zealand qualifications can be obtained through different programmes, pathways, and education organisations. The process of 'assuring national consistency of graduate outcomes' will be coordinated by NZQA, with a focus on comparing graduates from different programmes and education organisations in relation to the qualification graduate outcomes. All programme owners and education organisations arranging training or delivering approved programmes leading to the qualification must engage with arrangements for assuring consistency, including participating in the relevant consistency review event and covering actual and reasonable related costs. Detailed information regarding arrangements for managing consistency will be published and updated via the NZQA website. For more information, please visit: https://www.nzqa.govt.nz/providers-partners/consistency-grad-outcomes/ and download the guidelines. *Evidence for consistency* Each education organisation is responsible for preparing a summary self-assessment report which uses evidence to demonstrate how well its graduates meet the graduate profile outcomes at the appropriate threshold. Each education organisation decides what specific evidence it will provide. The core evidence requirements for assuring consistency **must** include: • Effective internal and external moderation systems and processes, including results relating to graduate outcomes. This may also include evidence of meeting requirements for external industry certifications and associated consistency demands where appropriate e.g. Certified/Authorised Partner Program (such as Microsoft, CompTIA, etc.) • Results of end-user surveys and actions taken or proposed from feedback. • This includes consultation with graduates and employers to obtain destination information and end-user feedback specifically assessing the

	graduates against the graduate profile (e.g. employment, progression, further study) • Samples of assessment materials and learners assessments/work (e.g. portfolios of work) • Relevant External Evaluation and Review (EER) data, including programme/qualification completion data and course results • Comparison of the application of credit transfer and recognition of prior learning arrangements to graduate outcomes and/or qualifications • Documenting any action taken to improve quality and consistency of assessment. The core evidence requirements for assuring consistency may include: • Consultation with graduates and employers to obtain destination information and end-user feedback (e.g. employment, progression, further study) • Evidence of any benchmarking activities. • Consideration of internal quality assurance processes and external reviews, including relevant feedback from programme developers (i.e. may include reviewing, comparing, and evaluating the assessment process, tools and evidence contributing judgements made by a range of assessors against the same graduate outcomes; evidence of appropriate skills and knowledge of staff in relation to the teaching and assessment).
Minimum standard of achievement and standards for grade endorsements/ Te pae o raro e tutuki ai, ngā paerewa hoki hei whakaatu i te taumata o te whakatutukinga	The minimum standard of achievement required for the award of the qualification will be the achievement of all the graduate outcomes in the graduate profile. There are no grade endorsements for this qualification.
Other requirements for the qualification (including regulatory body or legislative requirements)/ Kō ētahi atu here o te tohu (tae atu hoki ki ngā here ā-hinonga whakamarumaru, ki ngā here ā-ture rānei)	***Entry requirements*** Learners enrolling are recommended to hold the New Zealand Diploma in Information Systems (Level 5) [Ref: 2597] or New Zealand Diploma in Information Technology (Technical Support) (Level 5) [Ref: 2956], or equivalent knowledge, skills and experience. International students must have an appropriate level of English proficiency for the level at which they intend to study. Details of English language entry requirements are contained in the NZQF Programme Approval and Accreditation Rules 2013 (Appendix 2). E.g. IELTS Academic score of 6, with no band score lower than 5.5 OR New Zealand Certificate in English Language (Academic) Level 5 [Ref: 1884].
General conditions for programme/ Ngā tikanga whānui o te hōtaka	***Conditions for programme structure*** This qualification includes the common core of Level 6 skills and builds on the generalist information systems or IT technical skills developed at Level 5, or equivalent relevant experience. Professional practice must be an integral part of the curriculum and delivery. It is expected that all

	programmes have professionalism both purposefully taught and integrated with technical content. Here, professional practice includes the 'soft skills' of communication, teamwork, interpersonal skills, and ethical principles. Programmes must reflect industry best practice and maintain currency with amendments to, and replacements of, relevant legislation, regulations, Australia/New Zealand standards (AS/NZS), and security responsibilities. • Current legislation and regulations can be accessed at http://legislation.govt.nz • Current AS/NZS standards can be accessed at http://standards.co.nz • The Information Technology Code of Practice - Guidelines of good and acceptable practice for IT professionals and organisations operating in New Zealand can be accessed at http://iitp.nz/about/ethics, as can the Code of Professional Conduct. ***Conditions for programme context*** Programme design and delivery, and assessment, where applicable, will be conducted in and for the context of real or realistic organisations and/or settings; and be relevant to current and/or emerging practice. Programmes leading to the award of this qualification must identify the context, and must justify the allocation of credits to graduate profile outcomes within the programme, in light of the requirements of the context and conditions. The graduate's capabilities must clearly align with the definition of a Level 6 graduate on the NZQF. See the NZQF level descriptors for further information. All programmes are to be developed with Level 6 descriptors in mind – specialised technical knowledge and skills in a field of work, applied in specialised/strategic contexts. Consideration should be given to bicultural, multicultural, and gender issues when designing programmes, in relation to encouraging a greater diversity within the professional IT workforce. Programmes may be developed based on Māori principles and values, and are intended to enable Wānanga to meet obligations under the Education Act (1989, section 162(4)(b)(iv)). ***Other conditions*** This qualification assumes a relational and object-oriented approach for all aspects of database design and administration. It is expected that specialised technical and theoretical knowledge will be applied. It is envisaged that the assessment for this qualification will involve a capstone assessment; this could be a case study or real client interaction project.

	Business in the context of this qualification is interpreted widely to include organisations and community entities. Some programme content could also be aligned with industry certifications. There is a preference for including open and vendor neutral standards, protocols and technologies where possible. Glossary: • Binary Large Object (BLOB) – a collection of binary data stored as a single entity in a database management system. Used to store objects such as images, audio files, video clips • Cloud – the delivery of hosted services provided over the Internet, rather than maintaining infrastructure. • Database Management system (DBMS) – a program (or suite of programs) that enables users to create, store, modify, access and extract data from a data repository, commonly referred to as a database. The DBMS has many features including multi-user access/updates, control of data redundancy, maintenance of data security and integrity, audit trails, and transaction processing. • Geographic Information System (GIS) – computer system that allows you to map, model, query and analyse large quantities of spatial or geographic data within a single database according to their location, and gives you the power to create maps • Information Systems (IS) – is the discipline which studies or informs the design, development, implementation, operation, and maintenance of information systems. An information system is a complementary collection of hardware and software that people and organisations use to collect, filter, process, create and distribute data, with the aim of supporting operations, management and decision making • Information Technology (IT) – the common term for the entire spectrum of technologies for information processing and related to computing technology, such as networking, hardware, software, the internet or the people that work these technologies • Rich Site Summary (Really Simple Syndication) (RSS) – uses a family of standard web feed formats to publish frequently updated information, enabling publishers to syndicate data automatically • Service Level Agreement (SLA) – part of a service contract where a level of service to be achieved is formally defined • Structured Query Language (SQL) - a widely-used computer language for relational database administration tasks and data manipulation, queries and reporting.

Conditions relating to the Graduate Profile /Ngā tikanga e hāngai ana ki nga hua o te tohu

Qualification outcomes/ Ngā hua		Credits/Ngā whiwhinga	Conditions/Ngā tikanga
Technical Skills *(90 credits)*			
1.	Perform data modelling of complex business structures to document business data.	10	Programmes must include: • Requirements analysis and core business modelling skills • Data modelling - both relational and object, strategies; • Normalisation, data redundancy, system redundancy • Structured, semi-structured and unstructured data; and complex data types e.g. spatial, binary large objects (BLOB).
2.	Design and implement a database, and perform queries and reporting, to meet organisational requirements.	10	Programmes must include: • Database architecture - various database management systems (DBMS) e.g. distributed v centralised databases; • Database design, schema and data dictionary, multi-user access considerations e.g. concurrent updates, deadlocks; • Data validation techniques; • Database creation, population and testing, and security considerations; • Complex queries and reports.
3.	Operate and administer database management systems in a range of application areas to meet organisational requirements.	10	Programmes must include: • Fully featured multi-user database; • Managing change and maintenance, database version control, migration of data, interface issues; • User management - managing privileges, user groups and roles; • Application areas such as Event Management System, Record Management System, Geographic Information Systems (GIS), Health Informatics; • Non-traditional data sources e.g. live data feeds such as RSS, remotely sensed data.

4.	Perform monitoring and tuning of database systems to meet organisational service levels.	10	Programmes must include: • Monitoring e.g. query performance, identify bottlenecks, deadlocks, input output, networking performance, storage allocation; • Service levels around performance expectations and user demand; • Tuning e.g. database design, impact of locking, query design, de-normalisation, hardware, database distribution, indexing, structures that impact performance; • Managing real time streaming data acquisition.
5.	Apply appropriate database administration techniques and organisational policies to ensure integrity of system and maintain continuity of service to meet organisational requirements.	10	Programmes must include: • Techniques to ensure integrity and resilience; • Business continuity considerations; back up; recovery; security practices; monitoring security reports; transaction management; • Service Level Agreements (SLAs) – uptime, availability.
6.	Analyse, select and implement business intelligence tools and methods to add value to an organisation.	10	Programmes must include several of the following: • Interpreting data – strategic advantage to organisation; • Data warehousing, data mining including advanced techniques for exploring data; • Collaborative databases; • Performance and usage statistics; • Statistics, analysis, business and financial modelling.
7.	Apply broad knowledge of systems infrastructure to optimise database operations.	10	Programmes must include systems infrastructure to support database operations such as operating systems, networks, user authentication directories, virtual machines, cloud, hardware storage devices.
8.	Apply a range of technical and theoretical knowledge and skills to explore and analyse database	20	Programmes must involve a holistic approach, including technical and professional practices.

	administration issues or opportunities in an organisation.		
Core Skills ***(30 credits)***			
9.	Behave with integrity as a responsible Information Technology professional, to contribute positively to society.	10	Programmes must include: • Application of professional and ethical practice, including sustainability, equity, social and contemporary cultural issues, relevant to an IT organisational environment (e.g. Treaty of Waitangi and accessibility issues); • Organisational implications of managing and complying with legal and regulatory requirements (e.g. health and safety, contract management, licensing, privacy); observing security responsibilities and industry codes of practices, and codes of conduct (e.g. IITP) relevant to an organisational environment.
10.	Apply communication, information design, personal and interpersonal skills, clearly and professionally to enhance working effectiveness, efficiency, and quality outcomes in an organisational environment.	10	Programmes must include: • Information representation design for multiple situations e.g. data visualisation; technical writing - help documents, user instructions, specifications; • Personal and interpersonal skills including customer service, leadership, teamwork, negotiating, self-management, social and multicultural awareness, relationship and conflict management.
11.	Apply project management tools and techniques to an IT related project, to analyse and solve problems.	10	Programmes must include: • Critical thinking, business logic, organisational processes, innovation and enterprise skills; • Project planning, management and control – cost, risk, quality, stakeholder, change, configuration, contracts, and maintenance management.

Transition information/ He kōrero whakawhiti

Replacement information/ He kōrero mō te whakakapi	**N/A**
Additional transition information/ Kō ētahi atu kōrero mō te whakakapi	**Version Information** This qualification was reviewed in June 2020. Please refer to Qualifications and Assessment Standards Approvals for further information. People currently enrolled in programmes leading to this qualification must complete its requirements by **31 December 2023**, when it will be discontinued. The last date for entry into programmes leading to this replaced qualification is 28 February 2023. The last date for assessment of the qualification is 31 December 2023, when the qualification will be discontinued. It is the intention of the qualification developers that no existing learner be disadvantaged by these transition arrangements. Any person who considers they have been disadvantaged may contact their provider or the Qualification Developer - IT Professionals NZ (info@itp.nz) or NZQA National Qualifications Services (nqs@nzqa.govt.nz).