NEW ZEALAND QUALIFICATIONS FRAMEWORK
TE TAURA HERE TOHU MĀTAURANGA O AOTEAROA

Qualification details

Qualification number/Te nama o te tohu mātauranga	2601		
English title/Rā whakamutunga kia uru ki ngā hōtaka	New Zealand Diploma in Systems 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	020305 Information Technology > Information Systems > Systems Analysis and Design		
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 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 have attained a range of professional and technical skills in a specialist area within Information Technology support. It will prepare people for employment as either a systems administrator or desktop analyst in a support environment, or to proceed to further study. This qualification builds on the common core of Level 6 skills, and generalist skills developed at Level 5, or equivalent relevant experience.

Graduates will be capable of carrying out systems administration, and providing related advice and support, using skills that will be internationally relevant. They will also be able to operate within an organisation with appropriate professional standards and practice, both independently and as part of a team.

Businesses, organisations and communities will benefit from having IT Professionals who are qualified in the management of client software and systems, in all sectors of the economy and society.

Graduate Profile/Ngā hua o te tohu

Graduates will be able to:

Technical Skills:

- Implement a range of technologies for systems and network services to meet organisational requirements.

- Plan and implement automated system and application software deployment to support efficient organisational operations.
- Plan, implement, and manage a directory service to meet organisational requirements.
- Analyse a range of options and implement a solution to meet organisations data storage requirements.
- Implement a server-based virtualisation infrastructure to support organisational requirements.
- Analyse organisational requirements, implement a solution, and administer infrastructure for remote network access.
- Manage and administer a messaging and collaboration service to meet organisational requirements.
- Write scripts to automate standard system procedures.
- Apply IT service management and change management processes and procedures to comply with organisational requirements.

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
This qualification provides a pathway to further specialisation through industry specific training, for example, IT Security. Other possible pathways include degree qualifications. This qualification may also equip learners to attempt optional industry certifications at the appropriate level and area of specialty. This qualification provides an education pathway from: • New Zealand Diploma in Information Technology Technical Support (Level 5) [Ref: 2596]

Employment, Cultural, Community Pathway/ Ko ngā huarahi ā-mahi, ā-ahurea, ā-whānau, ā-hapū, ā-iwi, ā-hapori anō hoki
Graduates of this qualification will have the skills and knowledge to gain employment in entry level roles such as IT technician, help desk, Tier 1 and 2 desktop support, systems administration, or in applications support. Graduates also have the background to progress into more advanced roles such as senior system administrator or application support analyst roles.

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 of Information Technology Technical Support (Level 5) [Ref: 2596], 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 the 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 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*** Learners are expected to adhere to Learners are expected to adhere to professional standards including documentation with version control. Where applicable, testing and troubleshooting will be applied throughout programme teaching and assessment, along with adherence to best practices that ensure consistency between systems, resiliency and clear documentation. Programme design, 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*** 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** • Clients (client/server architecture) – Thick and thin clients are terms used to refer to the hardware but can also be used to describe applications that run on a computer that relies on a server to perform some operations. • Cloud-based services – the term for the delivery of hosted services provided over the Internet, rather than maintaining infrastructure. • Dynamic host configuration protocol (DHCP) – standardised network protocol used on Internet Protocol (IP) networks for dynamically distributing network configuration parameters, such as IP addresses, from a DHCP server • Directory service: a software system that stores, organises, and provides access to information in a computer operating system directory. It is closely associated with user authentication and assigning and enforcing security policies. • Domain name system (DNS) – an internet service that translates domain names into IP addresses • Host: computer file used by an operating system to map host names to IP addresses; network host is a computer or other device connected to a computer network is any device connected to a network, but usually refers to a computer that is connected to a TCP/IP network • 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 • Information Technology Infrastructure Library (ITIL) – a set of practices for IT service management • Operating system: software that manages the computer's memory, processes, hardware and software resources

	• Public key infrastructure (PKI) – comprehensive system required to provide public key-encryption and digital signature services, helping an organisation to maintain a safe and trusted networking environment • Thick client: (also known as a heavy, rich or fat client) a computer or program that has its own operating system and storage, and provides rich functionality and fulfil its own computational roles independent of the central server e.g. local desk image, personal computers • Thin client: a computer or program that depends heavily on another computer (its server) to fulfil its computational roles e.g. virtual desktops, cloud-based, network computer without a hard disk drive • Virtual private network (VPN) – extends a private network across a public network, such as the internet

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.	Implement a range of technologies for systems and network services to meet organisational requirements.	15	Programmes must include: - A range of services such as public key infrastructure (PKI), domain name systems (DNS), and dynamic host configuration protocol (DHCP); - Systems and services implemented with resiliency and security.
2.	Plan and implement automated system and application software deployment to support efficient organisational operations.	15	Programmes must include: - An overview of automated deployment strategies, tools, and technologies; - Implementation of at least one operating system and one application to each of at least two different system types, such as server, desktop and mobile devices employing both thin (virtual desktops, cloud-based) and thick (local disk image) clients.
3.	Plan, implement, and manage a directory service to meet organisational requirements.	12	Programmes must include: - Identity management across directory services; - Directory service supporting services and protocols; - Replication in a multiple site environment; - Centralised management and configuration.
4.	Analyse a range of options and	10	Programmes must include disk subsystems,

	implement a solution to meet organisations data storage requirements.		shared storage, file systems and different forms of storage area networks.
5.	Implement a server-based virtualisation infrastructure to support organisational requirements.	10	Programmes must include a pair of hosts, virtual machines, and appropriate networking and storage solutions.
6.	Analyse organisational requirements, implement a solution, and administer infrastructure for remote network access.	8	Programmes must include different forms of remote access, including virtual private networks (VPNs) and other forms of secure network access.
7.	Manage and administer a messaging and collaboration service to meet organisational requirements.	8	Programmes must include a range of services such as email, instant messaging, calendar, notes, tasks and collaboration tools.
8.	Write scripts to automate standard system procedures.	7	
9.	Apply IT service management and change management processes and procedures to comply with organisational requirements.	5	Programmes must include - Reference to industry standard frameworks such as ITIL; - Licensing and compliance, as well as concepts related to business continuity in an IT context.
Core Skills (30 credits)			
10.	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.
11.	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.

12.	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	This qualification and the New Zealand Diploma in Networking (Level 6) [Ref: 2600] were replaced by the: • New Zealand Diploma in IT Infrastructure (Level 6), with strands in Networking and Systems Administration [Ref: 4129].
Additional transition information/ Kō ētahi atu kōrero mō te whakakapi	**Version Information** This qualification was reviewed in May 2020 and was replaced. Please refer to Qualifications and Assessment Standards Approvals for further information. People currently enrolled in programmes leading to this qualification may either complete its requirements **by 31 December 2023** or transfer to the appropriate strand in the replacement qualification [Ref: 4129]. The last date for entry into programmes leading to this 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).