



PROSPECTUS

**POSTGRADUATE
DEGREE
IN INFORMATION
TECHNOLOGY**

LEVEL 8



TECHSCHOOL
AT NZSE

Learn expand what you can do with data.

Fine-tune or expand your skillset with this specialised and industry-relevant programme. Practice real world problem-solving by learning how to apply critical thinking and ethical professionalism—crucial requirements in today's modern biz-tech environments.

Career pathways

- Software developer
- Project manager
- Web & mobile application manager
- Software or systems engineer
- Database developer or administrator
- Business or data analyst
- Technical sales or Sales engineer
- Software quality assurance analyst

COURSE OVERVIEW

The qualification is designed to build advanced specialised knowledge and skills in software development, web and application development or business analysis. Students will solve complex and unstructured problems in their specialist field of inquiry and/or professional practice, analyse requirements, devise and build possible solutions and critically evaluate these. They will engage in rigorous intellectual analysis, criticism and problem-solving to achieve this.

Graduates will be capable of leading, adapting, innovating and succeeding in the complex and changeable information technology environment. Graduates will demonstrate the ability to work knowledgeably, and professionally in a wide range of organisations, solving complex issues and practical problems.

Graduates of this proposed programme will develop practical research skills, acquire the latest theoretical knowledge, become critical thinkers in their field of study and conduct complex enquiries into their areas of specialisation in a professional, expert and ethical manner.

COURSE DESCRIPTION

This qualification has strands in order to recognise the specific technical and theoretical skills and advanced knowledge required to specialise in one of the following areas of IS practice.

To successfully complete the programme a student must complete seven courses: four compulsory core courses and three additional elective courses.

The three elective courses may be selected according to the Strand chosen. Each student will study seven courses, providing a total of 120 credits, with 45 credits at Level 7 and 75 credits at Level 8.

SUBJECTS

ICT703 Programming for Industry 1

- Analyse problems of various natures and create an object-oriented model which draws on Universal Modelling Language (UML) constructs.
- Critique the differences in software development methodologies, and identify an appropriate methodology for a particular context.
- Put into practice advanced knowledge of a specialist area of structured programming and event-driven graphical user interface.
- Demonstrate advanced application of object oriented software development approaches, involving multiple objects, and implement key object oriented.

AT A GLANCE

Course duration:

1 academic year

Course credits:

180 credits

Campus:

Avondale

Occupational outlook

Examining the Occupation Outlook produced by the Ministry of Business Innovation and Enterprise (2017) in more detail reveals that both Software Developers and ICT Business and Systems Analysts have outstanding career prospects. The Occupation Outlook uses dials to show the income, fees and job prospects for each occupation. For Software Developers & ICT Business & Systems Analysts, the dials show:

JOB PROSPECTS



INCOME



FEES



- **Software developers**
- **CT business & software analysts**

ICT704 Advanced Topics in Database Systems

- Evaluate business requirements and apply extensive understanding to design and implement database models following current industry practice.
- Analyse business requirements, design and construct complex queries including views, stored procedures, transactions, concurrency and locking as appropriate to the context.
- Critique database models, recommend and apply best practice in terms of performance consideration, indexing and structure.
- Construct stored procedures for business logic layer (BLL) and/or data access layer (DAL).

ICT705 Web and Mobile Technology

- Develop code with an awareness of client side scripting syntax and dynamic behaviour.
- Design and construct well-structured, reusable and maintainable functions and objects.
- Analyse design strategies for client side scripting and validation and put into practice innovative approaches that fit into the context.
- Construct richer, faster, dynamic interactive web pages by employing various strategies to enhance user experience meeting industry usability standards.

ICT820 Software Quality Assurance

- Analyse and critically evaluate testing and quality assurance methodologies and techniques for different aspects of software quality.
- Critically assess software testing and quality assurance tools in terms of fitness for purpose, correctness and usability for different types of projects.
- Analyse product risks, plan and apply preventative and corrective mitigation activities to a specific project.

ICT821 Web and Applications Development

- Critically assess the capabilities and characteristics of Web Services Technologies and Architectures.
- Demonstrate advanced technical skills in the analysis, design, implementation and management of web services to support machine-to-machine interaction over a network.
- Research and put into practice solutions to improve the security aspects of Web Services.

- Construct dynamic web applications incorporating advanced programming design techniques.
- Critique mobile development strategies and put into practice a universal approach to support different mobile platforms.

ICT822 Industry Project

- Analyse and appraise issues affecting a business using current analysis techniques.
- Research a software solution for a business problem and produce a comprehensive plan to achieve it.
- Exhibit appropriate project management skills for managing a project in a fast-paced, changing environment.
- Generate and apply advanced quality assurance strategies to enhance the quality of the product
- Demonstrate skills enhancement in a range of development languages, tools and technologies by designing and constructing a software product to resolve issues affecting the business.
- Demonstrate reflection, critical thinking and effective communication skills.
- Present and explain findings in a variety of ways including written reports, oral presentations and software demonstrations.

ICT823 Programming for Industry 2

- Critically assess, compare and contrast the distinguishing features of a variety of software development approaches and methods.
- Use a selection of industry standard models, tools and techniques that support development methods.
- Develop software applications that incorporate concurrent collections, multithreading, asynchronous and locking strategies.
- Evaluate a range of software engineering techniques and apply advanced object-oriented design patterns.

ICT824 Process Modelling

- Carry out systems based forms of organisational analysis in a complex organisational problem situation.
- Develop knowledge and skills in systems analysis and business process modelling.
- Critically evaluate the most appropriate methodology to model, analyse and design engineering/business systems across a range of organisations
- Demonstrate an understanding of how to model a business system and to develop a solution to solve a business system problem.

ICT825

Requirements Analysis

- Analyse and critique past, current and future paradigms and methodologies in Requirements Engineering.
- Select and apply appropriate methodologies to prepare for, and undertake requirements elicitation tasks.
- Analyse client needs and examine the role of information systems in achieving corporate objectives, supporting operations, and managing business intelligence and knowledge.
- Prepare for, and undertake formal specification reviews.
- Use suitable methods and techniques for analysing the business domain and producing and maintaining business requirements using an industry standard.

ICT826 Programming for Industry 3

- Develop software applications that incorporate concurrent collections, multithreading, asynchronous and locking strategies.
- Critically assess, compare and contrast the distinguishing features of a variety of software development approaches and methods.
- Recommend and justify the selection of development approaches, methods and practices across the full range of development activities for different development contexts.
- Apply some software development methods and critically reflect on the experience.

ICT827 Web and Applications Development 2

- Critically assess and apply contemporary techniques and processes to practice.
- Be cognizant of current and near-future technological innovations including web and mobile services.
- Reflect and draw conclusions based on their own experience and learning.

ELECTIVE STRANDS

To successfully complete the programme a student must complete seven courses: four compulsory core courses and three additional elective courses. The three elective courses may be selected according to the Strand chosen.

Students are not limited to the courses listed in a strand. The three elective courses may be selected to suit a student's background and interests and are dependent on timetabling. The identification of Strands however, aims to provide a suggested programme of study which is coherent and is indicative of employment or further study outcomes.

The programme is completed by a 30 credit capstone Industry Project course which provides students with an experience of completing a typical industry project. Three courses; namely ICT703, ICT704 and ICT705; must be completed before the Industry Project is attempted.

Note: the Software Development strand is open for 2018 intake. All four strands will be offered from 2019.

Software development ↓	Business analysis ↓	Programming ↓	Web and mobile development ↓
Programming for Industry 1	Programming for Industry 1	Programming for Industry 1	Programming for Industry 1
Advanced Topics in Database Design	Advanced Topics in Database Design	Advanced Topics in Database Design	Advanced Topics in Database Design
Web and Mobile Development	Web and Mobile Development	Web and Mobile Development	Web and Mobile Development
Industry Project	Industry Project	Industry Project	Industry Project
Programming for Industry 2	Programming for Industry 2	Programming for Industry 2	Programming for Industry 2
Web and Applications Development	Web and Applications Development	Web and Applications Development	Web and Applications Development
Software Quality Assurance	Software Quality Assurance	Software Quality Assurance	Software Quality Assurance

INDUSTRY PROJECT COMPONENT

The industry project course is specifically designed to make students familiar with real work projects, and consequently ready for their future career. The course establishes a connection between all the theories that students have learnt throughout the programme with the real work problems and practices. In addition, this course provides an overview of IT project management skills, communication and report writing, and other soft skills that can be considered important for their future work place.

Graduates are will be able to—

- Demonstrate evidence of the ability to successfully undertake a real-world project.
- Demonstrate skills enhancement in the context of analysing a business problem, selecting and justifying an appropriate methodology for the project, managing and developing the project, and enhancing the quality of a product.
- Demonstrate advance communication skills to communicate effectively with clients and sponsors, leadership and soft skills.
- Learn to be a team player and act as a group.
- Demonstrate a professional attitude.

INTER— NATIONAL QUALIFICATIONS



Information Technology (IT) is a rapidly growing and competitive field with more IT professionals upskilling themselves in order to keep up with changing technologies. Getting internationally certified is the best way to differentiate yourself from competing job candidates and prove your contemporary skills to hiring managers and employers worldwide.

This post-graduate diploma helps and prepares students to achieve the below related internationally recognised certifications—

- MCSD: app builder
- MCSA: SQL 2016 Database Administration
- MCSA: SQL 2016 Database Development
- MCSA: SQL server
- MCSA: Web applications, App Builder
- MCSA: BI Reporting
- MCSA: Cloud platform and infrastructure
- MCSD: Productivity
- MTA: Database, Mobility
- MTA Developer: Microsoft Technology Associate Developer
- Google developers certifications (Associate Android developer, mobile web specialist)
- Kony Certified Developer.
- Salesforce Certified Platform App Builder.
- CSSLP: Certified Secure Software Lifecycle Professional.
- C and C++ Certifications.
- PCP: Puppet Certified Professional.
- SSCE: SaltStack Certified Engineer.
- Oracle Certified Associate, Java SE 8 Programmer (OCAJP/SCJA)
- Oracle Certified Expert, Java EE 6 Web Component Developer
- Oracle Certified Expert, Java EE 6 Java Persistence API Developer
- Python Programming Certificate - O'Reilly School of Technology
- Certified Competent Business Analyst (CCBA)
- Certified Business Analysis Professional (CBAP)
- PMI (Project Management Institute)
- Project Management Body of Knowledge (PMBOK)
- Prince 2
- International Institute of Business Analysis (IIBA)
- Business Analysis Body of Knowledge® (BABOK®)

ENTRY REQUIREMENTS

Academic entry requirements

Applicants must have completed one of the following—

- The requirements for an undergraduate degree or graduate certificate or diploma in any specialisation, from a New Zealand tertiary institution.
- The requirements for an undergraduate degree from an overseas tertiary institution, recognised as equivalent by the New Zealand Qualifications Authority.
- Equivalent industrial, professional or educational experience.

English language entry requirements

Students whose first language is not English must provide evidence of competency in English language equivalent to IELTS Academic score of 6.5, with no band score lower than 6.0; or an equivalent or better score in NZSE's internal English Proficiency Assessment approved by NZQA.

The score must have been achieved in one test taken in the preceding two years. International students must hold a valid study visa to enrol in this programme.

Academic pathways

This programme leads into further postgraduate study, including a Master of Information Technology from the **University of Auckland** or a Master of Information Technology at the **University of Waikato**. This is a 180 credit taught Master's programme, which is also geared towards getting work-ready graduates into industry.

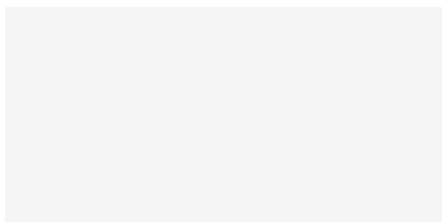
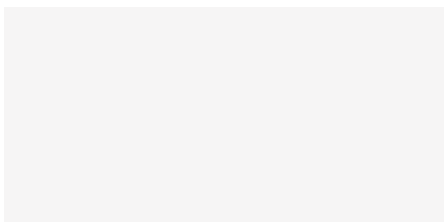
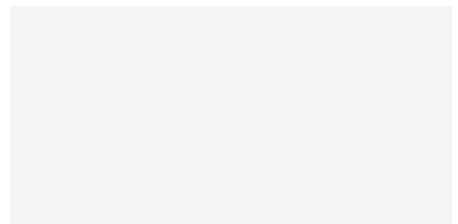
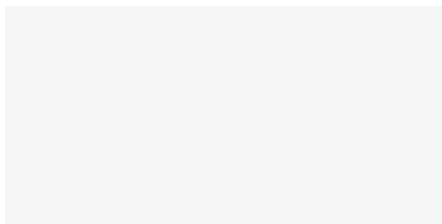
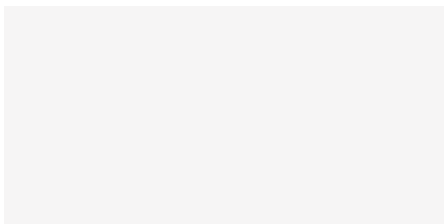
Employment opportunities

Graduates of this qualification will have the skills and knowledge to work in the IT industry in a range of entry level roles. The scope of the qualification outcomes matches requirements for IT support roles at Tier 1—

- Software Developer
- Web and Mobile Application Developer
- Software/System Engineer
- Software Architect
- Project Manager
- Database Developer/Administrator
- Business/Data Analyst
- Test Analyst
- Software Quality Assurance Analyst
- Service Desk Manager
- Technical Sales (Sales Engineer)

OUR ACADEMIC PARTNERS

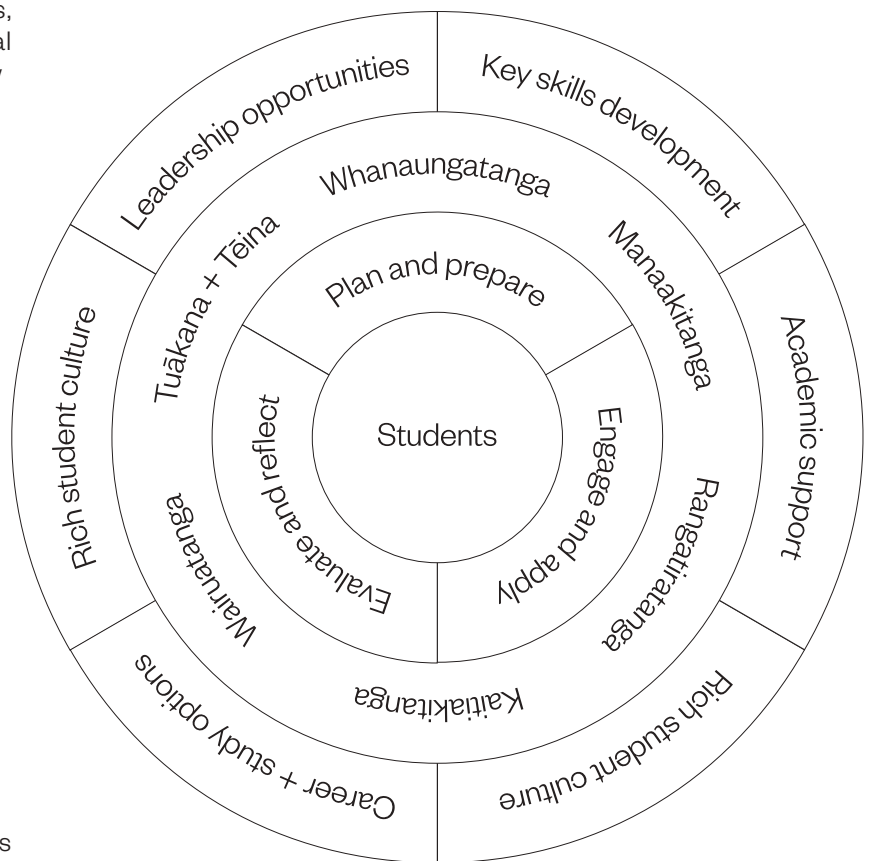
NZSE have partnerships with universities and polytechnic institutions across New Zealand to provide students with higher educational pathways.



RESEARCH CULTURE

OUR LEARNING APPROACH

Students are at the centre of teaching and learning at NZSE and we believe students learn best when they are actively engaged in their learning. Our aim is therefore to provide a rich educational experience using a variety of learning strategies including projects, case studies, problem based learning, and practical activities. The use of these strategies allow students to demonstrate new skills and construct new meanings and knowledge. In doing so students also develop communication, collaboration, creativity, leadership and technology proficiency—the skills highly valued by 21st century employers. All students are expected to access MoodleRooms NZSE's online learning and teaching tool Learning Media System. It is available 24 hours a day, 7 days a week. At NZSE the timetabled use of interactive, technology supported resources, are planned as part of the learning experience. These may be synchronous or asynchronous. Therefore, online participation whether it be in the form of wikis, blogs, and streamed data for example, is already making an increasing contribution to student learning. Student support, learning support, computing support, is available to students online. Online participation in a range of digital learning activities and resources, online simulations, facilitated group work and problem solving, wikis and blogs can also be complemented by face to face or other online delivery. A variety of learning and teaching methods are utilised in programmes to meet the diverse learning styles, contexts and needs of students.



BYOD facilitates creativity, leadership, communication, and technology proficiency —skills that are highly valued by employers.

BYOD (or Bring Your Own Device) is a strategy implemented in many schools and business, and is becoming a standard feature in tertiary education. BOYD enables students to actively access learning material and resources 24/7 on any NZSE campus or anywhere else they're connected to the internet.

Students can use BYOD to access learning content; collaborate with others; access, prepare, record and present information and ideas; prepare assessments; and develop their ePortfolios.

BYOD

CAREER SERVICES & EMPLOYMENT

ABOUT US



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