



Internet of Things for Sustainability (Micro-credential) Handbook

Valid for November 2021 intake.

This student handbook provides applicants with an introduction to Tech Futures Lab (and The Mind Lab) and the *Internet of Things for Sustainability (Micro-credential)*, also referred to as the 'Programme'. It outlines the expectations and requirements of the Programme.

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Tech Futures Lab and The Mind Lab

[The Mind Lab](#) is a specialist education provider dedicated to enhancing contemporary practice, digital fluency and change in education across New Zealand. The Mind Lab is committed to helping implement contemporary practice in the teaching profession by reflecting new theoretical and practical frameworks of contemporary education. We are committed to creating impactful futures.

[Tech Futures Lab](#)¹ is a subsidiary of The Mind Lab. Established in 2016, Tech Futures Lab helps professionals and organisations to adapt, learn, lead and succeed in a fast-changing world. Tech Futures Lab was built on the vision of building business success and personal capability in New Zealand, to turn emerging opportunities into impactful realities, to advance and develop business capability, and to positively impact the economy, the environment, and communities for a brighter future.

At The Mind Lab and Tech Futures Lab, a kaupapa Māori approach ensures that students, facilitators, practitioners, and researchers have the community and their colleagues at the heart of their professional practice, study and research. Positive relationships between people and places are at the center of our philosophy and values for teaching and learning. As an institution, the following organisational kaupapa Māori values drive our practice:

- Manaaki: that learners are interconnected with The Mind Lab teaching and learning community during their study
- Rangatiratanga: Leadership, accountability, agency and authority
- Ako: our way of reciprocal teaching and learning
- Pono: truth, honesty, integrity and transparency

¹ Tech Futures Lab is an education facility of The Mind Lab. The Mind Lab is a Private Training Establishment (PTE) registered by the Tertiary Education Commission (TEC) to deliver [qualifications approved](#) by the New Zealand Qualifications Authority (NZQA) under the provision of the Education Act 1989. All policies and procedures of The Mind Lab also apply to Tech Futures Lab. Terms and Conditions, Policies and Declarations that relate to The Mind Lab also relate to Tech Futures Lab unless expressly stated otherwise.

Programme Information

*Internet of Things for Sustainability*² is a Level 8, 15-credit micro-credential that will support professionals, organisations and communities from a range of practices to understand the fundamental principles of the Internet of Things (IoT) and develop the skills necessary to apply IoT solutions to sustainability challenges within their practice context. Specifically, the programme will provide learners with the knowledge, skills and appropriate frameworks to identify and evaluate sustainability challenges that could be addressed using technology solutions. The programme is designed to provide opportunities for individuals from a range of relevant industries and communities to leverage technology to sustain cultural, social, environmental and economic outcomes with effective and informed decisions.

The first intake of this micro-credential begins on 15th November 2021.

Learning Outcomes (Graduate Profile)

All graduates of the *Internet of Things for Sustainability (Micro-credential)* will be able to:

1. Evaluate the business, technology and data dimensions of IoT systems for authentic and sustainable value.
2. Critically evaluate the effectiveness of IoT technologies in addressing sustainability challenges in global and local, urban and rural contexts.
3. Develop and apply IoT solutions to address core sustainability challenges in practice.

Programme Structure and Delivery

This 10-week micro-credential includes an average of 15 learning hours per week. The Internet of Things for Sustainability micro-credential's blended delivery approach includes self-directed and directed learning activities supported by weekly 90 minute virtual synchronous class sessions. The first synchronous session will serve as an orientation and create a sense of community of learners. The subsequent sessions will have two purposes: to provide an opportunity for learners to ask questions and discuss and reflect on key learning during the course. These sessions will be recorded and whilst optional we recommend attendance where possible to get full value from the programme.

Online synchronous sessions will take place on Thursday 4:00 - 5:30pm.

² Kua whakamanahia tenei akoranga e Te Mana Tahu Matauranga o Aotearoa i raro i te wahanga 249 o te Ture Matauranga 1989, a, kua whakamanahia The Mind Lab Limited Partnership ki te whakarato i taua akoranga i raro i te wahanga 250 o te Ture. This programme is approved by the New Zealand Qualifications Authority under section 249 of the Education Act 1989, The Mind Lab Limited Partnership is accredited to provide it under section 250 of the Act.

	Theme	Topics	Online Session	Assessment
Week 1 15/11	IoT and Sustainability	IoT for Sustainability; Sustainability as a framework for IoT	Q & A Course Introduction	
Week 2 22/11		Human Value and Impact Perspectives on IoT for Sustainability	Q & A Sustainability Frameworks	
Week 3 29/11	IoT Fundamentals	Sensors, Networks and Software (including the role of 5G networks)	Q & A Technology Fundamentals	
Week 4 6/12		Data, Governance and Ethics	Q & A Data	
Week 5 13/12		User Centered Design and Systems Thinking for IoT Applications	Q & A Systems Thinking	Assessment 1 Due
CHRISTMAS BREAK - 20th December 2021 - 9th January 2022				
Week 6 10/1	Applications of IoT for Sustainability	<i>Smart Cities: Water and Waste</i> , IoT and Sustainability	Q & A Smart Cities	
Week 7 17/1		<i>Smart Cities: Transport and Logistics</i> , IoT and Sustainability	Q & A Smart Cities	
Week 8 24/1		<i>Agriculture</i> , IoT and Sustainability	Q & A Agriculture	
Week 9 31/1		<i>Health</i> , IoT and Sustainability	Q & A Health	
Week 10 7/2		Where to now? Reflecting on the use of IoT for Sustainability	Q & A Next Steps	Assessment 2 Due

Resources Required for Study

Students will need to have access to appropriate devices and the Internet to be able to enrol in this programme. This is important as they will need to be able to access the online materials and communication tools throughout both the self directed parts of the programme and the sessions online.

Application for Admission

Applications to the Programme are made through The Mind Lab [enrolments site](#). This is where all the required details and documentation for enrolment are provided by applicants to be processed, and the payment method selected.

Eligibility

To be eligible to study on the Programme, applicants must meet the admission criteria. The high-level entry criteria as approved by NZQA are as follows:

A Bachelor's degree or an equivalent level qualification OR equivalent professional experience in a relevant field.

Note: Applicants must supply robust evidence to show academic qualifications and/or equivalence to academic qualifications. Evidence of informal and formal learning can include but is not limited to;

- Professional and/or community positions held
- Professional and/or community awards
- Professional and/or community references
- Professional and/or community outputs
- Invitations to represent to professions and communities at conferences

Evidence of informal and formal learning will be assessed by the National Academic Director or delegated authority.

Students are unable to gain credits learning towards this 15 credit microcredential through cross-crediting or accreditation of prior learning.

International Students

This programme is available to study as an international student either via online distance learning or if you currently reside in New Zealand and your visa conditions allow study. To find out more about studying with The Mind Lab as an international student, and for programme fees, visit our International Students page.

Admission

If an applicant is eligible to undertake the programme, and the required documentation has been provided and verified, the applicant will be enrolled as a student on the Programme.

Verification of Enrolment

The Mind Lab admissions team will verify applications as they come through and request further information from applicants if required. Once their enrolment is complete, successful applicants will receive an email confirmation of their enrolment.

Fees

The tuition fee for the Programme is \$900 (including GST).

Unfortunately students are not eligible to apply for StudyLink Student Loans for this micro-credential.

Scholarships

The Productivity Scholarship is available for up to enrol in the *Internet of Things for Sustainability* micro-credential in the November 2021 intake (starting 15th November). The scholarship is available only for domestic students and on a first-come-first-serve basis (as applications are completed). You will be applying for the scholarship by completing your application - there is no separate application form for applicants to complete.

There's no specific criteria to meet to be awarded a Productivity Scholarship (other than the entry requirement criteria to the programme), but we do ask you to agree to attend all sessions and complete assessments to the best of your ability.

Covid-19 has shone a light on some of the world's biggest challenges – culturally, environmentally, socially and economically – and this micro-credential provides an opportunity to explore different ways of thinking about technology and the contributions they could make to address sustainability challenges in organisations and communities.

At The Mind Lab we believe wholeheartedly that learning at the front edge of technology sustainability will contribute significantly to the future of Aotearoa New Zealand. This is your opportunity to learn with New Zealand's most innovative education provider and gain insights into how you can contribute to address challenges that impact us all.

Withdrawal Scenarios

If you are already enrolled in the Programme and decide to withdraw, there are different [withdrawal scenarios](#) depending on when you withdraw.

On application, candidates must agree to the [Terms and Conditions](#) before we can process an enrolment into the Programme.

Refund Entitlements

Course	Course Start Date	10% Cut off Date	75% Cut off Date	Course End Date
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Internet of Things for Sustainability Micro-credential	15/11/2021	23/11/2021		13/2/2022
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Assessment

Assessment Strategy

Assessments in this Programme have been designed to support the learning process. Students on the Programme are assessed through both a formative and summative assessment. The summative assessment is the academic assessment of the Programme which grades are awarded against and contribute to credits for the course. Assessments should be thought of as learning tools, where students present and receive feedback on their work in order to improve it. The assessments on this Programme are completed both individually and collaboratively.

The Internet of Things for Sustainability micro-credential has two summative assessments across the 10 weeks that will provide an opportunity for students to apply their learning to their context, and complete the programme with a change strategy for a sustainability initiative that they have begun to implement in their context.

- Assessment 1: Assignment - identifying an IoT opportunity in the context of practice that could be addressed using IoT and justify the opportunity. Group Assessment.
- Assessment 2: Presentation - develop a robust proposal for an IoT system that could be implemented to address a sustainability challenge in their practice context. Individual Assessment.

Due dates for assessments are provided in the programme calendar that is provided upon commencement of the programme via Ako Mai (Learning Management System). Further detail on assessments can be provided if requested. Please contact iots@techfutureslab.com

Assessment Outcomes

The Programme provides students an opportunity to value learning for learning's sake, as well as to achieve a practical outcome which contributes to their own professional development and that of their context.

All assessments in the Programme are measured against a competency-based format. Final outcomes for the summative assessment, and therefore the micro-credential course, are a Not Yet Competent or a Competent grade.

To get a Pass grade for the micro-credential overall, students must satisfy all assessment criteria related to the Learning Outcomes of the courses. Importantly, students will receive feedback targeted to these Learning Outcomes especially through the formative assessment process. A student can also receive an interim outcome of 'Pass with Requirements' for an assessment, which means that there are further requirements to fulfill in order to pass the assessment. These requirements must be met in the stated time frame before continuing.

Resubmission

You may apply to undertake a resubmission/reassessment for a failed assessment within seven days of receiving your marked assessment. This application is assessed by the Programme Lead who, guided by the Assessment and Moderation Panel, approves resubmission applications based on the Assessment and Moderation Panel being convinced that the resubmission can be completed in an appropriate time frame, normally not longer than one month. All resubmissions will be carried out within a specified time period as agreed with the Programme Lead.

Te Reo Māori and New Zealand Sign Language

All students are offered the opportunity to submit any assessment in the official languages of New Zealand: New Zealand English dialect, Te Reo Māori, and New Zealand Sign Language. We ask students to indicate to the Programme Lead when starting the Programme if they intend to submit assessments in Te Reo Māori or New Zealand Sign Language, to ensure there is available resourcing to support their learning.

Special Assessment Circumstance (SAC)

If an unforeseen circumstance impairs the ability of a student from doing well on an assessment (including submitting assessment on time and/or giving a presentation), students are able to apply for a Special Assessment Circumstance with relevant evidence within 5 working days of the assessment item due date.

Student Support and Wellbeing

The Tech Futures Lab team is committed to creating an inclusive learning environment and to working alongside all students to support them through their studies on this Programme. This support includes educational and learning support, as well as different types of non-educational support.

If a student has any impairments that impact their learning, we encourage them to speak to the Programme Lead so that appropriate support systems can be put in place to assist them.

Variations on Enrolment

If students encounter circumstances or challenges which are impacting their ability to continue with a programme or course, they should contact the Programme Lead or the local Facilitator in the first instance to discuss what options for support are available. It may be possible to suspend enrolment for a period of time, or for students to withdraw from a course and re-enrol at a later date. Terms and conditions for variations to enrolment are outlined during the enrolment process.

Important Student Information

Below are some key policies and procedures relevant to all programmes of study at The Mind Lab.

[*The Mind Lab Code of Conduct*](#) is designed to promote the upholding of professional standards and academic integrity. It covers the personal conduct of all staff, students and contractors.

[*The Mind Lab Privacy Policy*](#) provides details of how student and staff privacy will be maintained.

[*The Mind Lab Student Complaints and Appeals Policy*](#) outlines the procedures to be followed if an applicant or student makes a formal complaint, or makes an appeal against *The Mind Lab's* decision outcome.

Complaints and appeals are submitted in writing, with evidence to academicmanagement@themindlab.com. An appropriate investigator is assigned by The Mind Lab Academic Team to review the complaint or appeal and conduct an investigation and identify a resolution. All groups involved in the investigation will be kept up to date throughout. Full details of the process can be found in TML Student Complaints and Appeals Policy and Procedures.

In the instance that a complaint is not resolved to your satisfaction by The Mind Lab, you can [raise your concern](#) in writing with the New Zealand Qualifications Authority (NZQA).

About The Mind Lab Governance and Management

The Mind Lab is governed by an Independent Board, and *The Mind Lab Academic Board* is accountable to *The Mind Lab Board* for ensuring processes exist to facilitate, manage, evaluate, and monitor all aspects of the *Quality Management System* including the *Academic Quality of Programmes*.

All Governing Members of *The Mind Lab* have provided a verified statutory declaration to NZQA and no conflicts of interest have been declared.

Information in this handbook is subject to change and is updated with a version number and valid date, please check the programme page on themindlab.com for the most current version.