AUT

ENGINEERING

INDUSTRIAL PROJECTS

Working Together:
Your Guide to AUT Engineering Partnerships
A practical guide to industry collaboration opportunities

What This Guide Covers

Auckland University of Technology's School of Engineering, Computer & Mathematical Sciences (ECMS) connects industry with final-year students working on real business challenges. These partnerships give students authentic learning experiences while providing companies with fresh perspectives on technical problems.

Our students bring academic knowledge, enthusiasm, and innovative thinking to your projects. While they're still learning, they work under academic supervision and dedicate significant time to delivering meaningful results.

Bottom Line: You get dedicated final-year engineering students working on your challenges - fresh thinking that would typically cost tens of thousands in consulting fees, but with much less commitment and more flexibility in how you work with us.

Guide Overview

To learn more about how AUT can support your needs, please contact us:

Leanne Bint
Email: leanne.bint@aut.ac.nz

Tanya Pleshkova
Email: tanya.pleshkova@aut.ac.nz

1 Why Partner with AUT?

1.1 The Business Challenge

Technology is changing faster than ever. Companies need to keep innovating, but resources are limited. Many organisations struggle with exploring emerging technologies and future opportunities (Horizon 3 innovation) due to immediate operational demands and resource constraints. Partnering with universities like AUT helps solve this challenge by providing:

- Access specialised technical expertise without permanent sta ing commitments.
- Opportunities to explore emerging technologies with limited financial risk.
- Talent pipeline development aligned with organisational requirements.
- Enhanced innovation culture through exposure to academic research.

1.2 Scale and Reach

- Large engineering and computer science graduate pipeline in New Zealand.
- Comprehensive programme portfolio spanning electrical, mechanical and software engineering.
- Strong track record of successful industry partnerships.
- Access to specialised laboratories and advanced manufacturing facilities.
- Established pathways to commercialisation through university ventures.

1.3 Industry Alignment

- Curriculum developed in consultation with industry advisory committees.
- Faculty with extensive commercial experience.
- Research programmes addressing real-world industry challenges.
- Flexible engagement models accommodating diverse organisational needs.

2 Student Technical Capabilities

Our students possess technical competencies across multiple engineering disciplines:

- Electrical & Electronic Engineering:

Power systems, embedded systems, telecommunications, control systems.

- Mechanical Engineering:

System design, thermodynamics, materials science, manufacturing processes.

- Software Engineering:

Software architecture, database systems, artificial intelligence, cybersecurity.

3 Partnership Options

Main Ways to Work Together

AUT offers three primary partnership models, each designed to address specific industry requirements and organisational objectives:

- **Option 1: Undergraduate/Postgraduate Student Final Projects**

Duration: Two academic semesters (March-November or July-June).

Resource Commitment: 300+ hours per student.

Team Structure: 2-4 students with academic and industry supervision.

Primary Application: Exploring new ideas and technologies that aren't urgent for your day-to-day business. Think proof-of-concepts, testing new approaches, or investigating "what if" scenarios. These are the innovation projects you'd like to explore but don't have spare capacity for - perfect for students to tackle over 6-8 months.

- **Option 2: Research Partnerships**

Duration: 6-24 months (flexible).

Resource Commitment: Variable based on scope.

Team Structure: Academic staff, PhD students, industry collaborators.

Primary Application: Advanced technology development and validation.

- **Option 3: Expert Consulting**

Duration: Project-specific.

Resource Commitment: As required.

Team Structure: Academic specialists with technical support.

Primary Application: Specialised testing, analysis, and expert consultation.

4 How It Works in Detail

Undergraduate/Postgraduate Student Final Projects:

Project Scope - Projects should combine elements of research, design, implementation, testing, and performance evaluation. Suitable projects may include:

- Development or analysis of existing systems or products.
- Enhancement of current technologies with additional features.
- Independent components of larger organisational initiatives.

Resource Requirements:

- **Industry Commitment:** 1 hour fortnightly for mentorship and guidance. Mentorship sessions can be conducted remotely via video conferencing or in-person as preferred. Site visits may be arranged if beneficial to project outcomes.
- **Student Dedication:** 300+ hours across two semesters.
- **Academic Oversight:** Continuous supervision and quality assurance.
- **Material Costs:** Industry responsibility for required materials (typically minimal).

Quality Assurance Mechanisms

- Student selection based on academic performance and project alignment.
- Structured milestone review process according to the Final Year Project Milestones shown in the table:

Assessment	Proposal	Mid-project status review	Project Academic Mentor evaluation	Client evaluation	Reflective report	Final product and portfolio	Poster Showcase
When	Week 5 of first semester of project	Week 12 of first semester of project	Ongoing	Week 12 of second semester of project	Week 12 of second semester of project	Week 12 of second semester of project	Weeks 13-14 of second semester of project.

- Documentation and presentation standards.

Intellectual Property Management

- Flexible IP arrangements tailored to project requirements.
- Standard confidentiality agreements with customisation options.
- Clear guidelines for existing and newly developed IP.
- Protection mechanisms for proprietary information.

5 Benefits

Immediate Outcomes (First Year)

Innovation and Development (depending on the project)

- Proof-of-concept delivery addressing specific technical challenges.
- Technology validation reducing commercial development risk.
- Enhanced internal capability through knowledge transfer.
- Documentation and potential intellectual property development.

Strategic Positioning

- Exposure to emerging technologies and methodologies.
- Insights through student research activities.
- Brand enhancement through association with leading university.
- Talent identification for future recruitment initiatives.

Long-term Strategic Value (Ongoing)

Sustainable Innovation

- Established pipeline for ongoing technology development.
- Continuous access to emerging talent and capabilities.
- Sustainable competitive advantage through partnership leverage.

Success Indicators

- Successful project completion with final presentations and documentation
- High student engagement and learning outcomes
- Industry partner satisfaction and interest in future collaboration
- Projects leading to further development or implementation consideration
- Opportunities for student internships or employment with industry partners

6 Expectations and Risks

Academic Oversight

- Dedicated academic supervision for all industry partnerships.
- Structured project management methodologies.
- Regular quality assessment and check-ins.

Commercial Protection

- Comprehensive confidentiality and IP protection agreements.
- Clear guidelines for information sharing and protection.

Quality Standards

- Student selection criteria based on academic performance, project fit and student interest.
- Structured milestone and deliverable review processes.
- Professional presentation and documentation requirements.
- Continuous monitoring and improvement protocols.

Partnership Support and Issue Resolution

- Milestone reviews allow for early identification and resolution of concerns under academic supervision.
- Flexible project scope adjustments available through discussion with academic supervisors.
- Option to modify project direction or deliverables based on evolving business needs during industry supervision meetings.

Project Scope and Expectations

- Projects are designed primarily for educational purposes; therefore specific business outcomes cannot be guaranteed.
- Students require mentorship and guidance as part of their learning process.
- Student employment decisions remain independent of project participation.
- Academic learning objectives take precedence alongside commercial goals.

Annual Project Showcase

- Students present their projects at our end-of-year showcase event.
- Opportunity for industry partners to see all student work.
- Networking event with other industry partners and academic staff.
- Recognition for outstanding projects and partnerships.
- Chance to meet potential future collaborators and students.

7 How to Get Started

Step 1: Let's Talk

- Discuss with us your challenge and what you want to achieve.
- Check if we have the right students and expertise.
- Agree on project scope and timeline. Make sure your timing works with university calendar (projects start in March or July).

Book a meeting

Step 2: Set Things Up

- Sort out agreements for confidentiality and IP.
- Kick off the project with everyone involved.
- Set up regular meeting schedule.

Step 3: Working Together

Submit project

- Regular mentoring sessions with students.
- Check progress.
- Make adjustments if needed.

Step 4: Wrap Up and Review

- Review what the students have delivered.
- Evaluate how the partnership went.
- Discuss future opportunities.

8 Resource and Investment

Your Time Investment

- 1 hour fortnightly providing guidance and answering questions.
- Being available when students get stuck or need direction.
- Reviewing their work and giving feedback.

What You Provide

- A real challenge that students can learn from.
- Basic materials needed for the project (usually minimal).
- Someone from your team who can mentor and guide them.

What You're Really Getting

- 300+ hours of dedicated student work on your challenge.
- Fresh perspectives.
- Academic oversight ensuring students stay on track and learn properly.
- Access to university facilities and academic expertise when needed.
- A chance to spot potential future employees early.

Project Outputs and Example of recent Industry Partnership

The schedule of deliverables required from the Student includes the submission of a comprehensive engineering report, two oral presentations and a Project Poster.

Needle Detection Project: Identify Needles that may Accidentally Contaminate Manufacturing Processes

Technologies: The system uses machine learning, computer vision, sensors, microcontrollers, IoT connectivity, real-time image processing, wireless communication, and database tracking.

Prototypes: The prototype includes cameras, sensors, a control unit, monitoring display, alert systems, and testing equipment to validate accuracy.

Implementation: The system integrates with production lines, monitors in real-time, alerts when needles are detected, collects data for improvements, maintains quality control, provides operator training, and includes documentation.

Please feel free to browse our ECMS partner webpage. If you have any thoughts or questions, we're happy to discuss them with you. Let us know if this provides sufficient information to discuss with your team and colleagues.

Our Engineering degrees are accredited by Engineering New Zealand. Specifically, the Bachelor of Engineering (Honours) is accredited by Engineering New Zealand and meets the Washington Accord. The Bachelor of Engineering Technology degree is accredited by Engineering New Zealand and is a signatory of the Sydney Accord.

To learn more about how AUT can support your needs, please contact us:

Leanne Bint
Email: leanne.bint@aut.ac.nz

Tanya Pleshkova
Email: tanya.pleshkova@aut.ac.nz