AUT

Bachelor of Computer and Information Sciences (BCIS)

Research & Development Project Sponsor Guide

S1 2024

Contents

What are BCIS Projects?

The BCIS project enables students to gain practical experience, acquire new knowledge and skills independently, and to develop professional acumen.

Each student devotes 300 hours of work to their allocated project over 2 academic semesters. Normally, three to five students work on a project as a team.

The outcome of this work should be solutions to specific problems and applications in the IT industry.

What knowledge can you expect?

Full details of the courses studied by major can be found on the AUT website.

Completed core courses for all majors.

All students complete a set of core courses and at least three major specific courses before enrolment in the BCIS Research and Development Project. The list (given below) is an indication of the basic IT knowledge to be expected.

- C programming (1 semester)
- Computing &Technology in Society
- Database System Design (Oracle)
- Collaborative Practices
- IT Project Management
- Mathematics for Computing

Major Specific Knowledge Areas.

Additionally, students will have knowledge in the following areas:

- Computer Science major: Java Programming, Data Structures, Algorithm Design and Analysis, combinatorics, Graph Theory, Computer Graphics (OpenGL).
- Data Science major: Data Analysis, Statistics, Data Science, Forecasting and either Data Structures or Combinatorics and Graph Theory.
- Digital Service major: Digital Services in IT, Needs Analysis, Acquisition and Training, Service Modelling, Microservices and either Program Design and Construction or Information Security Technologies.
- Networks and Cybersecurity major: Networks and Internet, Operating Systems, Information Security Technologies, Network and Systems Administration, Computer Network Applications.
- Software Development major: Program Design and Construction, Data Structures and Algorithms, Operating Systems, Algorithm Design and Analysis, Java Programming.

Concurrent Knowledge Areas.

Additionally, students will be taking the following courses, depending on their chosen majors, at the same time as undertaking their R&D project:

- Computer Science major: Theory of Computation, Programming Languages, Distributed and Mobile Systems.
- Data Science major: Nature Inspired Computing, Artificial Intelligence, Data Mining and Knowledge Engineering.
- Digital Service major: Service Innovation and Design, Internet of Things and Applications and Information Security Management.
- Networks and Cybersecurity major: Network Security, and Advanced Network Technologies or Enterprise Networks, and Highly Secure Systems or Information Security Management.
- Software Development major: Applied Human Computer interaction, Contemporary Issues in Software Engineering, and Distributed and Mobile Systems or Web development.

Benefits, roles, risks, costs, confidentiality, and ownership

AUT's role and benefits

Project descriptions provided by industry sponsors are evaluated by academics. An academic supervisor is allocated to each project team. Supervisors support student teams, provide feedback to students in assessment areas and mark project work.

BCIS students begin to learn business processes, problems, and solutions, while also gaining new skills in a real work context.

Industry role and benefits

Sponsors benefit from additional resources for specific IT "lower level" projects. Students can bring fresh ideas and perspective. Industry provides a proposal introducing the organisation's background, a project description, objectives/goals, technical or other constraints, and desired outcomes (Appendix C).

Please be aware of AUT's expectations for learning outcomes. You are working with students (not professionals) during their third and final year of study.

It is in your interest to encourage them to meet their goals. A sponsor provides at least one main contact person and assigns some working time for student meetings. Students must be able to consult with this person. Each student receives a mark for their project. The sponsor's contact person contributes to the final mark via their feedback and evaluation.

Risks

Student projects involve shared risks. The experience should be mutually beneficial. While AUT provides academic supervision, deliverables are offered without warranty or guarantee. The standard project disclaimer (Appendix A) indicates these conditions.

Post project arrangements may be negotiated directly with student(s) if there is mutual interest in continuing to work together in a different capacity. The relationship with AUT does not extend into this post-project phase.

Sponsor Investment

Students are aware that the R&D project is a core course in their degree program. Our project sponsors recognise the importance of the project to both them and our students by devoting their time to meeting with our students. In some cases, sponsors supply the resources necessary to undertake the project and may supply financial support for travel expenses. Students are not paid to undertake the project.

Intellectual Property

Students retain ownership of any Intellectual Property (IP) rights if they develop IP by themselves using their own resources and any AUT resources attributable to their course fees.

Students may be engaged in projects with sponsors who own or have developed the IP of the project and wish to retain that IP. Arrangements between sponsors and students about confidentiality and IP ownership are open for discussion and can be amended.

Police Vetting

Typically, we do not take on projects that require full police vetting. However, we will consider projects that require a CRC (criminal record check) if this is needed on a case-by-case basis. Please consult with our team if you need a CRC for our students to be able to work on your project.

Data Privacy

Data held under the data privacy act cannot be used in our projects. We recommend that clients provide a masked or dummy dataset that the students can work from. Some health data also requires institutional ethics approval, given the time required to gain such approvals unfortunately we can only run projects that make use of public open-access data or data for which institutional ethics consent is not required. If in doubt, please consult with our team before submitting your proposal.

What are the project timelines and milestones?

Students commence their project work at the beginning of semester 1 (S1) or semester 2 (S2) each year. We welcome sponsor project proposals throughout the year and usually offer projects in the next cycle.

Cycle 1:

Beginning of February	→	Beginning of March	→	Mid-July	Beginning of November
Project Acquisition Ends	Project Selection	**Project Start** Semester 1, Duration 12 weeks with a 2-week mid-semester break	3-week break	Semester 2, Duration 12 weeks with a 2-week mid-semester break	**Project Ends**

Cycle 2:

Beginning of July	→	Mid-July	→	Beginning of March	Beginning of June
Project Acquisition Ends	Project Selection	**Project Start** Semester 1, Duration 12 weeks with a 2-week mid-semester break	3-week break	Semester 2, Duration 12 weeks with a 2-week mid-semester break	**Project Ends**

What are the student milestones?

The students undertake the following academic assessment activities during their project.

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

How do I propose a project?

Sponsors are asked to submit their Project Description on the standard template (Appendix C). Please be succinct with the background, description, goals, and objectives of your project. The information you provide will be used by the students to choose the project they would most like to work on.

How is my project proposal considered?

Proposals are considered ahead of the next cycle by a team of academics. When assessing projects, we assess the learning needed to undertake your project is achievable while still delivering a useful outcome. We also consider the scope, risks, deadlines, nature of organisation, technology platform and availability of suitable hardware and software environment, logistics in relation to travel, nature of sponsor standards, commercial and copyright terms. If necessary, we will contact you to clarify aspects of the project before reaching a decision.

A week before the semester starts, students are provided with a project prospectus which will include your proposal. Students complete an Expression of Interest (EoI). Students are then assigned to projects based on their preferences, majors and their EoI.

Successful sponsors will be contacted by an academic supervisor and the student team within

one or two weeks. The project team will schedule meetings with you to gain sufficient information and to discuss the objectives, goals, constraints, and other details.

Please note that occasionally it is not possible to find suitable students for some projects. If this is the case for your project, we will be in touch with you to discuss offering your project again in the next cycle.

Project Examples

YMCA Website

Students developed a website for YMCA Camp Adair that enabled customers to make and manage their camp bookings. The site also enabled the camp administrators to manage customer accounts including invoicing, activity bookings, and catering. The website was designed to allow administrators to edit the website copy and content.

Data Finder

The students worked on an open-source graphical data management system with seamless access to the MataNui storage server. The students learnt Python and built on their existing Linux knowledge to develop a web service storage backend.

Excel to Cloud

Four students worked together to manage the transition of excel spreadsheets with data from various business units within a large organisation to a cloud-based reporting system.

Contacts

For any enquires please contact our Industry Engagement Manager (Leanne Bint, lbint@aut.ac.nz) by email.

Appendix A

Standard Disclaimer

Clients should note the general basis upon which the Auckland University of Technology undertakes its student projects on behalf of external sponsors.

All due care and diligence are expected to be taken by students (acting in software development, research or other IT professional capacities) and AUT. While student efforts will be supervised by experienced AUT lecturers, projects are undertaken in the course of student instruction. Therefore, there is no guarantee that students will succeed in their efforts.

This means that the client assumes a degree of risk. Projects are intended to be of mutual benefit. On completion of the project, it is hoped the client will receive a professionally documented and soundly constructed working software application, some part thereof, or other appropriate set of IT artefacts, while the students are exposed to live external environments and problems, in a realistic project and customer context.

Consequently, students acting in their assigned professional capacities and AUT disclaim responsibility and offer no warranty in respect of the technology solution or services delivered, (e.g., a software application and its associated documentation), both in relation to their use and results from their use.

Appendix B

AUT's Non-Disclosure Agreement

This agreement is entered into by the project sponsor (client/company names), Students and Academic Staff. The three parties acknowledge that each can benefit from the collaboration on this project. To support this collaboration, the parties agree as follows:

The Client's Confidential Information

Definition

Students and academic staff will be exposed to client's confidential information. Confidential Information means any information or material (commercial, financial, technical, other) that is valuable to the Client and not generally known or readily ascertainable. This includes:

- information about the Client's customers, suppliers, and business prospects; information concerning the Clients financials, including cost information, profits, and accounting; information concerning the Client's staff, including salaries, strengths, weaknesses, and skills.
- information about designs, concepts, solutions, technology, know-how, documents, systems, and developments, passwords for accessing confidential information, source code owned by the Client.
- any other information not generally known to the public which, if misused or disclosed, could reasonably be expected to adversely affect the Client.

Non-Disclosure

Students and academic staff shall keep the Client's Confidential Information in the strictest. confidence. Neither students nor academic staff will disclose such information to anyone outside the Client without the Client's prior written consent or unless confidential information lawfully enters the public domain.

Academic staff must be able to access and understand the work of students created during the course of the project for mentoring or assessment purposes in accordance with this confidentiality agreement.

Required assessments are:

- Proposal report and presentation to AUT academics
- Mid-project review status report and presentation to AUT academics
- Production and display in a public place of a poster describing project processes, outcomes, and related learning.
- Collection of project process related material and project products in a portfolio which is marked by AUT academics.

Students and academic staff make use of any Confidential Information only for the benefit of the Client or for assessment purposes. Students and academic supervisors' obligation to maintain the confidentiality and security of Confidential Information remains, even after the BCIS Project with the Client ends, unless Confidential Information lawfully enters the public domain.

Return of Materials

When students' time with the Client ends, for whatever reason, students will promptly return to the Client all originals and copies of all documents, records, software programs, media and other materials containing any Confidential Information except for any material that needs to be retained by AUT for the purposes of assessment and quality management of assessment processes. Students will also return to the Client all equipment, files, software programs and other personal property belonging to the Client.

Signatures

Students and academic staff have carefully read this Agreement and agree that the restrictions set forth are fair and reasonably required to protect Clients' interests.

Appendix C

Sponsor Project Proposal

Please describe your project goals and any constraints, at an overview or high concept level, in no more than 1-2 pages. Please provide the following information:

Project Title	
Organisation Name	
Client Contact	
Phone	
E-mail	

Introduction & Background

Please introduce your company, provide details about the reasons/motivation for and background of this project proposal, the rationale, and time frame and why the expected outcome will be useful.

Project Description

In more detail, please describe your vision of the final product. Explain what outcomes you expect including any proposed methods, technical tools, or commercial potential.

Project Goals/Objectives

Please list the project objectives or goals.

Technical or other Constraints:

Please outline any preferences or constraints related to the chosen technology platform, or organisational, legislative, or other circumstances relevant to your project

Do you require students to sign an NDA?

Yes | No

Is CRC vetting required?

Yes | No

Will you require students to sign an IP agreement?

Yes | No