Department of Science and Technology Curriculum 1st, 2nd and 3rd Years

The courses in red are for international students and Japanese returnees whose English is stronger than their Japanese. For such students, language arts and humanities course are offered in English, and Japanese as a foreign language is offered in place of English language courses.

		Minimum Credit Requirement: 38 credits		Minimum Credit Requirement: 38 credits		Minimum Credit Requirement: 32 credits	
		1st Year		2nd Year		Study in New Zealand	3rd Year
		1st Semester	2nd Semester	1st Semester	2nd Semester		Course Name
Special Activities		Special Activities ESD I (Education for Sustainable Development)		Special Activities ESD II (Education for Sustainable Development)		Internship at Company / Project with Company	
General Education Courses	Humanities	Japanese Language Expression IA (1) English Expression IA (1) Japanese Literature I (1) World Literature I (1)	Japanese Language Expression IB (1) English Expression IB (1)	Japanese Language Expression IIA (1) English Expression IIA (1)	Japanese Language Expression IIB (1) English Expression IIB (1) Japanese Literature II (1) World Literature II (1)	Humanities	Intensive course before studying abroad Global Studies (2)
		History and Culture IA (1) History and Culture (English) IA (1)	History and Culture IB (1) History and Culture (English) IB (1)	History and Culture IIA (1) History and Culture (English) IIA (1)	History and Culture IIB (1) History and Culture (English) IIB (1)		
	Health and Physical Education	Health and Physical Education IA (1)	Health and Physical Education IB (1) Visual Arts I (1) Performing Arts I (1)	Health and Physical Education IIA (1) Visual Arts II (1) Performing Arts II (1)	Health and Physical Education IIB (1)		
	Second Language	English Reading and Writing IA (1) Japanese IA (5) English Listening and Speaking IA (2) Bridge English (2)	English Reading and Writing IB (1) Japanese IB (2) English Listening and Speaking IB (1)	English Reading and Writing IIA (1) Japanese II (2) English Listening and Speaking IIA (1) Overseas English Program (4)	English Reading and Writing IIB (1) Japanese Communication (3) English Listening and Speaking IIB (2)	Second Language	Functional English (3) Technical English (4)
	Natural Science	PreCalculus A (2) Fundamental Mathematics A (2) Physics IA (1) Chemistry IA (1) Biology IA (1)	PreCalculus B (2) Fundamental Mathematics B (2) Physics IB (2) Chemistry IB (2) Biology IB (1)	Calculus A (2) Algebra and Geometry A (2) Physics IIA (2) Chemistry IIA (2) Biology IIA (1)	Calculus B (2) Algebra and Geometry B (2) Physics IIB (2) Chemistry IIB (2) Biology IIB (1)		
	Co-creation	Engineering Design IA (2) Engineering Context IA (1)	Engineering Design IB (2) Engineering Context IB (1)	Engineering Design IIA (2) Engineering Context IIA (1)	Engineering Design IIB (2) Engineering Context IIB (1)	Co-creation	Engineering Design III (8) Basic Engineering Skills (3)
	IT Literacy	Computer Skills IA (1)	Computer Skills IB (1)	Computer Skills IIA (1)	Computer Skills IIB (1)		
		English STEM Education Courses					
Specialized Courses	Specialized Field						Electric Circuits I (4) Electronic Engineering (4) Electrical Power Engineering (4) Mathematical Engineering (4) Sequence Control Engineering (4) Introduction to Networks (4) Engineering Mechanics (4) Mechanical Design (4) Heat Transfer Engineering (4) Fluid Engineering (4) Materials Science (4) Basic Electrical Engineering (4) Basic Programming (4) Programming (4) Web Design (4) Business Computing (4) Basic System Analysis (4) Basic Marketing (4) Management (4) Sustainable Business Practices (4) Basic Computer Engineering (4)

【English STEM Education Courses】

STEM stands for science, technology, engineering, and mathematics. It is a new curriculum based on the idea of interdisciplinary education in science and technology to teach students scientific thinking. The STEM education at International College of Technology is conducted in English. Students use English engineering terms and study science, math, physics, and chemistry in English. They accumulate knowledge from natural science courses and utilize it in co-creation courses, such as Engineering Design to realize their ideas and create new value.

【Engineering Design I, II】

Based on design thinking, we form teams and take on project-based activities aiming to create new value for a sustainable society. Teams examine the task, listen to feedback, and implement their ideas.

【Engineering Context I, II】

In this course, students learn principles of creating things and experiences, the ability to fully utilize IT and big data, and ethical issues concerning technology in society and environment.

【Visual Arts I, II】

Students become insightful members of global society by studying art and culture to gain a wide perspective, sensitivity, rich creativity, and the ability to express themselves. By interacting with people of various cultural backgrounds and technological fields, students will expand their skills in communication and cooperation.

【Performing Arts I, II】

Students develop good expression skills through practicing pronunciation, breathing techniques, speaking techniques, making speeches, acting, dancing, and becoming familiar with the world of music, drama, and dance. We also cover art, craft, and design, to increase students' sensitivity, deepen their knowledge in art, and cultivate their inspiration and expression.

Otago Polytechnic in New Zealand

Classroom in New Zealand

【Global Studies】

In order for students to fully benefit from their academic year in New Zealand, we provide preparatory training in advance. This includes gaining a sufficient level of English for a smooth homestay experience and learning to respect and be compassionate to others. Students individually study the local geography, culture, and activities of their future campus area. This information is valuable for living a comfortable life there. They also prepare for the courses they will take.

【Functional English】

Students will learn the necessary skills to live a smooth life in New Zealand. They will learn the characteristics of English speakers and how to effectively communicate in their everyday life. The ability to adapt to a foreign environment and communicate their thoughts and feelings in familiar/unfamiliar circumstances will improve their skills in teamwork, communication, negotiation, cognitive thinking, and cooperating in a multi-cultural team project.

【Engineering Design III】

Students will gain an integrated knowledge of technology and engineering. Through repeated discussions with instructors and team members they choose and define a project area and prepare a design. This is followed by the production process and system creation. Students prepare reports on the purpose and manufacturing process of the project, while building actual prototypes, computer models, and/or computer systems. The outcomes of these projects are presented to other students, teachers, and corporations in various formats using English.

【Training in Basic Engineering】

Students learn to apply their knowledge in mathematics and physics through practice with CAD and 3D modeling.

【Specialized Field】

Students choose three courses which match the goals they set.

Required Courses (credit)
Elective Courses (credit)
English STEM Education Courses
Otago Polytechnic Courses (credit)

Department of Science and Technology Curriculum 4th and 5th Years

		Minimum Credit Requirement: 32 credits		Minimum Credit Requirement: 27 credits	
		4th Year		5th Year	
		1st Semester	2nd Semester	1st Semester	2nd Semester
Special Activities		Special Activities Humanity and Nature I		Special Activities Humanity and Nature II	
Internship		Internship I (1)		Internship II (1)	Entrepreneurship (1)
General Education Courses	Humanities	Academic Writing (1)			
		Social Science (2)	Humanities (2)	Psychology (2)	
	Health and Physical Education	Health and Physical Education IIIA (1)	Health and Physical Education IIIB (1)		
	Second Language	Comprehensive English IA (1)	Comprehensive English IB (1)	Comprehensive English IIA (1)	Comprehensive English IIB (1)
		Technical Communication (2)			
	Natural Science	Mathematical Statistics (2)			
	Co-creation	Engineering Design IV A (2)	Engineering Design IV B (2)	Engineering Design V A (2)	Engineering Design V B (2)
	Basic Engineering	Applied Mathematics IA (2)	Applied Mathematics IB (2)	Applied Mathematics IIA (2)	Applied Mathematics IIB (2)
				Engineering Mathematics (2)	
		Applied Physics IA (2)	Applied Physics IB (2)	Applied Physics IIA (2)	Applied Physics IIB (2)
		Applied Chemistry IA (2)	Applied Chemistry IB (2)	Applied Chemistry IIA (2)	Applied Chemistry IIB (2)
		Applied Biology I (2)			Applied Biology II (2)
Specialized Courses	Specialized Field	Electric Circuits IIA (2)	Electric Circuits IIB (2)	Electronic Circuits (2)	Electrical Machinery and Electronic Applications (2)
		Electromagnetics A (2)	Basic Electronic Circuits (2)	Electric and Electronic Materials Engineering (2)	Electrical and Electronic Instrumentation Engineering (2)
		Technical Drawing (2)	Electromagnetics B (2)	Mechanics of Materials II (2)	Control Engineering (2)
		Machining (2)	Mechanics of Materials I (2)	Measurement Engineering (2)	Information Mathematics IIB (2)
		Information Mathematics I (2)	Computer System B (2)	Information Mathematics IIA (2)	Database (2)
		Computer System A (2)	Software Engineering (2)	Software Engineering Lab (2)	Business Accounting (2)
		Fundamental of Laboratory Safety (2)	Data Structures and Algorithms (2)	Introduction to Management (2)	Applied Experiment and Practice in Chemistry B (3)
		Chemistry of Phase and Reaction (2)	Chemical Engineering (2)	Applied Experiment and Practice in Chemistry A (3)	Polymer Chemistry (2)
			Analytical Chemistry (2)	Programming A (2)	
			Computer Architecture (2)		
		Programming Lab A (2)	Design of Machine Element (2)	Transient Phenomena (2)	Materials Engineering (2)
			Thermodynamics (2)	Drawing Skills in Electrical Engineering (1)	Physical Electronics (2)
			Fluid Mechanics (2)	Thermal Engineering (2)	Network Systems Lab (2)
			Programming Lab B (2)	Operating System (2)	Media Informatics (2)
			Electrochemistry for Energy Conversion and Storage (2)	Environmental Chemistry (2)	Advanced Topics in Business (2)
					Programming B (2)

English STEM Education Courses

【Engineering Design IV】

Students deepen their understanding of the local society and economy while cooperating with other engineers from other fields and utilizing their basic technological experience and skill to develop a proposed solution for a societal need on a broader scale. This activity teaches the ability to understand the true nature of a problem, analyze how to solve the problem, creatively plan, and communicate efficiently.

【Engineering Design V】

Students independently find real-life problems in society and learn the problem-solving process firsthand by taking on the mission of planning, researching, analyzing, experimenting, evaluating, and presenting. The results are introduced in the form of a product and a written report. Students have the opportunity to display their knowledge and/or skill in this activity and learn to challenge themselves as global innovators to realize the value they conceived.

Required Courses (credit) / Elective Courses (credit) | English STEM Education Courses | Compulsory Elective Courses (credit)