

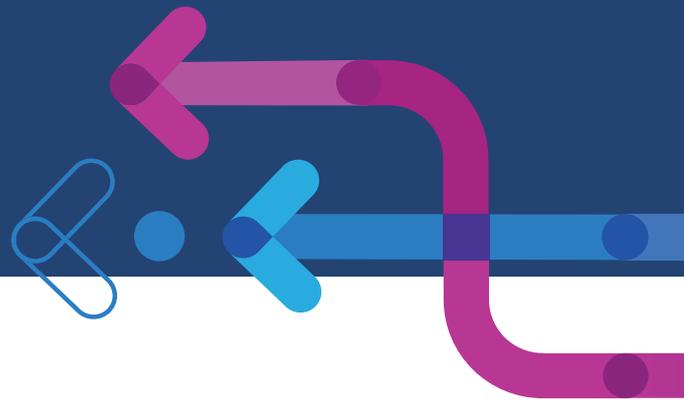
GEELONG
TECH
SCHOOL



2021 Program Guide



About us



GEELONG TECH SCHOOL

The Geelong Tech School collaborates with schools and industry to prepare secondary students for the future. We bring together the 'worlds' of work (industry) and study (Victorian curriculum) with hands on learning experiences that are grounded in design thinking and real world skills.

Partner school students gain a better understanding of diverse industries, local and global issues and transferrable skills that will be essential in rapidly changing future work places. Critical thinking, problem solving, teamwork, communication, creativity and technology skills are a key focus.

We are committed to building capacity within local schools through teacher professional development, delivery of high level programs as an extension to school programs, and supporting teachers to achieve successful STEM curriculum in their own schools.



What we do

- › Supporting teachers to integrate tech school programs and STEM, project based learning into their curriculum
- › Demonstrating 'what can be done' in the classroom with emerging technologies and working with teachers to build capacity to do the same in their own schools
- › Providing a range of opportunities for teachers to develop technology skills, experience design thinking and project based learning that has 'real world' local connections with industry
- › Working with teachers, encouraging collaboration to tailor program options to meet student needs and curriculum requirements

How we work

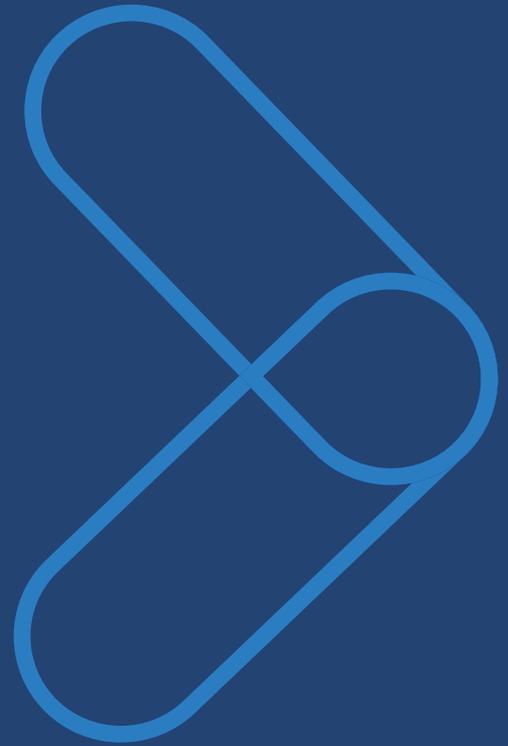
- › Programs are free to all partner schools, including transport to and from the school
- › Our programs inspire and engage local schools, students and teachers
- › We establish and sustain valuable partnerships with industry and local business
- › We provide and maintain a state of the art learning environment and tech hub
- › Our facilitators and staff are experienced, have specialised expertise and are passionate educators
- › We provide an extensive suite of resources online and support for programs



Register on the Teachers Portal on the website to hear about and access amazing teacher PD opportunities

Check out our events and outside school hours programs on our website geelongtechschool.vic.edu.au

Core Programs



Core Programs

Core Programs will be based around a scenario built from an industry brief. Students will be challenged to design solutions using technology as a vehicle while achieving school curriculum outcomes.

Core Programs will be facilitated by Tech School staff with the class teacher's support in the Geelong Tech School. They are a great example of our investment in building STEM confidence and capacity through working with teachers to give students an immersive experience with explicit links to STEM skills and knowledge. The aim is to support and assist teachers to engage students, to impact on student's subject selection at school and to provide insights into future possibilities and assist career planning.

A minimum 4 week commitment from one subject will be required for each Core Program with extensive resources and support documentation available. Programs will be facilitated both in the partner school by the teacher and in the Geelong Tech School to access equipment and expertise.

Program Structure

Core Programs will be facilitated both in schools by the teacher during normal class times and for 1 or 2 days in the Geelong Tech School depending on the program selected. Learning resources are provided for including a Teacher Delivery Guide and Student Workbook for every Core Program.

A full day Teacher PD is essential to participate in a Core Program and will ensure teachers are fully supported. This PD is provided free of charge and includes catering with reimbursement to the school for CRT.

Current Core Programs

Future Bricks - Austeng

Backed Up to the Future - Barwon Water

The Last Mile - Ford

Water Reality Check - Barwon Water

Bot Rescue - SES

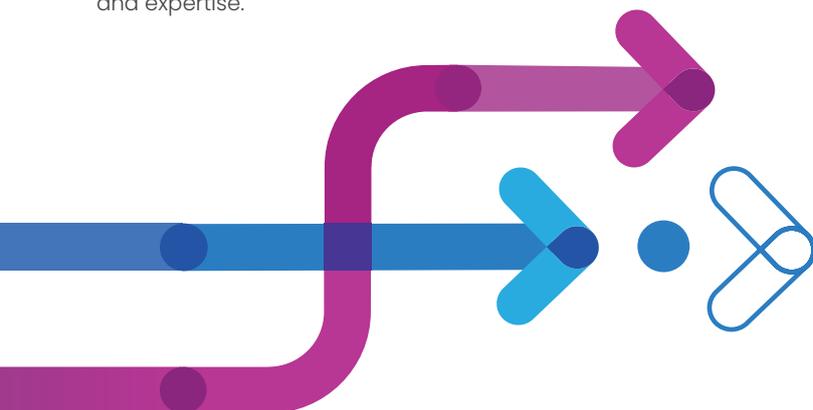
Bees with Backpacks - CSIRO

Coasting Drones - LSV

Design for Humanity - Field Ready

Future Fashion - AWI & National Wool Museum

Virtual X - ACMI





Future Bricks

Residential development forecasting predicts that the number of dwellings in the City of Greater Geelong will increase by an average of 2,112 dwellings per annum to 149,346 in 2036.

Austeng is a local engineering company that is investigating hemp bricks as a sustainable alternative to clay bricks. To assess the feasibility of hemp bricks as a commercially viable building product, Ross George from Austeng is calling on schools in the Geelong region to collect data from hemp bricks.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

5 x 50min lessons and 1 day at GTS

Student Outcomes

- > Interpret the design brief/challenge
- > Investigate conventional bricks and hempcrete
- > Design and create hemp bricks
- > Carry out testing using credible processes
- > Collate and analyse data
- > Reflect on processes and results

Main Curriculum Focus

Science, mathematics, digital technologies, design & technologies

<p>Module 1 1 x 50 min</p> <p>Populations & environmental impact</p> <p>Investigation of population growth and the need for sustainable building materials.</p>	<p>Module 2 2 x 50 min</p> <p>Hemp as a construction material</p> <p>Investigate the production of hemp and hempcrete as an alternative building material.</p>	<p>Module 3 1 x 50 min</p> <p>Making hemp bricks</p> <p>Students work in groups to make their own hempcrete bricks.</p>	<p>Module 4 Full day</p> <p>Testing bricks & data collection</p> <p>Testing the physical properties of hemp bricks in comparison to clay bricks.</p>	<p>Module 5 1 x 50 min</p> <p>Evaluation</p> <p>Evaluation and interpretation of brick testing data and forming conclusions by critical synthesis of investigations.</p>
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Backed Up to the Future

Water pipes get blocked and when they do, you either have too little or too much water

Barwon Water services many kilometres of pipe to millions of homes and businesses in the Geelong region. The ongoing maintenance, repair and replacement of water pipes is an expensive and time-consuming process for Barwon Water.

Barwon Water will engage students to investigate a blocked pipe in their water system. Students will work as a team of 'water consultants' to investigate and find a solution to the problem, using robots.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

4 x 50min lessons and 2 days at GTS

Student Outcomes

- > Interpret the design brief/challenge
- > Investigate reasons for pipe blockages
- > Design sewer robots to collect intel and/or clear blockage
- > Collate and analyse data
- > Reflect on processes and results

Main Curriculum Focus

Science, mathematics, digital technologies, design & technologies

<p>Module 1 1 x 50 min</p> <p>Barwon Water & project brief</p> <p>Introduction to Barwon Water and urban water systems, sewer blockages and maintenance.</p>	<p>Module 2 2 x 50 min</p> <p>Biodegradability of commonly flushed items</p> <p>Investigate the common causes of sewer blockages & biodegradability of commonly flushed items.</p>	<p>Module 3 1 x 50 min</p> <p>Sewer robot</p> <p>Investigate the different types of sewer robot technology used for sewer maintenance.</p>	<p>Module 4 Full day</p> <p>Sewer robot: Design & build</p> <p>Design a sewer robot, including building & coding (block coding), & testing the robot.</p>	<p>Module 5 Full day</p> <p>Sewer robot: Demo & presentation</p> <p>Robot testing in a simulated sewer pipe & group presentation of sewer robot prototype.</p>
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The Last Mile

Ford Motor Company Australia have identified a problem associated with our state’s transport system – there is a fixed mindset around mobility.

People are reluctant to use public transport as the station is often some distance away from their destination or starting point. Ford needs designers to create a product concept of a practical solution to help people to travel easily from a train or car park, to their final destination – making “The Last Mile”. Students will apply the physics of motion in their undertaking of a design project to meet the Brief from Ford. They will learn science and design skills that are immediately useful to help them prepare their idea to present to Ford as a sales pitch.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

8 x 50min lessons and 2 days at GTS

Student Outcomes

- > Recognise and build empathy around the current state and future of mobility
- > Interpret a project brief and apply design thinking as part of the creative process
- > Consider the physics of motion, and the forces acting on a vehicle
- > Ideate and create a concept for a smart mode of transport
- > Develop a conceptual model or prototype using 3D CAD modelling
- > Reflect on energy sources – fossil fuels, renewable energy or batteries
- > Iterate a model or prototype to improve the design
- > Create a presentation to reflect, communicate and pitch their idea

Main Curriculum Focus

Science – Physics, mathematics, systems engineering, digital technologies , design & technologies

Module 1
1 x 50 min

Population growth & mobility issues

Students recognise that population increase causes mobility issues and introduced to project brief.

Module 2
3 x 50 min

Design Thinking and physics of motion

Students explore physics of vehicle motion and apply design thinking to ideate and prototype solutions.

Module 3
Full day

Hovercraft design sprint

Students build and race a hovercraft and are introduced to the basics of Fusion 360.

Module 4
Full day

Design vehicle in Fusion 360

Students learn advanced CAD skill and create a 3D model of their smart mobility vehicle.

Module 5
3 x 50 min

Design iteration and pitch preparation

Students test, design and produce a rendered model in CAD, and reflect on design process.

Module 6
1 x 50 min

Pitch presentations

Students pitch to Ford, presenting the design journey of the development of their prototype.





Water Reality Check

Water is precious and as global citizens, we need to understand the potential impact of our own behaviours and attitudes in order to preserve our natural resource.

Raising awareness within the wider community is the first step in preserving our water supply for future generations.

Students will experience the capability of 360 movies as a communication tool through creating a 360 movie increasing awareness of water issues.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

6 x 50min lessons and 2 days at GTS

Student Outcomes

- > Investigate local issues with respect to water sustainability as well as the implications of a reduction in clean drinking water
- > Design and storyboard a 360 movie
- > Create digital content using 360 cameras
- > Use software to collate/compile digital content
- > Present the 360 movie - including reflections of their learning

Main Curriculum Focus

Science, digital technologies, design & technologies

<p>Module 1 1 x 50 min</p> <p>Introduction</p> <p>Introduction to the project and develop an understanding of the global water problem.</p>	<p>Module 2 2 x 50 min</p> <p>Water filter activity</p> <p>Build empathy and understanding for the global water crisis – why this project matters!</p>	<p>Module 3 1 x 50 min</p> <p>Research & development</p> <p>Students develop a plan for your film and write a script.</p>	<p>Module 4 Full day</p> <p>Using 360 cameras</p> <p>Students learn storyboarding, how to use 360 cameras, and practice filming and editing.</p>	<p>Module 5 2 x 50 min</p> <p>Filming & file management</p> <p>Students complete all the principal photography and understand the importance of file management.</p>	<p>Module 6 Full day</p> <p>Editing & viewing</p> <p>Students produce and present final 360 film of project on VR headsets.</p>
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Bot Rescue

Natural disasters can occur at any time and as connected citizens we need to ensure we are adequately prepared.

The SES are calling on students to investigate how robots could assist and support people in a rescue situation.

In Bot Rescue students will design a robot that could be used to gather intel, deploy emergency supplies, clear debris, rescue humans or perform other tasks in a disaster relief situation. Students will also construct their robotic solution and trial it in a simulated natural disaster scenario.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

9 x 50min lessons and 2 days at GTS

Student Outcomes

- > Investigate natural disasters most common to the local area and the issues they cause
- > Design and build a robot to assist in an emergency situation
- > Code the robot to perform functions
- > Test and modify the structure and coding of the robot
- > Create a presentation to share the results of the collaborative project

Main Curriculum Focus

Science, mathematics, digital technologies, design & technologies

Module 1
1 x 50 min

Introduction to program

Introduction to various types of natural disasters, disaster aiding technologies and bodies involved in disaster response.

Module 2
2 x 50 min

Rescue robot case studies

Examination of focused case studies demonstrating variety of robotic system application spaces.

Module 3
2 x 50 min

Firefighting robots in depth

Detailed case study examining functional elements and effectiveness of various robotic designs.

Module 4
2 x 50 min

Disaster scenario and design sprint

Structured ideation around and analysis of Geelong tech school disaster scenario.

Module 5
1 x 50 min

Algorithmic thinking challenge

Algorithms and structured logic sequence tasks in response to example scenarios.

Module 6
Full day

Bot build, code and test

In depth design, construction and programming intensive centered around simulated disaster.

Module 7
Full day

Bot design, build and code

Coding, testing, scoring and modification of robotic solution in response to simulated disaster.

Module 8
1 x 50 min

Robot code, test and iterate

Summation, reflection and distribution of findings.





Bees with Backpacks

With concerns about declining bee populations globally Geelong residents are taking up beekeeping in their backyard. Bees play a crucial role in garden ecosystems, including 90% of the foods we consume daily.

CSIRO have developed micro sensing technology that is placed on bees to track the time bees spend from the hive, to investigate distances travelled and jobs they perform. The Geelong Beekeeping Club, CSIRO and the Geelong Tech School are calling on students to solve the Environmental Mystery of why bee populations are declining across the Geelong CBD.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

8 x 50min lessons and 2 days at GTS

Student Outcomes

- > Investigate the importance of bees in food supply
- > Understand the role bees play in the environment
- > Research and Identify areas of the Geelong CBD for potential bee friendly environments
- > Analyse the live bee data from our local hive
- > Research natural elements required to set up bee friendly environment
- > Design and prototype a bee friendly environment

Main Curriculum Focus

Science, mathematics, geography, digital technologies, design & technologies, visual art

Module 1
2 x 50 min

CSIRO Bees with Backpacks project

Introduce the Environmental Mystery project and understand of the global bee problem.

Module 2
1 x 50 min

Bee anatomy & the roles bees play

Anatomical structure of honey bees and their roles in the hive

Module 3
1 x 50 min

Understanding bee friendly environments

Understand the key role bees have in the environment.

Module 4
2 x 50 min

CSIRO technology

Investigate CSIRO technology to track the activity of honey bees.

Module 5
2 x 50 min

Excel data analysis

Data analysis and understanding bee behaviour.

Module 6
Full day

Welcome to the bee hive

Explore the world of bees with 360 bee hive cinema experience.

Module 7
Full day

Virtual Bee Friendly Environment

Design and create a 3D VR bee friendly environment in Unreal Engine and Twinmotion.





Coasting Drones

For over 100 years there have been groups trying to keep beach goes safe. Last year 276 people drowned in Australia with 71 occurring at a beach.

The Geelong environment is surrounded by beaches and waterways. Life Saving Victoria is highly invested in water safety through building awareness and knowledge, and are trialling the use of drones to help them in their operations. Students will learn about drone laws, ethics that must be considered, how to analyse available data and how to target a campaign to meet the needs of a particular demographic.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

8 x 50min lessons and 1 day at GTS

Student Outcomes

- > Identify potential safety hazards around waterways
- > Understand how drones are currently being used in industry
- > Learn the laws and ethics surrounding drone use
- > Participate in a mock beach rescue
- > Create a campaign for safety at a local beach to a target audience

Main Curriculum Focus

Science, geography, digital technologies, humanities

Module 1
1 x 50 min

Introduction to the project brief

Introduction to the project, their water safety campaign, and to drones used in industry.

Module 2
1 x 50 min

Drone ethics & laws

Learn about the ethics and laws around drone use, and develop a flight plan.

Module 3
1 x 50 min

Safe drone exercise

Setup a safe flight and spectator zone for a drone demonstration.

Module 4
1 x 50 min

Safety by the water

Learn the hazards of local waterways and determine the demographic group to target for the campaign.

Module 5
Full day

Drone rescue mission

Fly drones with thermal cameras in mock beach rescue scenarios.

Module 6
1 x 50 min

Plan & Research Waterway

Research chosen waterway and identify potential hazards to highlight in the campaign.

Module 7
2 x 50 min

Create campaign presentation

Design the campaign and prepare a pitch for presentation.

Module 8
1 x 50 min

Pitch & Present

Present campaign pitches to class and possible LSV representatives.





Virtual X

Museums inspire us through interpretation, empathy and innovative design – skills and abilities in high demand in today’s world.

Imagine using design and art practices in an exciting virtual exhibition. Through addressing a design brief pitched by the Australian Centre for the Moving Image (ACMI) students will conceptualise, design and create a virtual exhibit to be included in a public exhibition. Students will develop art practice using 3D modelling, prototyping and VR design as well as experience project submission processes managed through ACMI. For those students interested in digital design for VCE, this program provides insight into what could be incorporated in a VCE folio.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

7 x 50min lessons and 2 days at GTS

Student Outcomes

- > Learn creative design and art skills in a VR setting
- > Undertake meeting a design brief managed through ACMI
- > Work collaboratively to meet a design brief
- > Develop key skills in VR creative design using Tilt Brush
- > Undertake exhibition submission process managed through ACMI
- > Present in an online exhibition or at Geelong Tech School

Main Curriculum Focus

The arts, visual communication design, digital technologies, design & technologies, science

Module 1 1 x 50 min

ACMI & design brief

Introduce ACMI and Virtual Exhibition design brief.

Module 2 1 x 50 min

Intro Tilt Brush

Introduce Tilt Brush and apply Design Thinking to develop 3D VR design.

Module 3 1 x 50 min

Research & Artist Analysis

Research Tilt Brush artists and explore 3D model with concept drawings.

Module 4 2 x 50 min

Prototype building 3D modelling

Create 3D prototype and reflect on the design brief.

Module 5 2 x 50 min

Present & communicate

Present 3D prototype to test and refine for creating in Tilt Brush.

Module 6 Full day

Tilt Brush 3D design

Learn technical aspects of Tilt Brush and create using VR technology and a VR environment.

Module 7 Full day

ACMI exhibition artwork

Finalise design and submit to ACMI for 3D Virtual Exhibition.





Design for Humanity

Field Ready is a humanitarian engineering organisation that uses rapid prototyping and on the ground design to aid communities in need.

They aim to provide appropriate customised solutions and education to combat local problems and avoid the majority of aid costs by obtaining materials and manufacturing at the local level.

Students will undertake a problem scenario modeled on a real world context. They will collaborate in teams to envisage, design and manufacture an engineered solution for a community in need.

Industry partner



FIELD READY

Suitable for

Years 7-10 + VCAL

Duration

10 x 50min lessons and 2 days at GTS

Student Outcomes

- > Interpret the design brief/challenge
- > Investigate engineering in a humanitarian context
- > Define and document a problem
- > Examine and analyse appropriate solutions
- > Ideate, brainstorm, define and map a solution proposal
- > Gain and extend Computer Aided Design & prototyping skills
- > Prototype and test solution

Main Curriculum Focus

Science, geography, mathematics, digital technologies, design & technologies

Module 1 1 x 50 min

The project brief

Students learn more about design, key principles, the design process and Field Ready's approach.

Module 2 2 x 50 min

Appropriate technologies: designing for aid

Students look at appropriate technologies & requirements for designing in resource poor settings.

Module 3 2 x 50 min

Problem analysis & definition

Groups generate structured problem analysis and definitions to respond to aid scenarios.

Module 4 2 x 50 min

Ideation & initial concepts

Teams collaborate in ideation activities create and refine their initial solution concepts.

Module 5 1 x 50 min

Metric mapping & analysis

Teams research their scenario and record design considerations, restrictions and metrics.

Module 6 2 x 50 min

Detailed design: prototype preparation

Teams score and target their initial concept through comparison to research and metric mapping criteria.

Module 7 Full day

Design intensive & prototyping

Students undertake CAD crash course and create their prototype using rapid prototyping technologies.

Module 8 Full day

Prototype assessment & presentation

Teams test, redesign, refine and assess their prototypes before then presenting their solution.





Future Fashion

The fashion and textile industries are advancing technologically with smart apparel coming to the fore. Ethical and sustainability issues still need to be considered.

Future Fashion empowers students to understand that they can make a difference through design. They explore the benefits of wool and their use as high-performing alternatives to synthetics.

Australian Wool Innovation and the Geelong-based National Wool Museum offer students a brief to design a fashion accessory. Wool and wearable electronics are the principal design elements, whereby key design and prototyping techniques are achieved using CAD software, rapid prototyping techniques and wearable electronic circuits.

Industry partner



Suitable for

Years 7-10 + VCAL

Duration

8 x 50min lessons and 2 days at GTS

Student Outcomes

- > Understand advancements and responsibilities of the the fashion and textile industries
- > Investigate the benefits of wool and research its historical context locally in Geelong
- > Develop skills with Adobe Illustrator
- > Develop skills in rapid prototyping technologies
- > Understand simple electronic circuits and integrate them into a fashion accessory
- > Experience and reflect on the design thinking journey

Main Curriculum Focus

The arts, digital technologies, design & technologies science, history

Module 1
1 x 50 min

Introducing fashion & wearable tech

Exploring fashion & textiles industries, including sustainability issues & technology's role for smart apparel.

Module 2
2 x 50 min

Introducing the wool context

Investigating benefits of wool, and exploring the historical context of the wool industry in Geelong.

Module 3
2 x 50 min

Introducing project brief & electronics

Project Brief to create a fashion accessory with key elements. Electronics/wearables introduction.

Module 4
2 x 50 min

Design thinking – empathise, define, ideate

Teams collaborate in ideation activities create and refine their initial solution concepts.

Module 5
1 x 50 min

Prototyping – test & improve designs

Students learn Adobe Illustrator and test their designs iteratively. They learn simple wearable electronic circuits.

Module 6
Full day

Production & integrating wearable tech

Students finalise and laser cut their products, then integrate wearable electronics into their designs.

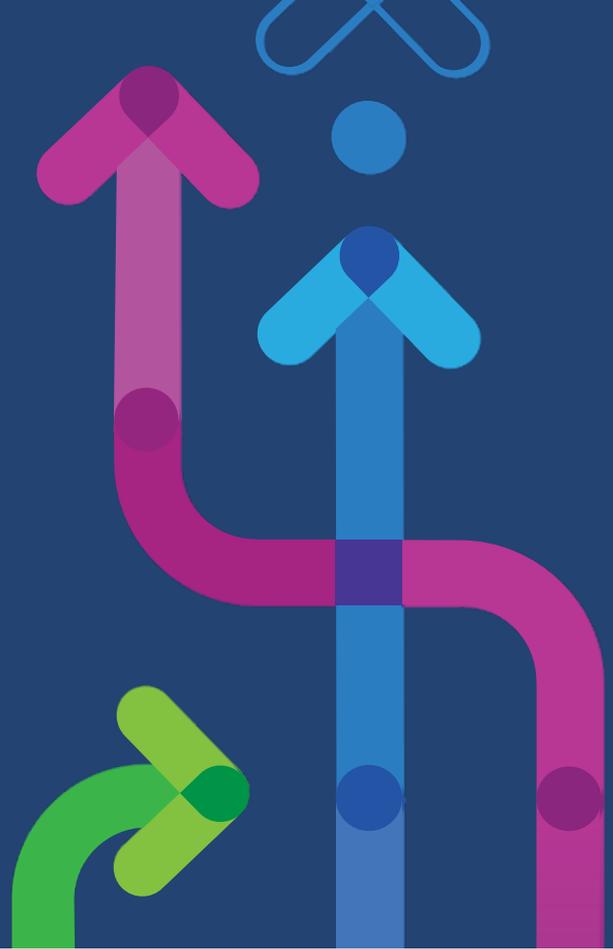
Module 7
Full day

Presenting designs to meet project brief

Students present their product and reflect on their learnings through the design thinking process.



Tech Tasters



Tech Tasters

Tech Tasters provide teachers and students with a one day workshop designed to inspire through the use of technologies and practical hands-on experience. We aim to help participants understand how accessible technologies can be and the range of possibilities and applications.

Tasters will be facilitated by Tech School staff with the class teacher's support in the Geelong Tech School.

The Tech School will run a range of one day 'Taster' Programs to:

- > Inspire students to connect learning and consider future opportunities
- > Develop skills in design and technology through participating in an activity/challenge.
- > Promote the applications of technology and possibilities for educational use.
- > Familiarise schools with the Geelong Tech School facility.
- > Promote the importance of STEM for future work opportunities.

Our Tech Taster programs

Tinker Time: Mini Golf Electronics, design & coding

Tinker Time: Table Maze Electronics, design & coding

Robotics Design, coding & robotics

One Minute in 360 360 video production & VR

Check Mate 3D design process, CAD, 3D printing & finishing

Leather Bound 2D design in illustrator, laser cutting

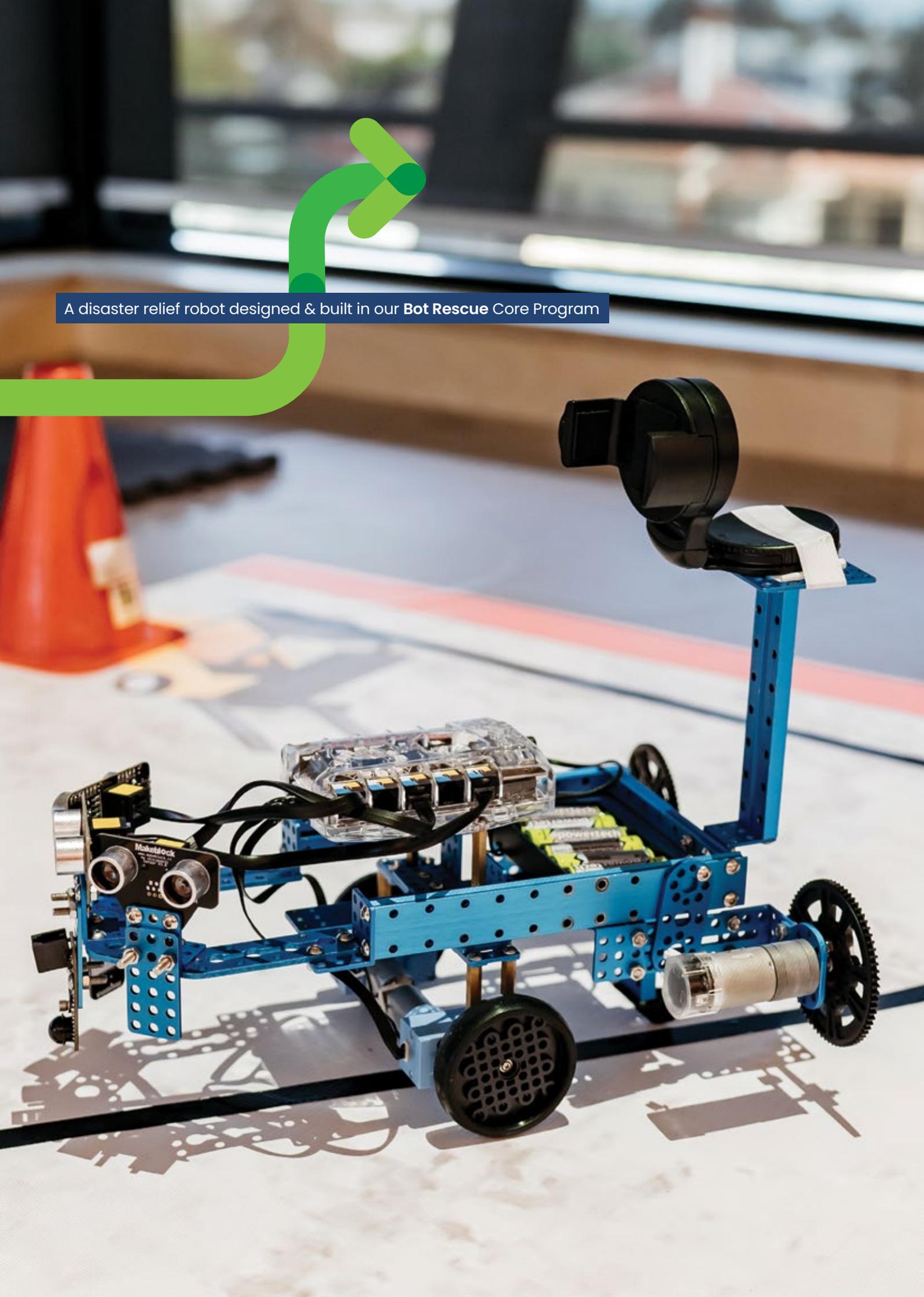
Drone Dash Drones, maths & coding

Tilt Brush VR & creativity

Future Tech Taster programs

Motion Capture Design, animation & human performance

Assistive Technologies Design, robotics & prototyping



A disaster relief robot designed & built in our **Bot Rescue Core Program**



Tinker Time Mini Golf

A full day workshop at the Geelong Tech School. Students will use the Hummingbird robotics kit to design and create an automated adventure golf course.

Program Outline

- > Design a golf hole as part of the class miniature golfcourse
- > Prototype the design using cardboard and a range of materials
- > Write programs to automate the structure, using sensors to enable lights and motors
- > Test and modify the design

Outcomes

Students will:

- > Understand and practice of 'the design process'
- > Create a concept design
- > Prototype the concept design
- > Gain skills in using servos, motors and sensors
- > Learn and practice introductory coding

Victorian Curriculum Links

- > Science
- > Mathematics
- > Digital Technology

Tinker Time Table Maze

A full day workshop at the Geelong Tech School, students will learn how to use the Hummingbird robotics kit to create and program a table maze.

Program Outline

- > Plan and design a maze using 2D vector software
- > Construct a maze using cardboard
- > Use block coding to automate the maze to solve itself.

Outcomes

Students will:

- > Understand and practice the design process
- > Introduction to vector based 2D design
- > Introduction to electronics and servo motors
- > Construct an automated table maze

Victorian Curriculum Links

- > Science
- > Mathematics
- > Digital Technology

Robotics

Design and construct a robot to do the heavy lifting in a warehouse. A full day workshop at the Geelong Tech School. Students will learn how to build a robot and use graphical (block) programming to navigate a simulated warehouse. This workshop provides an opportunity for students to practice skills such as design thinking, construction, logic and algorithmic processes.

Program Outline

- > Introduction to robotics with Make Block robots
- > Introduction to coding with mBlock
- > Participate in a design challenge

Outcomes

Students will:

- > Understand and practice the design process
- > Gain skills in building and modifying robots
- > Learn and practice introductory coding
- > Use of sensors to meet a series of challenges

Victorian Curriculum Links

- > Science
- > Mathematics
- > Digital Technology

One Minute in 360

Use 360 cameras to film a one-minute movie, then view it wearing a Virtual Reality headset. A full day workshop at the Geelong Tech School. Students will learn how to create a 360 movie.

Program Outline

- > Design and storyboard a 360 movie
- > Create footage using 360 cameras
- > Edit your 360 film
- > View the movie in Virtual Reality headsets

Outcomes

Students will:

- > Gain an understanding of 360 filming techniques
- > Collaboratively develop a storyline
- > Operate 360 cameras and collect footage
- > Use VR devices to view and present their interactive movie

Victorian Curriculum Links

- > Digital Technologies
- > Design and Multimedia
- > Art
- > Science

We use our laser cutter across a wide range of programs





Check Mate

A full day introductory course for Computer Aided Design (CAD) and 3D printing, students engage in hands on learning and tutorials to design and 3D print their own chess piece. Students also engage in a hands on measurement and annotation workshop.

Program Outline

- > Introduction to Computer Aided Design
- > Design and manufacture a chess piece
- > Introduction to 3D printing
- > CAD challenges: measuring, drafting and modelling

Outcomes

Students will:

- > Gain an understanding of CAD and rapid prototyping
- > Learn measurement and drafting skills used in CAD
- > Design and prototype their own chess piece
- > Develop skills in 3D printing

Victorian Curriculum Links

- > Systems Engineering
- > Mathematics
- > Design and Technologies

Leather Bound

A full day design workshop at the Geelong Tech School, students are given a design brief and work in pairs as designers and end users. They use computer (CAD) software and a laser cutter to create, prototype and assemble a leather product. Students improve their knowledge of the graphic design software and learn graphic design elements and principles in order to market or promote their products.

Program Outline

- > Introduction to design thinking with a hands-on project
- > Introduction to the CAD program Adobe Illustrator
- > Use of a laser cutter to prototype a leather product
- > Creation of a graphic poster marketing a product

Outcomes

Students will:

- > Work collaboratively and foster creativity as they work through a real world scenario using design thinking
- > Develop skills using Adobe Illustrator
- > Design and prototype a leather product using a laser cutter
- > Understand elements and principles of design to market their product

Victorian Curriculum Links

- > Design and Technologies
- > Mathematics

Drone Dash

A full day workshop at the Geelong Tech School, students will learn how to fly and code a drone through an obstacle course.

Program Outline

- > Code the drone to fly simple shapes and patterns
- > Measure and plan the best route to navigate the obstacle course
- > Code the drone to complete the course in order to obtain the highest score.

Outcomes

Students will:

- > Apply of measurement and geometry skills
- > Work with block coding
- > Code and fly drones to meet a prescribed outcome

Victorian Curriculum Links

- > Mathematics
- > Digital Technologies

Tilt Brush

A full day workshop at the Geelong Tech School, students will learn how to use Google Tilt Brush and the Oculus Quest VR headset to create their design within a Virtual Reality environment.

Program Outline

- > Plan and sketch the initial design
- > Draw the sketch in a VR environment using Google Tilt Brush and the Oculus Quest VR headset
- > Present designs using Google Poly

Outcomes

Students will:

- > Gain and understanding and practice the design process
- > Work with 3D design in a virtual environment
- > Develop skills using Google Tilt Brush and Virtual Reality Headsets

Victorian Curriculum Links

- > Visual Arts
- > Visual Communication Design
- > Design and Technologies

Students program a drone to fly through a set course in **Drone Dash**





Future Focused

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