YARRA RANGES

# TECH SCHOOL

## 2025 PROGRAMS

# TABLE OF CONTENTS


What We Are 3

How to Book 4

VR & AI Art 5

Adornment Jewellery Making 6

Graphic Design & Printing 7

Augmented Reality Art 8

Media Production 9

AI Debate 10

Enrichment - Storyboarding 11

VCE Physical Education - Sports Science 12

Best Buys 13

Enrichment - Maths Maze 14

21st Century E-Commerce 15

Rail Design Challenge 16

Introduction to Entrepreneurship 17

Yarra Ranges Entrepreneurship 18

Smart Farming 19

Smart Sustainable House 20

Body Systems 21

Clean Energies 22

VCE Chemistry - Analysing Caffeine 23

VCE Biology - Exploring Inheritance 24

VCE Chemistry - Detecting Parabens 25

VCE Biology - Glowing Bacteria 26

VCE Biology - Exploring Evolutionary Change 27

Superhero Redesign 28

Smart Energy Systems & Robotics 29

Flipped Robotics 30

VCE Product Design - Indigenous Lens 31

VCE VM - Applied Work Skills 32

VCE VM - Safe Workplaces 33

Understanding AI 34

Game Design - Term Long 35

Game Design 36

Wearable Device Design 37

Tech Tasters 38

Open Tech 40

Them in STEM Day 41

Girls in STEM Day 42

Halloween STEM Program 43

Bespoke Programs 44

Industry Experience 44

Structured Workplace Learning 45

2025 Program Map 46

YARRA RANGES

# TECH SCHOOL

## WHAT WE ARE

Yarra Ranges Tech School (YRTS), hosted by Box Hill Institute at their Lilydale campus and funded by the State of Victoria, is part of the Victorian state government's Tech Schools initiative. YRTS plays a pivotal role in enhancing STEM education within the Yarra Ranges region, with a core purpose of providing schools in the Yarra Ranges council area with the best STEM education possible.

By aligning its technologically advanced programs with the Victorian and VCE curriculum, YRTS ensures that its educational offerings are both comprehensive and relevant, meeting state standards. These programs are designed to promote student engagement and agency, fostering a dynamic and future-oriented learning environment.

YRTS places a strong emphasis on collaboration with partner schools to develop bespoke programs tailored to the specific learning needs of students. This personalised approach ensures that the educational experiences are not only aligned with curricular standards but also cater to the unique requirements of each school and its students.

YRTS supports partner schools by providing access to advanced manufacturing and printing equipment, enabling them to enhance and refine their educational practices. The programs at YRTS are facilitated by a blend of VIT-registered teachers and industry experts, offering a rich combination of pedagogical excellence and practical industry insights. This unique mix of expertise ensures that students receive a well-rounded education, preparing them for future challenges and opportunities in the rapidly evolving technological landscape.

# HOW TO BOOK

## QR CODE

The QR code on each page of this book links to our online booking system. Simply scan the QR code, select an available date and answer a few quick questions to secure your booking.

## PHONE

If you would like to discuss your booking with one of our staff, please feel free to call us on 9286 9584. One of our staff members will be able to walk you through our programs, make bespoke changes, and lock in your booking.

## EMAIL

For complicated bookings, please feel free to email our team at YRTSProgrambookings@boxhill.edu.au. We will respond within 24 hours and will be able to get your booking into the system.

## BUS BOOKINGS

We automatically book buses for your excursion. For schools that prefer to use their own buses, please notify us at the time of booking that a bus is not required.

Due to the proximity to the Tech School, we do not automatically book buses for Lilydale High School and CIRE - Lilydale.

## COSTS

Our programs do not have any costs associated with them. For some programs where students choose to produce something outside the normal scope of the program, a material cost may be incurred.

# VR & AI ART

The VR and AI Art Program provides students with a deep dive into digital creativity. In the morning sessions, students use AI tools to generate and refine images, learning how to enhance their artistic work with digital assistance. These images are then used to design vibrant posters, integrating their creative ideas with technical skills in digital design.

In the afternoon, students work in pairs to create virtual reality art, experimenting with form, color, and special effects in a 3D space. This immersive experience promotes teamwork and innovative thinking. By the end of the program, students acquire valuable skills in both AI-assisted and VR art, preparing them for future digital art projects.

## OUTCOMES

- Develop understanding and critical perspective on the advantages, challenges, and debates surrounding AI art
- Develop proficiency in AI art tools, including text-to-image and generative techniques
- Acquire graphic design skills by utilising design templates and assets
- Experiment with form, color, and special effects within a 3D virtual environment for artistic expressions
- Present and critique digital artworks by providing constructive feedback to peers.

## CURRICULUM AREAS

- Year 7-10 Visual Communication Design
- Year 7-10 Visual Art
- VCE Visual Communication Design

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit aivr.yrts.com.au

# ADORNMENT JEWELLERY MAKING

The Adornment Jewellery Making program immerses students in vector image creation and design tools for laser cutting. Through hands-on activities, students explore shapes and textures, transforming their ideas into wearable art from concept to production. They will design and craft personalised jewellery pieces to take home while learning sustainable practices through upcycling and problem-solving.

Students will master design software on tablets or computers, focusing on shapes, texture, and linework. They will export designs for laser cutting, gaining troubleshooting skills for materials like acrylic and plywood. Hands-on sessions teach metal manipulation and adding elements such as beads and chains. By the end of the course, students will understand vector design, practical jewellery assembly, and sustainable upcycling, equipping them with relevant skills and knowledge in design and jewellery making.

## OUTCOMES - 1 DAY OPTION

- Understanding the use of vector images for laser cutting
- Creating and editing precise shapes and lines in design software
- Developing skills to troubleshoot and export design files
- Learning basic jewellery assembly techniques
- Practicing upcycling and sustainable jewellery making

## OUTCOMES - 2 DAY OPTION

- 3D modeling and design: Use 3D modeling software to create a product.
- 3D Printing: Utilise resin and filament 3D printers for manufacturing.

## CURRICULUM AREAS

- Year 7-10 Design Technology
- Year 7-10 Art

## DURATION

1 or 2 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit jmaking.yrts.com.au

# GRAPHIC DESIGN & PRINTING



This program offers students a dynamic opportunity to explore the world of graphic design while delving into practical applications for stickers and clothing. Throughout the program, students will learn how to create eye-catching graphics that can be translated into tangible products. They will design their own branding or prints, gaining hands-on experience with the entire process from conceptualisation to production. By using professional tools to print and press their creations, students will see their designs come to life on various media.

Beyond teaching essential graphic design skills, this workshop introduces students to the entrepreneurial aspects of art, encouraging them to think creatively about how their designs can be marketed and sold. Additionally, students will acquire valuable skills in the sign-making industry, learning about the techniques and technologies used to produce high-quality prints and products. By the end of the program, students will not only have developed a portfolio of their own designs but also gained insights into how art and entrepreneurship intersect in the creative industry.

## OUTCOMES

- Create and manipulate digital graphics using industry-standard software and tools
- Design and present branding or print solutions that effectively convey messages
- Apply design processes from concept through to production, including printing and pressing techniques

## CURRICULUM AREAS

Year 7-10 Visual Communication Design

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit graphicdesign.yrts.com.au →

# AUGMENTED REALITY ART

This program introduces students to creating Augmented Reality (AR) art using advanced technologies, with a focus on key learning outcomes. Students begin by gaining knowledge of prompt-based 3D model AI generation, allowing them to create initial character models. They then acquire proficiency in basic box modeling and sculpting skills, refining these models with detailed techniques in a 3D design environment.

Next, students learn basic rigging and animation concepts, applying these to their models to create smooth and engaging animations. They enhance their creations using vertex painting techniques to add precise colors. The program culminates with students developing interactive AR art experiences, showcasing their fully developed models in a dynamic and immersive AR environment.

## OUTCOMES

- Gain knowledge of prompt-based 3D model generation
- Develop proficiency in basic box modeling and sculpting skills
- Understand basic rigging and animation concepts
- Acquire vertex painting techniques to add precise colours
- Gain experience in creating interactive Augmented Reality art

## CURRICULUM AREAS

- Year 9-10 Visual Communication Design
- Year 9-10 Digital Technology

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit augart.yrts.com.au

# MEDIA PRODUCTION

Experience three days of immersive learning in media studies and video production at Yarra Ranges Tech School (YRTS). Day 1 focuses on pre-production, where students prepare by learning about equipment and set use either on-site at their school or at YRTS, guided by skilled media practitioners. Students will work with 360 video, still photography, and professional-grade video cameras, learning about lighting and setting up shots at various locations.

On Day 2, students capture stunning footage at various Yarra Ranges attractions, including optional filming aboard the iconic Puffing Billy steam train.

Day 3 shifts to YRTS for post-production, where students edit their footage using advanced tools and receive expert guidance from media professionals to refine their storytelling skills. This hands-on program integrates media studies, promotes teamwork, and emphasises creating impactful promotional videos.

## OUTCOMES

- Understanding media studies through hands-on video production
- Learning to use professional video equipment and editing tools
- Improving storytelling through video planning and creation
- Enhancing teamwork and communication skills
- Receiving valuable insights and feedback from instructors
- Creating high-quality promotional videos
- Learning about the history and significance of Yarra Ranges attractions

## CURRICULUM AREAS

- Year 7-10 Media
- VCE Media

## DURATION

3 days 9:30 - 2:30

## MAX NUMBER OF STUDENTS

15

## BOOKINGS

Scan the QR code or visit medprod.yrts.com.au

# AI DEBATE

This program will explore deeper ideas around ethics in AI through interactive hands-on use of AI and extend skills in critical thinking. How could AI assist people that are lonely? How is language to show empathy and assist society to overcome fear of AI? How are data sets used?

Students will debate issues surrounding AI and learn about bias and persuasive techniques used by AI. This will develop their language analysis and understanding about different stakeholders' perspectives (manufacturing companies, customer, government) and laws that may need to be developed surrounding AI. This program will develop students' soft skills surrounding AI understanding and language to confidently speak about AI using the correct terminology, and develop persuasive writing skills. These skills will be highly relevant to new job creation.

## OUTCOMES

- Expressing and developing ideas specific to visual analysis in AI
- Structuring and organizing persuasive texts with relevant features
- Using language for interaction in AI manufacturing
- Understanding terminology and arguing points of view on AI issues

## CURRICULUM AREAS

Year 7-9 English

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

40

## BOOKINGS

Scan the QR code or visit aidebate.yrts.com.au →

# ENRICHMENT - STORYBOARDING



This program helps students develop storyboarding skills by creating a dystopian future movie plot, aligning with English studies. Students will use innovative technology like tablets, video editing software, digital illustration tools, green screen, and special effects equipment to enhance their creative imagination and design skills. They will learn about camera angles, movement, and directions, and gain awareness of script writing, storyboarding, and movie development used in the industry. The program emphasises the importance of English and teamwork, showing students potential job opportunities. Students will design and pitch ideas to clients and become familiar with illustrative design software. At the end of the program, they will present their movie.

## OUTCOMES

- Analyse how visual elements like gaze and angle shape a text's point of view
- Experiment with language and visuals from different texts to create new ones
- Understand how authors use unique structures and language for specific effects
- Create texts that combine visual, print, and audio elements to present a point of view
- Use software tools to create, edit, and publish texts for different audiences

## CURRICULUM AREAS

Year 7-10 English

## DURATION

1 Day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit storyboard.yrts.com.au →

# VCE PHYSICAL EDUCATION - SPORTS SCIENCE

Sports Science is an immersive program designed for VCE Physical Education students (2025-2029 Study Design). This course explores cutting-edge sports science technologies used in elite athletics and fitness. In the first session, students will delve into the significance of rapid directional changes in various sports, using advanced systems like ROX Pro. This technology analyses and enhances an athlete's agility, reaction time, and cognitive processing. Students will examine how sensor-based data on response speed and movement patterns can be leveraged to improve athletic performance and decision-making under pressure.

The second session focuses on biomechanical principles and skill acquisition in human movement. Students will use state-of-the-art equipment such as force decks to measure and analyse performance metrics including power output, force asymmetry, and movement strategy. They will conduct or observe multiple tests, evaluating data to understand the body's responses during physical activities. The program also introduces velocity-based training (VBT) technology, demonstrating its impact on training efficiency and athletic development.

Throughout the program, students will gain hands-on experience with sports science equipment, learning to set up devices, collect movement data, and interpret results. They'll alternate between roles as coach and athlete, mirroring real-world practices in sports and fitness. This practical approach provides invaluable insights into how technology and sports science principles are revolutionizing athletic performance analysis and enhancement, preparing students for future careers in the field.

NOTE: This can also be adapted to Year 9-10 Sport Science

## OUTCOMES

- Using technology to measure sport and fitness performance
- Collect and analyse movement data and make comparisons
- Participate in the setup of sports science equipment
- Engage in the role of a coach and athlete

## CURRICULUM AREAS

- VCE Physical Education
- Year 9-10 Physical Education

## DURATION

3.5 hours

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit sportscience.yrts.com.au →

# BEST BUYS

The Best Buys program at YRTS provides students with an immersive experience into the intricacies of the food industry and business operations, covering the entire supply chain from crop production to food delivery. Through managing a farm, students engage in a real-time simulation where they design and operate an urban farm, responding to various scenarios by implementing and evaluating solutions. This hands-on approach enables students to calculate their overall farming yields and earnings after tax, giving them a practical understanding of agricultural productivity and financial management.

Building on their farming efforts, students then transition to running a restaurant, where they work in teams to create three-course meals and establish their presence in the marketplace. This includes negotiating for complementary ingredients and developing strategies to enhance sales. The program concludes with a focus on food delivery, where students learn to plan delivery routes using block coding and compete to see whose autonomous vehicles can deliver food most efficiently. This segment emphasises innovation and problem-solving, with vehicles evaluated on delivery time, obstacle avoidance, and creative execution.

## OUTCOMES

- Understanding agricultural productivity and financial management
- Restaurant management skills
- Team collaboration and strategic thinking
- Technological proficiency in food delivery
- Comprehensive supply chain insight

## CURRICULUM AREAS

- Year 7-8 Mathematics
- Year 7-8 Humanities

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit bestbuys.yrts.com.au →

# ENRICHMENT - MATHS MAZE

In this interactive robotics program, students dive into the world of problem-solving as they navigate their robots through a challenging maze. By applying geometric concepts such as angles and distances, students enhance their understanding of how to maneuver their robots efficiently. They also develop basic algorithms to guide their robots' movements and decision-making processes, optimising for both speed and accuracy. Students further engage by incorporating lights and sounds into their robots, adding an element of creativity to their designs. This hands-on experience fosters critical thinking and spatial reasoning as they analyse and refine their robots' performance. By collaborating in teams, students learn to test and improve their strategies, making this program a comprehensive exploration of robotics and mathematical concepts.

## OUTCOMES

- Use geometric reasoning to navigate a robot through a maze, calculating angles and distances
- Develop algorithms to control the robot's movement and decisions
- Analyse robot performance data, focusing on speed and accuracy
- Use problem-solving strategies to improve robot navigation
- Integrate and evaluate design elements like lights and sounds to see their impact on navigation

## CURRICULUM AREAS

Year 7-10 Mathematics

## DURATION

1 Day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit mathsmaze.yrts.com.au →

# 21ST CENTURY E-COMMERCE



The 21st Century E-Commerce program offers Year 9, 10, and VCE VM students a dynamic blend of financial literacy and hands-on technology experience. Students will engage in creating virtual products, managing their costs, and marketing them through an e-commerce platform. They will gain practical skills in financial decision-making by calculating profit margins and break-even points, as well as applying digital design tools to develop product graphics. This program also includes opportunities for real-world application, such as interpreting financial statements, collaborating on complex business problems, and exploring drone delivery calculations.

The program emphasises collaboration and gamification, providing students with a realistic and engaging learning experience. By tailoring the program to focus on physical merchandise or integrating drone delivery components, students can explore various aspects of e-commerce that align with their interests and needs. This approach not only enhances their understanding of business concepts but also prepares them for future technological and financial challenges in the evolving digital marketplace.

## OUTCOMES

- Calculate profit margins and break-even points for virtual products
- Create product graphics or logos using digital design tools
- Interpret and create basic financial statements
- Work in teams to solve problems related to product development and pricing
- Estimate financial projections and compare unit costs

## CURRICULUM AREAS

- Year 9-10 Mathematics
- Year 9-10 Economics & Business
- VCE Vocational Major

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit ecommerce.yrts.com.au →

# RAIL DESIGN CHALLENGE

Spark your students' interest in geography and innovation with the Rail Design Challenge! This dynamic three-day program for Years 7-8 Humanities (Geography) students brings the Victorian Curriculum to life, combining technology with real-world problem-solving. Students will explore sustainable urban development and rail transportation, competing for $3000 in prize money.

Guided by experts from Puffing Billy and the Rail Academy, students will use Intelino trains, 3D printers, virtual reality, and a wide range of other technologies to create solutions for improving rail public transport. The challenge culminates in a showcase of their innovative ideas. This hands-on experience develops students' ability to analyse interconnections within and between places, evaluate the influence of transportation on livability and industry, and use digital technologies to analyse geographical data - all while fostering the critical thinking and creativity essential for future urban planners and innovators.

## OUTCOMES

- Creating and testing models of improved rail transport systems
- Using historical data and future projections for rail transport designs
- Applying problem-solving skills to sustainable urban mobility challenges
- Developing proposals for enhancing rail transport and connectivity
- Working in teams to present innovative ideas with various technologies

## CURRICULUM AREAS

Year 7-8 Humanities

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit rdesign.yrts.com.au →

# INTRODUCTION TO ENTREPRENEURSHIP

This entrepreneurship program provides students with a foundational understanding of what it means to be an entrepreneur. By the end of the day, students will learn about key traits of successful entrepreneurs, the role of third-party involvement in business, and practice evaluating business options and making informed decisions. Students will also take part in a marketplace activity. The program enhances critical thinking and decision-making skills, preparing students for future entrepreneurial ventures and providing a strong foundation for their careers.

## OUTCOMES

- Identify key characteristics of successful entrepreneurs and their role in business ventures
- Understand the significance of third-party involvement and its impact on business operations
- Evaluate various business options to make informed and strategic decisions
- Develop critical thinking and decision-making skills relevant to entrepreneurship
- Gain foundational knowledge and practical skills essential for future entrepreneurial activities

## CURRICULUM AREAS

Year 7-10 Economics & Business

## DURATION

1 Day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

75

## BOOKINGS

Scan the QR code or visit introentrep.yrts.com.au →

# YARRA RANGES ENTREPRENEURSHIP

In this two-day program, students work with Yarra Valley Tourism and OELLEN to address real-world tourism challenges. On the first day at the Yarra Ranges Tech School (YRTS), students use campus resources to design and prototype innovative tourism solutions, such as new products or experiences. They prepare presentations to market their ideas, guided by YRTS facilitators. On the second day, students present their final ideas remotely to YRTS staff for feedback and then pitch selected ideas to industry leaders. Participants have continued access to YRTS resources to refine their projects and explore entrepreneurial opportunities

## OUTCOMES

- Tackling real tourism challenges
- Creating and testing new products or experiences
- Developing engaging pitches for tourism ideas
- Refining concepts based on feedback
- Utilising resources for project development

## CURRICULUM AREAS

Year 7-10 Economics & Business

## DURATION

2 Days 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit yarraentrep.yrts.com.au →

# SMART FARMING

This program introduces students to a range of agricultural practices, both current and emerging, with a focus on how technology and innovation are transforming the field. Students will explore trends in agriculture and how advancements in technology can enhance various aspects of food production, from crop and animal monitoring to automation in harvesting and food preparation. By analysing real-time sensing data from partner schools, they will learn about the impact of location and environment on farming practices.

As part of the program, students will also visit a farming site in the Yarra Ranges to observe and understand local agricultural practices firsthand. This practical experience will complement their theoretical learning, providing insights into how innovative practices are applied in real-world settings.

## OUTCOMES

- Examine the impact of technology on modern agricultural practices and food production
- Analyse real-time data to understand how environmental factors affect farming outcomes
- Investigate local agricultural practices and their relevance to sustainable farming in different regions
- Explore how location influences crop and livestock management through hands-on observations and data analysis
- Evaluate the effectiveness of various technological innovations in improving agricultural efficiency and sustainability

## CURRICULUM AREAS

- Year 7-10 Humanities (Geography)
- Year 7-10 Design Technology - Foods
- VCE Agricultural & Horticultural Studies

## DURATION

2 days 9:30 – 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit sfarm.yrts.com.au

# SMART SUSTAINABLE HOUSE

Smart Sustainable House is a program aligned with Year 7-8 Humanities students or Year 7-10 Science students. In this program, students will use simulation software along with physical construction and testing kits to build and test a model house designed for sustainable living.

Students begin by selecting from various case studies that describe different environmental conditions and occupant needs. They explore how different building materials handle heat and learn about sustainable design features. Using both simulation software and physical kits, they design and construct their house based on their case study. They then test and compare their designs with those of their peers, engaging in interactive activities to optimise the heating or cooling efficiency of their models.

## OUTCOMES

- Compare how building materials handle heat
- Design and build a model house using design software
- Solve problems and make decisions about housing design
- Assess how house design affects sustainability
- Analyse how house placement and windows impact energy use

## CURRICULUM AREAS

- Year 7-10 Science
- Year 7-8 Humanities

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit smarthouse.yrts.com.au

# BODY SYSTEMS

In this engaging program, students will explore the human body and its systems through cutting-edge technology. Using virtual reality headsets, they will delve into 3D models of the body, gaining a comprehensive understanding of the function and key organs of different body systems. This immersive experience allows students to identify and compare the organisation levels of the human body, enhancing their grasp of anatomy and physiology.

Beyond the virtual realm, students will also engage in hands-on activities to deepen their knowledge. They will learn to operate drones using block coding, simulating the transportation of small objects to understand the role of technology in modern science. Additionally, students will measure and understand basic vital signs using healthcare equipment, compare 2D and 3D models of human body systems, and recognise the importance of hand hygiene. This program not only provides a thorough understanding of body systems but also introduces students to the historical context of science and medicine, sparking interest in various scientific and technological careers.

## OUTCOMES

- Identify the organisational levels of the human body using scientific knowledge
- Understand the function and key organs of different body systems through virtual reality
- Operate drones using block coding to simulate transporting small objects
- Measure and analyse basic vital signs using healthcare equipment
- Compare 2D and 3D models of human body systems and recognise the importance of hand hygiene

## CURRICULUM AREA

Year 7-8 Science

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

75

## BOOKINGS

Scan the QR code or visit bodysys.yrts.com.au

# CLEAN ENERGIES

Students explore innovative renewable energy technologies and their potential to address this challenge. They dive into solar photovoltaics, pumped hydroelectricity, green hydrogen production, wind energy, and biofuels, learning about each technology's role and how they can be integrated into effective energy systems. By investigating current renewable projects and future trends, students gain a comprehensive understanding of energy production and consumption.

The program is available in two versions, aligned with the Year 9 and Year 10 curricula. For the greatest impact, it is recommended that students participate in both the Year 9 and Year 10 versions.

Students will work in groups to design and develop their own renewable energy projects, using 3D printing to create components and an electrolyser to produce hydrogen for fuel cells. This hands-on approach allows them to apply theoretical knowledge to practical challenges, such as energy storage and system efficiency. They will also evaluate their designs, analyse data to make improvements, and research the economic, social, and environmental impacts of their projects. This program not only enhances their technical skills but also prepares them for future careers in the renewable energy sector.

## OUTCOMES

- Explore renewable energy technologies and current projects
- Learn about the history and global aspects of energy production
- Create renewable energy systems and measure hydrogen production
- Study energy storage and efficiency, and refine designs based on data
- Evaluate project impacts and explore careers in renewable energy

## CURRICULUM AREA

Year 9-10 Science

## DURATION

- Year 9 - 1 day 9:30 – 2:30
- Year 10 - 1 day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit cleanrg.yrts.com.au →

# VCE CHEMISTRY - ANALYSING CAFFEINE

In this engaging program, students will delve into the chemical structure and biological effects of caffeine. Using state-of-the-art High-Performance Liquid Chromatography (HPLC) equipment, they will analyse the caffeine content in various drinks. Students will begin by using micropipettes to prepare caffeine standards and run these through the HPLC. This hands-on approach not only enhances their understanding of caffeine's chemical structure but also teaches them essential laboratory techniques.

Students will gain practical experience in using HPLC instrument, interpreting chromatograms, and determining caffeine concentrations in samples such as instant and decaf coffee. They will learn the principles of chromatography, understand how an HPLC instrument functions, and use Excel to construct calibration curves and perform calculations. By the end of the program, students will understand the importance of accuracy versus precision in scientific measurements and explore the applications of chromatography in various industries, equipping them with a robust skill set for future scientific endeavors.

## OUTCOMES

- Understand the molecular structure and properties of caffeine
- Learn and apply the principles of chromatography
- Use micropipettes to accurately prepare chemical standards
- Operate and comprehend the function of HPLC instruments
- Interpret chromatographic data to construct calibration curves and determine concentrations

## CURRICULUM AREAS

VCE Chemistry

- Unit 1 - Outcome 1
- Unit 4 - Outcome 2

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

22

## BOOKINGS

Scan the QR code or visit caffeine.yrts.com.au →

# VCE BIOLOGY - EXPLORING INHERITANCE

Students step into the roles of researchers and genetic counselors to diagnose a hereditary disease in a fictional family. They will use micropipettes and gel electrophoresis to simulate a genetic testing laboratory, exploring genes linked to the hereditary condition. By constructing and modifying pedigrees based on their findings, students gain practical experience in genetic analysis. This session aligns with Unit 2, Outcome 1 of the VCE Biology curriculum, which includes explaining and comparing chromosomes, genomes, genotypes, and phenotypes, as well as analysing and predicting patterns of inheritance.

Students will engage in activities such as constructing accurate pedigrees across multiple generations, modifying pedigrees using genetic testing data, and performing gel electrophoresis. These hands-on experiences can lead to various School Assessed Coursework (SACs), including case study analysis, data analysis, and reflective annotations. The workshop covers key curriculum points such as the distinction between genes, alleles, and genomes; karyotypes for identifying chromosome abnormalities; the expression of dominant and recessive phenotypes; and the patterns of inheritance, including autosomal and sex-linked traits. This program provides a comprehensive and practical understanding of inheritance and genetic testing.

## OUTCOMES

- The distinction between genes, alleles and a genome
- Karyotypes as a visual representation that can be used to identify chromosome abnormalities
- The use of symbols in the writing of genotypes for the alleles present at a particular gene locus
- The expression of dominant and recessive phenotypes, including codominance and incomplete dominance
- proportionate influences of genetic material, and environmental and epigenetic factors, on phenotypes
- Pedigree charts and patterns of inheritance, including autosomal and sex-linked inheritance

## CURRICULUM AREAS

VCE Biology - Unit 2 - Outcome 1

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

22

## BOOKINGS

Scan the QR code or visit inheritance.yrts.com.au →

# VCE CHEMISTRY - DETECTING PARABENS IN COSMETICS

Parabens, a group of chemicals commonly utilised in various commercial cosmetic products, serve to inhibit the growth of bacteria and mould. Many cosmetic products are now marketed as 'Paraben Free'. Why is this and are these products necessarily safer or beneficial?

In this exciting and increasingly relevant program, students will have firsthand access to state-of-the-art analytical equipment used in industry - a High-Performance Liquid Chromatography (HPLC) instrument. Students will use micropipettes to prepare paraben standards of known concentrations and run these in the HPLC instrument. Students will construct a calibration curve and determine the quantity and type of paraben found in various cosmetics. Students will learn about the chemistry of cosmetics and how common scientific misconceptions may influence consumer behavior.

## OUTCOMES

- Understand the chemical structures and roles of ingredients in everyday cosmetics
- Study the chemical structure of parabens and other molecules
- Prepare standards using micropipettes
- Test standards and samples using a High-Performance Liquid Chromatography (HPLC) instrument and interpret chromatograms
- Construct calibration curves using data from HPLC analysis
- Determine the concentration of parabens in cosmetic samples

## CURRICULUM AREAS

VCE Chemistry - Unit 4 - Outcome 2

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

22

## BOOKINGS

Scan the QR code or visit parabens.yrts.com.au →

# VCE BIOLOGY - GLOWING BACTERIA

Students explore the essential technique of genetic transformation, enabling protein production. In this session, students will use green fluorescent protein (GFP) to transform E. coli bacteria with a plasmid, allowing the bacteria to express new genetic information. They will perform a DNA digest and confirm the creation of recombinant plasmids through gel electrophoresis. This practical experience supports Unit 3, Outcome 1 of the VCE Biology curriculum, focusing on nucleic acids, proteins, and DNA manipulation techniques.

Students will engage in activities like bacterial transformation with the pGlo plasmid, DNA digestion, and gel electrophoresis. These hands-on tasks can lead to School Assessed Coursework (SACs) such as bioethical issue analysis, data evaluation, and comparisons of biological concepts. The workshop covers key curriculum points, including enzyme use in DNA manipulation, DNA amplification via PCR, and using recombinant plasmids as vectors. This program gives students a solid understanding of genetic transformation and its biotechnological applications.

## OUTCOMES

- The use of enzymes to manipulate DNA
- Amplification of DNA using PCR and the use of gel electrophoresis in sorting DNA fragments
- The use of recombinant plasmids as vectors to transform bacterial cells

## CURRICULUM AREAS

VCE Biology - Unit 3 - Outcome 1

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

22

## BOOKINGS

Scan the QR code or visit gbacteria.yrts.com.au →

# VCE BIOLOGY - EXPLORING EVOLUTIONARY CHANGE

Students explore the mechanisms shaping biological diversity and the interconnectedness of life on Earth. This session takes students on a scientific journey to unravel the genetic mysteries of local duck populations in the Yarra Ranges. Using micropipettes and gel electrophoresis, participants will engage in hands-on experiments to identify species diversity among ducks, explore molecular homology, and construct detailed phylogenetic trees to trace their evolutionary lineage.

This practical experience aligns with Unit 4, Outcome 2 of the VCE Biology curriculum, focusing on analysing genetic changes in populations and species over time, examining evidence of species relatedness, and evaluating human evolution. Possible School Assessed Coursework (SACs) include data analysis, comparison of biological concepts, and evaluation of methodologies from practical activities such as gel electrophoresis for duck diversity, creating and analysing phylogenetic trees, and survival simulations. The workshop covers essential study points like the causes and consequences of changing allele frequencies, structural and molecular homology evidence, and interpreting phylogenetic trees to understand species relatedness.

## OUTCOMES

- Causes of changing allele frequencies in a population's gene pool, including environmental selection pressures, genetic drift and gene flow; and mutations as the source of new alleles
- Biological consequences of changing allele frequencies in terms of increased and decreased genetic diversity
- Evidence of relatedness between species: structural homology and molecular homology
- The use and interpretation of phylogenetic trees as evidence for relatedness between species

## CURRICULUM AREAS

VCE Biology - Unit 4 - Outcome 2

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

22

## BOOKINGS

Scan the QR code or visit evolution.yrts.com.au →

# SUPERHERO REDESIGN

This program celebrates inclusivity and aids exploration of identity through creation of a superhero's logo and uniform. With the use of Procreate, assistive tech design modeling prototyping, AI 3D design creation and design of the superhero's vehicle or hideaway using a choice of different software options.

In groups, students will collaborate on a design idea for a superhero and communicate this visually with innovative technology and pitch to the class. This is an imaginative program which will give students a choice whether it is 3D modeling, illustrative or construction of products and with their choice of style and design elements used.

## OUTCOMES

- Develop and present visual communications for different purposes, audiences and in response to specific needs
- Generate, develop and refine visual communication presentations in response to the brief

## CURRICULUM AREAS

- Year 7-10 Visual Communication
- VCE Visual Communication Design

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit shero.yrts.com.au

# SMART ENERGY SYSTEMS & ROBOTICS

The Smart Energy Systems & Robotics program immerses students in the future of clean energy by combining practical experience with innovative technology. Throughout the course, students engage in hands-on projects like building a solar panel sun-tracking system and participating in a robotics competition. They will learn how to design, program, and maintain cutting-edge energy systems, gaining valuable skills in robotics, sensor technology, and system management.

By the end of the program, students will be adept at designing and constructing solar tracking systems, programming sensors for energy applications, and developing control algorithms for automated systems. They will also gain experience in programming robotics to perform specific tasks and applying systems thinking to tackle complex problems. The course will prepare them for various careers in clean energy and technology, providing a solid foundation for future advancements in the energy sector.

NOTE: This is also available for VCE Systems Engineering.

## OUTCOMES

- Design and construct a solar tracking system, applying principles of digital technologies and design
- Program sensors for collecting and analysing data related to energy applications
- Develop and implement algorithms for managing automated energy systems
- Program a robot to perform specific tasks, demonstrating skills in robotics and system control
- Use systems thinking to analyse and solve complex problems in interconnected energy networks

## CURRICULUM AREAS

- Year 7-10 Digital Technologies
- Year 7-10 Design Technology
- VCE Systems Engineering
- VCE General Mathematics

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit smartnrg.yrts.com.au

# FLIPPED ROBOTICS

Flipped Robotics at Yarra Ranges Tech School is a dynamic program designed to introduce schools and students to the thrilling realm of competitive robotics. Schools participating in the program will receive a competition robotics kit, enabling students to embark on a hands-on journey in designing and constructing robots fit for the VEX Robotics competition. The program encompasses three insightful visits to the tech school, where students will collaborate with experts, test their robot designs on competition fields, and ultimately compete against other schools in the Yarra Ranges area. This immersive experience not only fosters STEM skills but also encourages teamwork, creativity, and problem-solving. Additionally, schools have the option to further their robotics education by expanding into dedicated robotics classes, empowering students to delve even deeper into the world of robotics and technology.

Note:
Bookings subject to equipment availability.

## OUTCOMES

- Learn the fundamentals of integrated systems
- Decompose a problem into fundamental components
- Design and develop a robot around a given task
- Incorporate sensor data into decision making
- Work in a team environment
- Record and report on the engineering design process

## CURRICULUM AREAS

- Year 7-10 Design and Technology
- Year 7-10 Digital Technology
- VCE Systems Engineering

## DURATION

3+ days 9:30 - 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit flipr.yrts.com.au →

# VCE PRODUCT DESIGN - INDIGENOUS LENS

Product Design and Technologies (2024-2028 Study Design) uses the double diamond design process, speculative thinking, and sustainability. This program has been created with an Indigenous lens, allowing students to develop an understanding of the significant contributions of Aboriginal and Torres Strait Islander peoples' connection to Country, place and culture through the acknowledgment of tradition and culture, and how product design can be a demonstration of culture. By developing students' understanding of connection to Country, influence from the environment around us and cultural context, and there is an emphasis on storytelling components being as valuable as the function of the design.

By investigating scenarios and end-users, students will be able to design a product and trial prototyping and production methods using the equipment: 3D Printers & Laser Cutters. This program could also include an industry partner visit dependent on cohorts needs.

NOTE: This can also be adapted to Year 10 Product Design

## OUTCOMES

- Using design thinking to research, communicate, and propose product concepts
- Representing product concepts with manual and digital technologies
- Testing and evaluating materials and processes to develop and improve a product

## CURRICULUM AREAS

VCE Product Design

## DURATION

9:30 – 2:30
(3-day program with the option of doing 1, 2 or 3 days at the Tech School)

## MAX NUMBER OF STUDENTS

40

## BOOKINGS

Scan the QR code or visit indigenouslens.yrts.com.au →

# VCE VM - APPLIED WORK SKILLS

This program aims to develop students' work skills in alignment with industry standards, covering work safety, risk assessment, manufacturing processes, and client pitching. It includes an industry partner visit focused on manufacturing and prototyping, enhancing students' awareness of job possibilities. Applied learning through STEM activities, including immersive experiences in virtual reality (VR), provides hands-on opportunities to engage with complex concepts and scenarios.

Students will develop confidence in group work collaboration, problem-solving, and ideation through speculative thinking and investigating scenarios and end-users. They will design and pitch ideas to clients, exploring opportunities within the industry. The program also fosters familiarity with 3D modeling software and production processes using 3D printers and laser cutters, integrated into their design projects.

## OUTCOMES

- Planning, evaluating, risk assessing, and journaling the design process
- Calculating proportions and measurements for design projects
- Developing collaboration, presentation, and pitch skills through industry experience

## CURRICULUM AREAS

VCE Vocational Major

## DURATION

4 days 9:30 – 2:30
(additional days possible)

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit
workskills.yrts.com.au

# VCE VM - SAFE WORKPLACES

This immersive and comprehensive experience in maintaining a safe work environment. Utilising Unreal Engine, a cutting-edge game development platform, students will design and construct both safe and unsafe workplace scenarios across various industries. This hands-on activity enables students to visually and interactively explore the factors that contribute to workplace safety and identify potential hazards.

In addition to the simulation activities, students will participate in a tour of the BHI Lilydale Trade Training Center, where they will learn firsthand about industry-standard safety practices and protocols. During the tour, they will engage in practical exercises on conducting risk assessments, gaining essential skills in identifying and mitigating workplace hazards. By the end of the program, students will have a thorough understanding of workplace safety principles, the ability to apply these concepts in real-world settings, and enhanced technical skills in using Unreal Engine. This workshop prepares students for responsible and informed participation in any professional environment, emphasising the importance of safety in the workplace.

NOTE: This can also be adapted to Year 10 Design & Technology

## OUTCOMES

- Create safe and unsafe workplace scenarios using game development software
- Explore workplace safety factors and identify potential hazards through simulations
- Conduct risk assessments and learn to mitigate workplace hazards
- Learn industry safety practices through a trade training center tour
- Apply safety principles in real-world settings and improve skills with game development software

## CURRICULUM AREAS

- VCE Vocational Major
- Year 10 Design & Techology

## DURATION

1 Day 9:30 – 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit safework.yrts.com.au →

# UNDERSTANDING AI

Understanding AI is an engaging program designed to spark curiosity and equip young learners with essential skills. Participants explore the intricate workings of human memory, unraveling its mysteries through hands-on exploration of memory processes and practical techniques. Through interactive sessions, they decode the complex nature of memory, gaining insights that expand their cognitive abilities.

The program also bridges the gap between theory and application by immersing attendees in the world of machine learning. Participants engage in creating interactive projects that demonstrate the principles of predictive analytics and model training. They learn to shape data into meaningful insights, gaining a practical understanding of AI concepts without the need for extensive coding knowledge. The program culminates in the application of AI to hands-on projects, where participants integrate AI with physical computing devices and tools that assist in code generation, equipping them with the skills to navigate the dynamic landscape of artificial intelligence and its real-world applications.

## OUTCOMES

- Understanding how memory works
- Developing interactive guessing games with machine learning
- Training a machine learning model (no coding required)
- Testing and sharing the machine learning model
- Generating code for electronics projects with automated tools
- Understanding AI safety and ethical considerations
- Learning basic principles of prompt engineering with automated code assistance

## CURRICULUM AREAS

- Year 7-10 Digital Technologies
- Year 7-8 Humanities

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit understandai.yrts.com.au →

# GAME DESIGN - TERM LONG

Game Design is a term-long program for Year 10 Digital Technologies or Design & Technology students, running weekly based on schedule and availability. Students use a leading game development platform to create various 3D games, learning foundational skills in digital design, storyboarding, and block coding. They also use design and animation tools for creating game objects and characters. The program covers game development elements such as level design, user interface, textures, audio, and coding for game logic and animation. The goal is to enhance students' digital skills and confidence in creating their own games and learning new digital tools.

## OUTCOMES

- Learn to use game development tools to create interactive 3D games
- Design engaging game levels and user interfaces
- Use block coding to manage game features like lives, health, and scoring
- Create and animate 3D characters and objects
- Add background music and sound effects to enhance the game
- Solve problems through debugging and testing to improve your game.

## CURRICULUM AREAS

Year 7-10 Digital Technologies

## DURATION

5+ Days 9:30 - 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit gamedev.yrts.com.au

# GAME DESIGN

This hands-on program allows students to engage with both the technical and creative aspects of game creation by customising a simple base template into either a 2D platform or a first-person view game. Designed to cultivate technical proficiency, creativity, and problem-solving skills, this interactive experience provides students with a solid understanding of game development processes, preparing them for future projects and potential careers in the gaming industry. This program is a valuable addition to your curriculum, blending technology with creative expression in a dynamic learning environment.

## OUTCOMES

- Use game development software to create and modify game elements.
- Apply problem-solving strategies to develop and improve game mechanics.
- Customise game templates and refine game functionality based on design principles.
- Test and debug game features to resolve issues.
- Work in teams to design and develop interactive game projects.

## CURRICULUM AREAS

Year 7-10 Digital Technologies

## DURATION

1 Day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

25

## BOOKINGS

Scan the QR code or visit gdesign.yrts.com.au →

# WEARABLE DEVICE DESIGN

This program offers students an in-depth exploration of electronics, programming, and precision manufacturing techniques. Throughout the program, participants will gain hands-on experience using M5Stack, a modular and versatile development platform, to design, test, and prototype innovative wearable technology concepts. Working collaboratively in dynamic teams, students will tailor their designs to meet specific user needs, leveraging M5Stack's capabilities to create practical and user-centric solutions.

This experiential learning journey fosters a deep understanding of both the technical and creative aspects of wearable technology. Students will develop essential skills in electronics and programming, along with insights into precision manufacturing. By the end of the workshop, they will be equipped with the confidence and expertise to bring their innovative ideas to life, preparing them for future challenges in technology and design.

## OUTCOMES

- Create a 3D-printed wearable device using CAD software
- Build and program an electronic system with M5Stack components
- Use design and computational thinking to develop a wearable solution
- Create algorithms to process sensor data in the device
- Assess materials for durability, comfort, and functionality

## CURRICULUM AREAS

- Year 7-10 Design and Technology
- Year 7-10 Digital Technology
- Year 9 Science

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit wearable.yrts.com.au →

# TECH TASTERS

Yarra Ranges Tech School's Tech Tasters program, designed to provide students with hands-on experiences across a range of cutting-edge technologies. These sessions can be scheduled as standalone explorations or integrated into partner school curricula. Students are required to participate in at least two Tech Tasters, which must be arranged as full-day sessions.

## DURATION

1 day 9:30 - 2:30

## MAX NUMBER OF STUDENTS

50

## BOOKINGS

Scan the QR code or visit techtasters.yrts.com.au →

## ROBOMASTER

Students engage with block-based coding to navigate intricate obstacle courses and develop programs for tasks like object relocation. As they progress, they integrate simple vision object recognition and Python coding into their projects, enhancing their understanding of advanced robotics principles. This hands-on approach not only strengthens their algorithmic thinking but also prepares them for real-world applications in technology and engineering.

## AUTONOMOUS VEHICLES

Program self-propelled cars and Thymio Robots, mastering principles of weight, balance, and line following. This program covers GUI programming for user-friendly interfaces and hands-on autonomous configuration, emphasising decision-making skills. Students gain insights into tech careers, preparing them for future success in programming and technology.

## SUSTAINABLE CONSTRUCTION

Explore sustainable housing with STELR Sustainable Housing Kits, investigating thermal properties, constructing model houses, and using data loggers to monitor temperature changes. This project enhances their understanding of sustainable design principles, fosters data analysis skills, and promotes teamwork through collaborative construction and monitoring tasks. Technologies introduced include the STELR Sustainable Housing Kit and FLIR Camera.

## 3D PRINTING WITH TINKERCAD

Delve into 3D design fundamentals using Tinkercad to create their own 3D files. They will then advance to hands-on prototyping using onsite 3D printers. This program emphasises 3D image designing, software training for 3D printers, and precision manufacturing techniques. Students gain practical skills essential for careers in manufacturing and design, preparing them for diverse career pathways in technology and innovation.

## 3D PRINTING WITH FUSION 360

Dive into the basics of Fusion 360 and Cura as you unleash creativity and transform designs into tangible objects. From sleek vases to functional pencil holders, students explore sketching, projection, dimensions, extrusion, lofting, and revolving techniques. Prior to participation, teachers set up student Fusion 360 accounts and provide introductory sessions on software navigation, ensuring a seamless start to this innovative learning experience in technology and engineering.

## SMART WAREHOUSE

In this tech taster, students dive into the world of automation and logistics by programming a Dobot robot arm to pick up objects off a conveyor belt. Building on this foundation, they take on the challenge of integrating the Dobot arm with a Tello drone to prototype a smart warehouse delivery system. This hands-on experience develops coding skills and encourages problem-solving and creativity. By the end of the program, students will have gained valuable insights into the technologies driving modern warehouse operations and supply chain management.

## DRONES & CODE

Students dive into block coding to program these drones for precise navigation. Beginning with precise measurements in their coding, students advance to challenges involving autonomous flight and pattern-based navigation or landing. This program emphasises block coding proficiency, drone configuration, and precision testing, preparing students for careers in drone technology and beyond.

## ELECTRONICS & CODE

Engage with the M5 Stack system to design and program electronic devices. They delve into the Internet of Things (IoT), exploring how hardware can collect and utilise data for decision-making. This hands-on experience includes developing output hardware tailored to the specific purposes of their designs, fostering a comprehensive understanding of hardware integration and IoT applications in modern technology.

# OPEN TECH

Open Tech offers schools the opportunity to utilise Yarra Ranges Tech School spaces without committing to a specific program. Teachers can bring their classes, design content, and teach according to their own curriculum, allowing students to explore and experiment with various technologies. This flexibility enables students to undertake entrepreneurial projects and leverage the tech school's resources to develop innovative solutions and business ideas.

## BOOKINGS

Email
yrtsprogrambookings@boxhill.edu.au

## LASER CUTTING

Students at Yarra Ranges Tech School have access to numerous laser cutters, which can support projects in Science, Art, or Technologies. These tools enable students to explore entrepreneurial ventures, such as manufacturing staff ID badges for their school, fostering practical skills and innovation.

## CNC MACHINING

Yarra Ranges Tech School (YRTS) has six small Roland CNC machines, ideal for prototyping. These machines work seamlessly with our Fusion 360 and CNC Tech short program option. Students can design and prepare their projects at school and then use YRTS facilities to cut their projects, providing a hands-on, practical learning experience.

## 3D PRINTING

3D printing at Yarra Ranges Tech School allows design students to rapidly create a variety of items, from intricate designs to scaled skeletons. YRTS provides the necessary consumables, while students supply the creative designs, enabling hands-on learning and innovation.

## VINYL, POSTER & CLOTHING PRINTING

Our Roland TrueVIS printer at Yarra Ranges Tech School enables students to print posters, stickers, banners, paintings, and clothing. Students can build their own brand or complete whole-school projects, such as T-shirts for school musicals, posters for Visual Communication, or stickers to brand products. Depending on the project's scope, schools may need to cover consumable costs.

# THEM IN STEM DAY - 18 FEBRUARY & 10 OCTOBER

Come and celebrate inclusivity and identity of LGBTIQ+ people and Allies at one or both of our event days. Each day will feature numerous designers and artists who will speak to encourage and motivate learners to feel confident in expressing their authentic self in the workplace within design fields and showcases creators in the industry who will share their stories and their work. Students are invited to the Tech School to explore different technology in a fun expressive way and meet friends from our partner schools from rainbow clubs and allies and friends. This is a fun day with activities that encourage building community and creative exploration in VR, laser cutting and robotics. LGBTIQ+ students and Allies are welcome!

## OUTCOMES

- Examining the benefits of valuing diversity and promoting inclusivity for individuals and communities
- Understanding how social connectedness and community identity affect the livability of places
- Exploring art practices and styles to develop a personal style and express ideas and themes

## DURATION:

1 Day 9:30 - 2:30

## MAX STUDENTS:

50

## BOOKINGS

Scan the QR code or visit theminstem.yrts.com.au →

# GIRLS IN STEM DAY - 6 AUGUST

Are you ready to dive into a world of possibilities? Join us for **Girls in STEM Day** —a day packed with fun, creativity, and learning for females in Years 7-12!

Imagine spending the day exploring fascinating fields like **pharmacy, virtual reality, engineering, robotics,** and more, all while working alongside female scientists and engineers. With inspiring speakers and hands-on workshops, you'll get the chance to roll up your sleeves and try out exciting experiments yourself!

Whether you're curious about how things work or want to change the world with tech, this event is designed to spark your curiosity and show you how amazing STEM can be. Here's a sneak peek at what you'll get to experience:

- Mix up cool **chemistry reactions** and explore the science behind everyday life.
- Step into the future with **virtual reality** and learn about how it's shaping biology and beyond.
- Build, design, and create with **engineering and robotics** to see how ideas come to life.

It's not just about learning; it's about discovering the scientist, engineer, or inventor in you, all in a fun, encouraging space. Bring your creativity, ask questions, and get ready to work together and be inspired!

## OUTCOMES

- Design and create digital solutions to real-world problems, reflecting on ethical considerations related to new technologies and their impact on society
- Conduct scientific investigations, including making predictions, analysing data, and drawing conclusions
- Apply mathematical reasoning and problem-solving strategies during engineering activities
- Develop communication and collaboration skills through group-based STEM activities
- Use critical and creative thinking skills by tackling open-ended problems and challenges, thinking innovatively and exploring new solutions

## DURATION:

1 Day 9:30 - 2:30

## MAX STUDENTS:

60

## BOOKINGS

Scan the QR code or visit girlsinstem.yrts.com.au →

# HALLOWEEN STEM PROGRAM - 31 OCTOBER

In this program, students go through the filmmaking process from start to finish. They begin by storyboarding a zombie story, then learn makeup techniques, lighting effects, and special effects on-site. During production, they act and film using a green screen and LED lights in a media room. In post-production, they edit videos and create sound and music. The program includes a media room with advanced equipment, an exhibition space, and a SIM room with LED walls and effects. Safety measures include managing allergies and obtaining consent for traditional makeup, with an option for virtual makeup.

## OUTCOMES

- Develop visual storytelling skills by creating a storyboard for key moments of a 'spooky' movie.
- Learn basic special effects makeup techniques to create realistic characters
- Explore lighting and basic special effects techniques to create mood and atmosphere for film scenes.
- Learn basic video editing skills with special effects to create their final 'spooky' movie.
- Enhance films by adding sound effects, music, and voiceovers

## DURATION:

1 Day 9:30 - 2:30

## MAX STUDENTS:

100

## BOOKINGS

Scan the QR code or visit halloween.yrts.com.au

# BESPOKE PROGRAMS

Partner schools can collaborate with Yarra Ranges Tech School to develop new programs tailored to their specific needs. We work with all subject areas to create technology-enriched programs that engage students and address their learning requirements. These programs can extend an existing unit of work or introduce innovative methods to achieve educational outcomes. Often, these bespoke programs evolve into larger initiatives that all our partner schools can participate in.

### BOOKINGS

Email
yrtsprogrambookings@boxhill.edu.au

# INDUSTRY EXPERIENCE

Yarra Ranges Tech School has numerous industrial partners and is eager to connect students with potential employers or arrange industry tours. We are happy to build bespoke experiences that link students to these opportunities. If you are interested in an experience with one of our partners or have a specific company in mind that you would like your students to visit, reach out to us, and we can help organise it for you.

### BOOKINGS

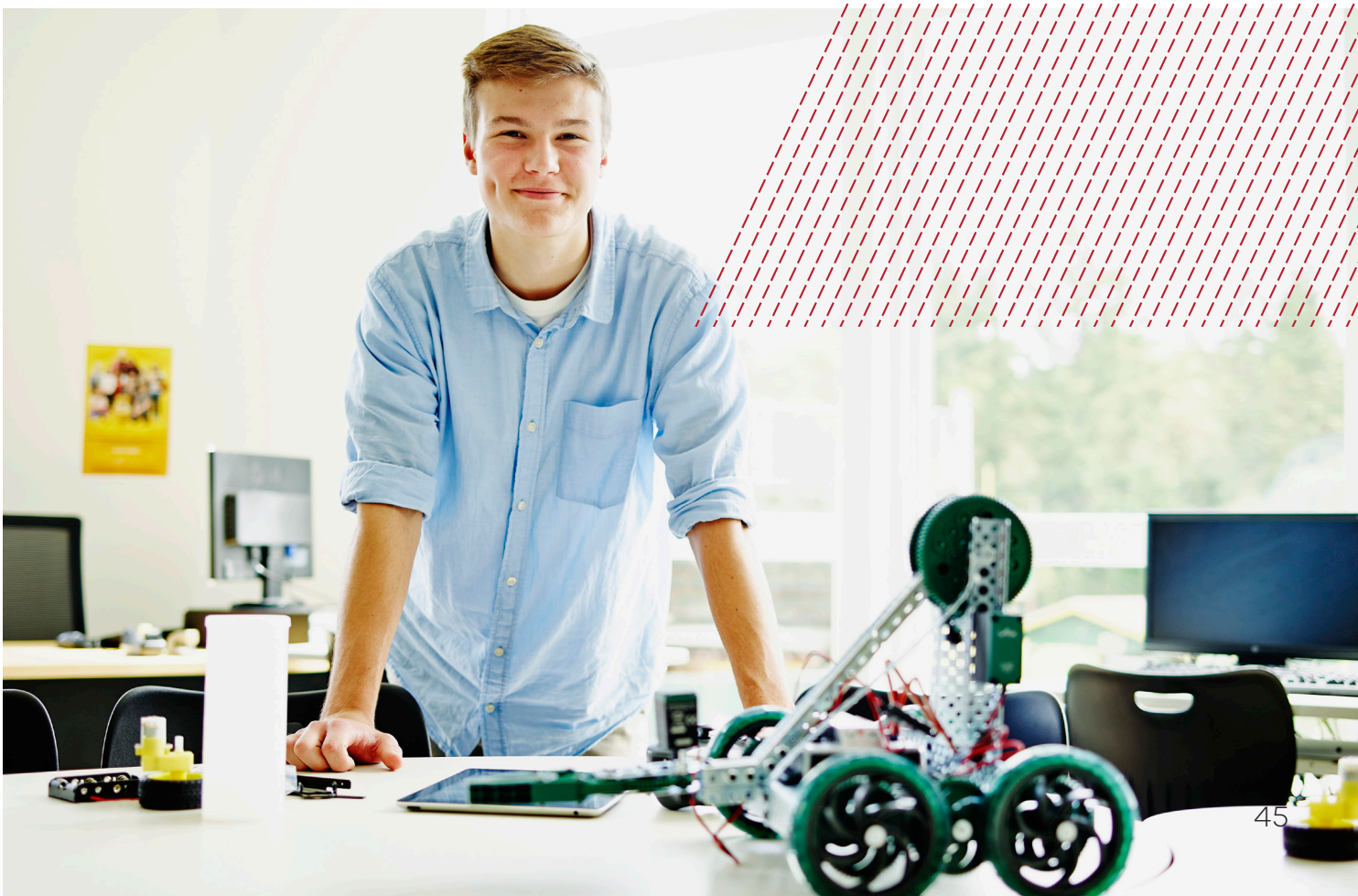
Email
yrtsprogrambookings@boxhill.edu.au

# STRUCTURED WORKPLACE LEARNING

Yarra Ranges Tech School offers two structured work placement spots per day in areas such as IT infrastructure, smart farming, film and video, machine maintenance, and software development. These limited spots allow students to manage the tech school's assets and influence future endeavors and programs, giving them agency over their learning environment. Managed through OELLEN, these structured work placements provide practical, hands-on experience in various technological fields.

## BOOKINGS

Email
yrtsprogrambookings@boxhill.edu.au



# 2025 PROGRAM MAP

| YEAR 7 | YEAR 8 | YEAR 9 | YEAR 10 |
|---|---|---|---|
| **THE ARTS** | | | |
| VR & AI Art | | Graphic Design & Printing | |
| Adornment Jewellery Design | | Augmented Reality Art | |
| | | Media Production | |
| **ENGLISH** | | | |
| AI Debate | | | |
| Enrichment - English Storyboarding | | | |
| **HEALTH & PHYSICAL EDUCATION** | | | |
| | | Sports Science | |
| **MATHEMATICS** | | | |
| Best Buys | | 21st Century E-Commerce | |
| Enrichment - Maths Maze | | | |
| **THE HUMANITIES** | | | |
| Rail Design Challenge | | Smart Farming | |
| Intro to Entrepreneurship | | Yarra Ranges Entrepreneurship | |
| Smart Sustainable House | | | |
| **SCIENCE** | | | |
| Body Systems | | Clean Energies | |
| | | Smart Sustainable House | |
| | | Smart Farming | |
| **TECHNOLOGIES - DESIGN & TECHNOLOGIES** | | | |
| Superheroes Redesign | | | Product Design |
| | | | Safe Workplace |
| Smart Energy Systems & Robotics | | | |
| Flipped Robotics | | | |
| **TECHNOLOGIES - DIGITAL TECHNOLOGIES** | | | |
| Understanding AI | | | |
| Game Design | | | |
| | Wearable Devices Design | | |

| VCE VM | VCE UNIT 1 & 2 | VCE UNIT 3 & 4 |
|---|---|---|
| **THE ARTS** | | |
| Graphic Design & Printing | | |
| Media Production | | |
| **ENGLISH** | | |
| **HEALTH & PHYSICAL EDUCATION** | | |
| Sports Science | | |
| **MATHEMATICS** | | |
| 21st Century E-Commerce | | |
| **THE HUMANITIES** | | |
| **SCIENCE** | | |
| | Chemistry - Analysing Caffeine | Chemistry - Detecting Parabens in Cosmetics |
| Smart Sustainable House | Blology - Exploring Inheritance | Biology - Glowing Bacteria |
| Smart Farming | | Biology - Exploring Evolutionary Change |
| **TECHNOLOGIES - DESIGN & TECHNOLOGIES** | | |
| VM Applied Work Skills | Product Design - Indigenous Lens | |
| Safe Workplace | | |
| Smart Energy Systems & Robotics | Systems Engineering - Smart Energy Systems & Robotics | |
| **TECHNOLOGIES - DIGITAL TECHNOLOGIES** | | |
| Wearable Devices Design | | |

YARRA RANGES

# TECH SCHOOL

## VISION

Empowering all learners to lead innovation
so they can shape a better future

BOX HILL INSTITUTE

VICTORIA State Government | Department of Education

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