



Designing the Future

The DATTA Vic Teachers' Conference
17 June 2022 - Banyule Nillumbik Tech School



Conference Welcome



I'm delighted to welcome you to **Designing the Future**, DATTA Vic's first face-to-face conference since December 2019! It's fantastic that we can now get together to share ideas and discuss issues with our colleagues from throughout the state and beyond. Thanks to all our delegates, presenters, sponsors and trade exhibitors for coming together to make this a very special event, and a particular mention goes to our generous hosts Banuyle Nillumbik Tech School. We're grateful to have the use of your incredible facilities and the opportunity to work with your team to make this conference happen.

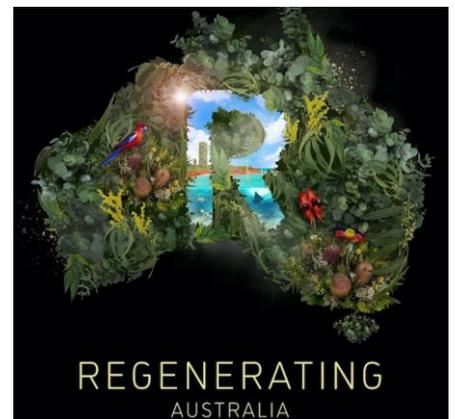
We're also delighted to welcome our *Teacher of the Year Award* Winners from 2020 to 2022 to a special presentation as we mark the achievements of an incredible group of educators who have gone above and beyond to engage their students. What a great way to celebrate a return to face-to-face professional learning!

Travis Burroughs, DATTA Vic President

Our Theme

Our conference celebrates the power that design and engineering have to transform the future. Designers and engineers have the skills to turn products of the imagination into real-world innovation. Inventing tools, technologies, systems and environments for the betterment of humanity is a special task, and it's our job as educators to prepare our students to take on this role.

This inspiration for the event is ***Regenerating Australia***, a short film by the team behind the award-winning '2040'. Set on New Year's Eve 2029, a news anchor is ending the nightly bulletin with a look back at the decade 'that could be.' It imagines that Australia has transitioned to a fairer, cleaner, more sustainable economy. We see what a high-speed rail network connecting regional areas and cities would look like, what large scale renewable energy projects would do for hundreds of thousands of employees, and the impacts of landscapes coming to life when regenerative agriculture and reforestation programs combine with Indigenous knowledge to bring more people back onto the land. It is the very essence of the concept of *Preferred Futures* that underpins our curriculum.



The conference begins with a screening of ***Regenerating Australia*** and continues with an inspiring keynote presentation and a range of engaging workshops and seminars. Our trade exhibition allows you to catch up on the latest education resources and new technologies, and there will be plenty of time to network with fellow educators. Whichever sessions you attend, we're certain you'll return to school with novel ideas, new skills and fresh passion for engaging young people in Design & Technologies education.

Conference Keynote



Co-Designing the Future with Local Communities

Community resilience and infrastructure resilience are ever more important as cities prepare for and respond to multiple, intersecting shocks and stresses. This presentation describes an approach to designing technologies and infrastructures that includes local communities in developing solutions to complex environmental problems. It is based on the 'Bottom-Up Infrastructure' research program undertaken at University College London 2014-2020. Bottom-Up Infrastructure explored how community and infrastructure resilience can be better integrated through co-design.

The presentation will describe co-design projects to address the water-energy-food nexus, air quality and water pollution in London. The presentation will reflect upon the success and limitations of engaging urban communities in infrastructure design and planning, and the potential for new approaches to design and technology to widen access to knowledge and education.

For more information about the research - <https://www.bottomupinfrastructure.org/>

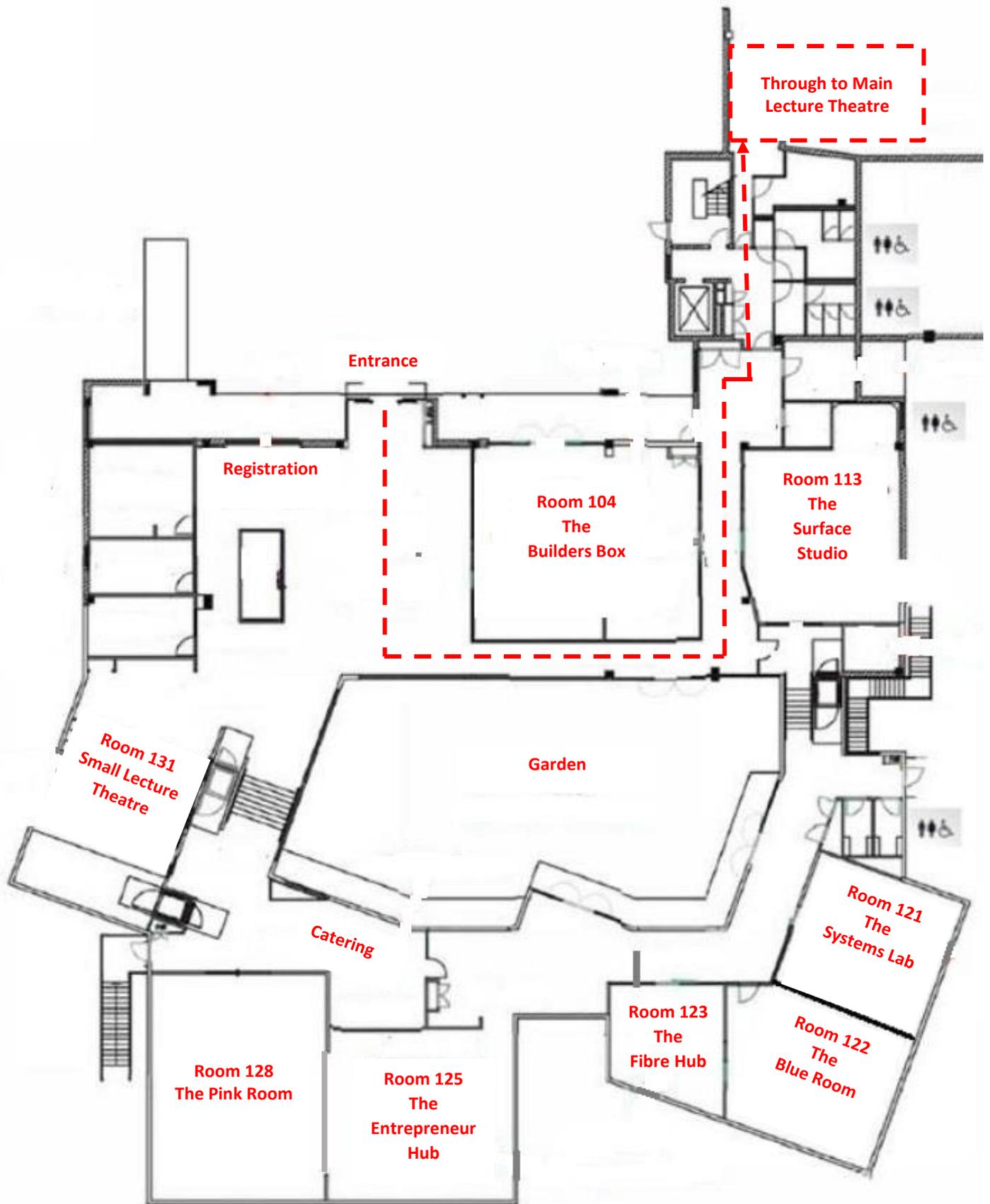
Professor Sarah Bell is the City of Melbourne Chair in Urban Resilience and Innovation at the Melbourne Centre for Cities at the University of Melbourne. Her research addresses urban resilience and community engagement with infrastructure, with a special interest in urban water systems. Her scholarly work draws on the social sciences to better understand how people, technologies and nature interact to create urban systems. Sarah is a Chartered Engineer, and Fellow of Engineers Australia, the Institution of Civil Engineers (UK) and Chartered Institute of Water and Environmental Management (UK). Her latest book 'Co-Designing Infrastructures' will be published open-access by UCL Press in 2022.



Conference Timetable

8am - 9am Registration and trade exhibition					
9am President's welcome from Travis Burroughs in the Main Lecture Theatre					
9.10am <i>Regenerating Australia</i> showing in the Main Lecture Theatre					
9.30am Keynote presentation by Professor Sarah Bell in the Main Lecture Theatre					
10.30am Morning tea					
11am Workshop stream 1					
WORKSHOP 1 The Future is Speculative by Peter Murphy Room 131	WORKSHOP 2 Room 121 Whole-school Plastic Recycling - Anyone Can Do It! Plastics by Jesse Mallen Room 121	WORKSHOP 3 Introduction to Millinery by Angela Rando Room 122	WORKSHOP 4 Catholic Schools go MAD for STEM! by Shelley Waldon Room 113	WORKSHOP 5 Engaging with Industry for VCE Systems Engineering by Veena Nair Room 128	WORKSHOP 6 PART 1 Stories in Silver - Jewellery Making Masterclass with Sarah Kellet Room 104
12 noon Lunch					
1pm Teacher of the Year Awards in Room 131 Small Lecture Theatre					
1.30pm Workshop stream 2					
WORKSHOP 7 Robot Wrangling with The VEX Alumni Association Room 131	WORKSHOP 8 VR & AR in the Classroom by Norman Burke Room 121	WORKSHOP 9 Room 122 Protective Moto Gear by Banyule Nillumbik Tech School Room 122	WORKSHOP 10 Introduction to Micro:bit by Anthony Gasson Room 113	WORKSHOP 11 PART 1 Getting Started with Arduino by Pat McMahon Room 128	WORKSHOP 6 PART 2 Stories in Silver - Jewellery Making Masterclass with Sarah Kellet Room 104
2.30pm Workshop stream 3					
WORKSHOP 12 Robot Wrangling with the VEX Alumni Association Room 131	WORKSHOP 13 Rethink Recycling with Mat Card Room 121	WORKSHOP 14 Redesigning Waste - Pocket Politics by Melanie Read Room 122	WORKSHOP 15 Smart Cities by Whittlesea Tech School Room 113	WORKSHOP 11 PART 2	WORKSHOP 6 PART 3

Conference Map



Workshop Descriptions – Stream 1

Workshop 1 - The Future is Speculative by Peter Murphy

What is Speculative Design, and could it be the future of Design and Technologies education? Explore this progressive and dynamic field of design education with Peter Murphy and consider how it could be used to engage and empower your students to tackle complex global problems in ways that will help them to build resilience and work towards creating a preferred future for all.

Peter trained and worked as a designer in Glasgow before moving into design education in Victorian schools. He served for 5 years as state and then national president of Design and Technologies Teachers' Associations and in between other design education projects he currently trains Technologies and STEM teachers and Industrial Designers at a number of Australian Universities including La Trobe, SCU, ACU and RMIT.

Workshop 2 - Getting Started with Precious Plastics by Jesse Mallen

"Precious Plastic is a cool movement, and maybe some schools can build their own workshop, but mine certainly cannot!" This workshop will allow participants to explore a new resource kit which has been purpose-made for Victorian Design and Technologies teachers, to apply a Precious-Plastic-style recycling setup into any school. The resource includes technical recommendations, communication assets, and suggestions for peripheral systems like collection and storage. Workshop lesson activities flowing from this system that might work well for your school context.

Jesse Mallen Jesse has just completed his double degree at RMIT university in Sustainable Systems Engineering and Industrial Design. The highlights of this degree have included learning full LifeCycle Analysis (LCA), creating an electric motorcycle, and creating an experience design to change minds about the green energy transition. Jesse commenced his capstone project while working with Precious Plastic Melbourne, aiming to create scalable systemic solutions to the systemic problems facing our waste management sector.

Workshop 3 - Introduction to Millinery by Angela Rando

Join Angela Rando in this hands-on professional learning workshop for teachers. She will offer participants a practical introduction to the craft of millinery, demonstrating the skills used in the design and production of headwear, as well as in the development of unique fashion and textile designs.

Angela Rando is a secondary school teacher with over 19 years of experience working with students in Years 7 to 12. She is an experienced VET fashion trainer, delivering the Certificates II and III VET Applied Fashion and Design Technology at Ripponlea Institute. Angela is currently the Creative Arts Co-Ordinator at OLSH Bentleigh and is always looking to improve and enhance textiles teaching.

Workshop 4 - Catholic Schools go MAD for STEM! by Shelley Waldon

The annual STEM MAD Showcase is designed to acknowledge and promote STEM learning initiatives that address real-world problems and demonstrate how students in Catholic schools take action that matters. Student teams from Primary and Secondary Schools are invited to design a product, service or innovation to Make a Difference (MAD) to others or the environment. Join Shelley Waldon to explore inspiring examples of creative problem solving and user-centred design from past shows.

Shelley Waldon is Science and STEM Lead with Catholic Education Melbourne.

Workshop 5 - Engaging with Industry for VCE Systems Engineering by Veena Nair

Viewbank College student Sophia Kiriakidis is one of students exhibiting their VCE Systems Engineering project in this year's Top Designs exhibition. Her work is a *Remote-Controlled Kicking Paddle Holder for Martial Arts*, but her process of creating this project was enriched thanks to her school's commitment to working with external partners. Sophia collaborated with Linak, a local engineering company who produce electric linear actuator solutions. Join her teacher Veena Nair to hear how engaging with industry or academic partners offers VCE students the unique chance to engage in real-world problem solving.

*Veena Nair is the Technology Domain Leader and STEAM Project leader at Viewbank College. She is committed to developing partnerships with industry and academia, establishing a successful **STEAM Futures** conference at Viewbank college and initiating the STEAM Club, in which 150+ students regularly participate. She is also involved in the Young Person's Plan for the Planet program, and through this, Viewbank have developed close partnerships with low SES schools in Mumbai, allowing staff and students to support these institutions to develop their own social enterprises in their communities.*

Workshop 6 (Runs over 3 sessions) - Stories in Silver Jewellery Making Masterclass with Sarah Kellett

In this hands-on workshop, you'll learn how to make a piece of silver jewellery, but through the process, you'll also explore your relationship with the environment and the different connections in your lives that shape you. You will learn how to use saw frames to cut and saw-pierce the sterling silver, hand files to add definition and add emery paper finishes to the metal. Participants will also use different pliers to turn-up rings and hand make a catch for the back of the pendants.

Sarah Kellett is a second-generation goldsmith learning the tried-and-true practices of handmaking timeless jewellery from her father Graeme Kellett. She is a member of 'The Gold and Silversmiths Guild of Australia' and has a Bachelor of Education (Visual Arts) from Melbourne University.

Workshop Descriptions – Stream 2

Workshop 7 - Robot Wrangling with the VEX Alumni Association

Interested in finding out more about robotics? Join this drop-in session hosted by members of the VEX Alumni Association. You'll get the chance to try out building, designing, coding and competing with VEX robotics, and discuss aligning programs with the D&T curriculum. Suitable for beginners and veterans alike, this is a great opportunity to learn new skills, gain ideas and network with colleagues from throughout Victoria.

Workshop 8 - VR & AR in the Classroom with Norman Burke

St Leonard's College has been repeatedly recognised as one of the top performing, most innovative schools in Australia. Their award-winning STEM program provides students with world-class digital and 3D printing facilities to open their mind to powerful design thinking. Join Norman Burke as he introduces participants to the VR and AR projects he runs for students at St. Leonard's College as part of their innovative approach to STEM learning.

Norman Burke is a teacher at St. Leonard's College.

Workshop 9 - Creative Moto Gear by Banyule Nillumbik Tech School

Join Whittlesea Tech School for an introduction to their *Creative Moto Gear* program, where students take on the role of material scientists employed by the Institute of Frontier Materials (IFM) to design protective motorcycle gear for Melbourne's leading urban riding store Moto, EST. This clothing range features innovative designs for male and female motorbike riders in urban environments, so is a great opportunity to engage Textiles students in STEM, creative problem solving and user-centred design.

The Banyule Nillumbik Tech School is part of the Victorian government Tech Schools initiative to move school education into the future. We develop and run specialist STEAM programs and activities that help prepare local students for the challenges of the future and the changing nature of work. Our programs are designed in partnership with community, industry and schools in response to key challenges facing the local community.

Workshop 10 - Introduction to the Micro:bit with Anthony Gasson

Micro:bit is a pocket-sized computer containing a micro-controller and the ability to connect to a range of components such as lights, speakers, and servos. This session is designed for the beginner and is an introduction to how the fundamentals of computer programming can be combined with micro-controllers, to create interactive electronic and electro-mechanical applications.

Anthony is a Technologies Teacher who is passionate about engaging students with hands-on practical activities. From Automotive to Metalworking, and Robotics to Systems Engineering, he has worked with his classes to improve their confidence in problem-solving and encouraged them to push their skills to the next level. Anthony is currently the Learning Technologist with Banyule Nillumbik Tech School.

Workshop 11 (Runs over 2 sessions) - Getting Started with Arduino - the Simple Way

This masterclass will introduce participants to Arduino - an open-source electronics platform, where single-board microcontrollers and kits are used to build digital devices. Pat McMahon will take you through a range of projects, including LEDs, push-button switches, sounders, potentiometers, and ultra-sonic sensors. You'll discuss the applications for this technology in the classroom and identify new ways to engage your students in STEM. **PLEASE BRING YOUR LAPTOP - A SOFTWARE LINK WILL BE EMAILED TO PARTICIPANTS PRIOR TO THE SESSION**

After 50 years of teaching, Pat McMahon has retired, but remains committed to helping Technologies teachers achieve excellence in the classroom. Throughout his career, he has helped over 3,000 students build microcontroller projects, and has run workshops for over 1000 teachers. Pat has been fortunate to have shown his students work overseas and has received various International, Australian State and Territory awards. In 2018, he was awarded an Honorary Lifetime Membership of DATTA Vic in recognition for his outstanding service to the Technologies learning area.

Workshop Descriptions – Stream 3

Workshop 12 - Robot Wrangling with the VEX Alumni Association

Interested in finding out more about robotics? Join this drop-in session hosted by members of the VEX Alumni Association. You'll get the chance to try out building, designing, coding and competing with VEX robotics, and discuss aligning programs with the D&T curriculum. Suitable for beginners and veterans alike, this is a great opportunity to learn new skills, gain ideas and network with colleagues from throughout Victoria.

Workshop 13 - Rethink Recycling with Matt Card

Rethink Recycling is a Co-Op educating Australians not only why, but how to reduce single use plastic consumption and remanufacture it. They partner with communities and businesses to create meaningful products from 'waste' plastic, rescuing bottle lids and other hard-to-recycle small plastics from landfill diverting reliance on imported virgin plastics and saving this valuable resource from local landfills and our oceans. They are currently developing a new program for schools and the greater community focusing on the plastic waste crisis and building a circular economy to remake Australia.

Founded by Matthew Card as a reaction to the lack of readily-available recycled raw materials for makers, Rethink Recycling Co-op has grown to be a collaboration of community members and organisations aiming to drive national change in the waste and sustainability sectors.

Workshop 14 - Redesigning Waste - Pocket Politics by Melanie Read, Future Archive

The concept of gendered pocket disparity is one that many women are familiar with and roll their eyes at, but why is it accepted? This workshop delivered by Melanie Read will explore the most loved and loathed pocket designs, and participants will learn techniques to create a "pocket intervention" using reclaimed, discarded fabrics and materials.

[Future Archive](#) is an ongoing research-based design project of RMIT BA Fashion (Design) (Honours) student Melanie Read. Future Archive understands and critiques contemporary consumer culture through the act of archiving discarded material items and exploring systems of reassigning value and sentimentality to items otherwise deemed as waste.

Workshop 15 - Smart Cities by Whittlesea Tech School

Smart Cities is a multi-level Internet of Things program delivered by Whittlesea Tech School in collaboration with the City of Whittlesea Council. It shows students how to build sensors that will make cities both smart and eco-sensitive. Using a Raspberry Pi, they create and program their own sensor for their backyard and finally help to deploy real-world sensors using The Things Network (TTN) to help solve problems such as flooding, water for River Red Gum tree health, local food production, stormwater pollution and smart rainwater tanks.

Whittlesea Tech School (WTS) is part of a 10-school initiative by the State Government, which is focused on developing critical STEM skills in Victorian secondary students. Located on the Melbourne Polytechnic Epping Campus, the facility functions as an innovative learning hub, connecting 10,000 secondary students from 14 schools in the region to a technology-rich and industry-focused learning framework to prepare them for the jobs of the future.



About the Conference

Register for the Conference at www.datta.vic.edu.au

Conference Venue

The DATTA Vic 2021 conference is being held at **Banyule Nillumbik Tech School**, 61 Civic Drive, Greensborough VIC 3088.



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DATTA Vic wish to thank Sonia Hancova, Anthony Gasson and the fantastic BNTS team for generously hosting our event and for their help in planning and running the conference.

Presenters

A huge thank you goes to all of our keynote and workshop presenters for giving up their time and for sharing their skills and knowledge. We are so grateful for your contribution.

Trade Exhibitors

All trade exhibitors are located in the public areas throughout the Tech School. During the morning, they will be offering hands-on demonstration of their latest products and services. A *Conference Trader Listing* will be included in this program for further details of our sponsors, trade exhibitors and advertisers.

Enquiries

Contact Laura at pl@datta.vic.edu.au if you have any questions about the DATTA Vic 2022 conference. For all invoicing enquiries, contact Emma on admin@datta.vic.edu.au.

Requirements

All our sessions have limited numbers – please book early to ensure your first choice. Also, please make sure you note if you are required to bring your own materials, laptops, or tablets.

Pricing

DATTA Vic Member: \$290
Non-Member: \$390
Student/CRT: \$90

Cancellations

DATTA Vic will refund the full fee, less an administration cost, if you cancel 7 or more working days before a workshop, seminar, or conference and 50% of the fee if you cancel 1 to 7 days prior to the event. If you register but do not attend without cancelling prior to an event you will be charged the full fee unless a medical certificate is provided.

Disclaimer

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