



## Design & Technology Teachers' Association National & State Conference 2021

4–5 June 2021 | Brisbane Convention and Exhibition Centre

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### PRESENTATIONS OVERVIEW

#### **1.01 General Capabilities - Critical and Creative Thinking workshop**

*Tania Safar, DoE NSW Quality Teaching*

This workshop will provide models of assessment for deep learning in Technology K-10 syllabuses. These models form part of the NSW Department of Education Quality Teaching Unit General Capabilities Critical and Creative Thinking in Practice program, working with more than 100 schools state wide. Participants will learn how to detect deep learning in student work and develop teaching and learning activities that target deep learning syllabus outcomes.

**Please note this workshop will be presented via zoom.**

#### **1.02 Engineering: - Lessons learnt from the introduction of course and the second hour will be time for members to network, gather tips for moving forward**

*Brad Wormsley, Queensland Curriculum and Assessment Authority*

The last part of the session has been earmarked for networking and collaboration. We would like to encourage participants to bring along examples of work that you may wish to discuss or share with others.

#### **1.03 Applied Syllabus Focus Group, Prep – Year 10, Year 11 – 12.**

*Jeff Thompson and Linda Anderson, Queensland Curriculum and Assessment Authority*

The last part of the session has been earmarked for networking and collaboration. We would like to encourage participants to bring along examples of work that you may wish to discuss or share with others.

#### **1.04 Create Edu content in 3D - Explore in AR/VR/MR. How my spaceship design got into NASA's Kennedy Space Centre.**

*Steve Iuliano, The School Locker*

New generations of students are born into a world of technology, and for educational institutions that aren't savvy enough to keep up with newest tech trends and innovation, it is becoming harder and harder to engage with the audience. This presentation aims at showing ways of creating interactive presentations and projects using various free software programs to take your 3D models into AR/VR/MR environments.

#### **1.05 Motivating Girls and Boys to Engage with Design and Technology Subject**

*Michael Myers, Re-engineering Australia Foundation Ltd*

Effectively attracting boys and girls to engage with Design and Technology subjects can be a difficult task. Since 2006 REA has undertaken longitudinal research into the Motivational Drivers of Children's Career Decision Choices. This presentation will interpret this research in a way that teachers can use to build class sizes and engagement.

#### **1.06 Cultivating Open Design Processes in Years 7 - 10**

*Rosie Sciacca, Moreton Bay College*

This session will explore how educators can effectively develop learning experiences and assessment tasks that provide opportunities for students to design the best solution regardless of design context. Examples of classroom pedagogy, assessment and student responses will be examined across Years 7 – 10 to demonstrate the gradual release of responsibility, the impact of these strategies and the ways this can be effectively managed in a practical classroom. These examples will be aligned with Australian Curriculum links to reinforce the design thinking nature of the syllabus and how this connects with the practical production component and syllabi beyond Year 10.

### **1.07 Re-use Marble Run - \$20 session registration fee**

*Reverse Garbage*

A hands on activity showing you how to turn waste material into a fun project for your students.

### **1.08 Design Thinking with 3D Technologies for Primary Schools**

*Mandi Dimitriadis, Makers Empire*

The global Covid-19 pandemic highlighted, more than ever, how important it is to empower our young people as innovators, creators, and problem-solvers, who know how to make their world better.

In this workshop, we will unpack the design thinking process as a problem-solving methodology primary school students can use to develop designed solutions for issues that they care about and impact their daily lives.

Participants in this workshop will engage in hands-on experiences with 3D design, design thinking, and problem-solving using Makers Empire's 3D tools and resources.

### **1.09 Features and benefits of the Verus CNC Laser Engraving Machine**

*Andrew Pantelas, Whitelaw Engineering Machinery*

The CNC Laser Engraving Machine is ideal for cutting wood, plastic, paper, and non-metal materials. Ideal for industry cutting of signage and advertising components, air plate / hobby models and more. No CAD

experience necessary includes easy to use CAD software, exhaust fan, water-cooling system and air pump.

Our demonstration which would take 30-40 minutes will show delegates the features, benefits and workings of the LASER also outlining the service and support we offer our clients.

### **1.10 Designing / Prototyping in VR**

*Rashan Senanayake and Krystal Lo, Inspired Education Australia*

Within Industry 4.0, the use and integration of digital tools & technologies is a vital element. Designing & prototyping in Virtual Reality (VR) is now a common skill. Attend this demonstration at the Inspired Education Australia stall and experience these immersive learning tools for yourself and enter into Education 4.0.

### **1.11 Introduction to 3D printing**

*Peter Bate, Gilking School Supplies*

- Introduction to the printer and its features
- Printer operation
- Printer control
- Print demonstration
- Slicer
- Questions and discussion

### **1.12 Sawstop table saw demonstration**

*Tony Foord, Carbatec*

Sawstop is the world's safest table saw, offering a braked safety system that protects against serious injury to its user. It is available in several options. See how it works at our trade stand #9 during the listed session times.

### **2.04 Why are we teaching our students design? What are they learning other than new ideas and skills?**

*Nick Kelly, Queensland University of Technology*

The Queensland Senior Design curriculum focuses on design in practice, commercial design, human-centred design, and sustainable design. It aims to help students to develop the mindsets and skills that designers (in any discipline) need to have. The presentation gives an accessible account of a few valuable ideas about design. It aims to help teachers to develop their intuition about design theory. It draws on examples from design history and aims to help teachers develop ideas for interpreting and enacting the Senior Design Curriculum.

*Note: This is listed as a 'lecture style presentation' but it will aim for significant audience participation to make it more engaging.*

## **2.06 Using Microsoft Teams in Design & Technologies**

*Carol-Anne Durkin, Ferny Grove State High School*

Sick of chasing up students for assignments? Learn to use Microsoft Teams, in conjunction with other Microsoft programs to set, assess and manage assignments in the Design & Technologies. Check student progress on assignments in real-time, keep an accurate record of submission deadlines, etc. Bring your own device and a Microsoft 365 login.

## **2.08 Defining preferred futures: framing students' learning in STEM**

*David Nutchey, Connected Curriculum*

In this workshop, a design thinking-based approach will be adopted to investigate the importance of STEM and to problematise students' learning in STEM, including in Technologies classrooms. During the workshop, you will collaborate with other participants to develop personas that characterise your students, and then, from the perspective of these student personas, define what valued outcomes of learning in STEM could be. These personas and the definitions of valued outcomes will form the basis for the prototyping of learning activities in the second workshop of the series.

*Note: Your attendance and participation in this workshop does not oblige you to attend the second workshop in the series.*

## **2.09 Trotec Laser (Q400) demonstration**

*Mark Kojetin, Trotec Laser*

We will be showing the latest machine in our range the Q400 at this show. We will be showing the benefits of how a laser will assist teachers being able to work through the years curriculum. The Laser can also be used for cutting, engraving and marking. We will be cutting 3mm acrylic and wood by using a computer from a graphic package to send the information to the laser. These sessions will be conducted by Mark Kojetin our major trainer and laser installer.

## **2.10 Designing / Prototyping in VR**

Please refer to session 1.10 above.

## **2.11 Introduction to UV printing**

*Chris Dutkowski, Mimaki*

- Overview of the UV printer and how it works
- Overview of software
- Overview of the range of different materials can be printed on
- Demonstration and interactive session printing of various materials and the different applications

## **2.12 Sawstop table saw demonstration**

Please refer to session 1.12 above.

## **3.01 Education 4.0 - Design Thinking, VR, AR, IoT, AI, STEaM + a mandatory requirement in Industry 4.0 & Design**

*Rashan Senanayake, Inspired Education Australia*

Learn how you and your school can align with the industry 4.0 requirements, technologies, skills and evolving towards Education 4.0TM. More than ever before, now is the time for teachers to embrace and lead the way to the future of education. It is the time for a creative integration of technology, mindset, soft skills, hard skills and passionate educators to start moulding our students in making them future ready – all centred around teaching strategies, classroom implementation and industry standards.

## **3.02 Design:- Lessons learnt from the introduction of the course and the second hour will be time for members to network, gather tips for moving forward**

*Roy Barnes, Queensland Curriculum and Assessment Authority*

The last part of the session has been earmarked for networking and collaboration. We would like to encourage participants to bring along examples of work that you may wish to discuss or share with others.

## **3.03 Australian Curriculum Review: Technologies – What's different and how do I have my say?**

*Bruce Clark, Queensland Curriculum and Assessment Authority*

Australian Curriculum, Assessment and Reporting Authority (ACARA) is reviewing the Australian Curriculum to ensure it is still meeting the needs of students and providing clear guidance for teachers. In this session, participants will be given an overview of the proposed changes to the F-10 Australian Curriculum: Technologies and consider how they can become involved in the consultation process to provide feedback on the changes.

### **3.04 Curriculum activity risk assessment**

*Janelle Butteriss, Queensland Department of Education*

- Understanding the requirements of the Managing risks in school curriculum activities (CARA) procedure
- Planning curriculum activities in Design & Technologies
- Conducting risk assessments for the curriculum activities in Design & Technologies
- Documentation requirements
- Conducting and reviewing curriculum activities in Design & Technologies

### **3.05 Embedding Aboriginal and Torres Strait Islander perspectives into Design and Technology - pedagogy and content**

*Sally Lawrence, Black Cockatoo*

Embedding Aboriginal and Torres Strait Islander perspectives within the Australian Curriculum is a core responsibility of all Australian Educators. Join Sally as she guides you on ways of Embedding First Nations perspectives within Design and Technology, both through content and pedagogy using the award-winning series, *Our Land, Our Stories* from AIATSIS and Nelson Cengage.

### **3.06 Supporting Senior Design Students Through the Explore Phase**

*Rosie Sciacca, Moreton Bay College*

This session will unpack the intent of the explore phase in the Senior Design syllabus and align it with the characteristics of the explore criterion of the ISMG. In doing so, we will identify the key elements that students will need to navigate through to effectively engage in the explore phase, from collecting and analysing data through to describing the design brief and essential design criteria. This will be supported by experiencing and interrogating examples of classroom pedagogy and student assessment responses.

### **3.07 Re-use Marble Run - \$20 session registration fee**

Please refer to session 1.07 above.

### **3.08 Communicating Ideas for Service Design - Apps**

*Carol-Anne Durkin, Ferny Grove State High School*

Ideation sketching and prototyping techniques for app design within the context of service design. Materials will be provided for sketching and low-fidelity prototyping; however, a laptop or tablet will be required to enable you to practice digital prototyping.

### **3.09 Features and benefits of the Verus CNC Laser Engraving Machine**

Please refer to session 1.09 above.

### **3.10 Laser curriculum ideas for the classroom**

*Haydn Brown, Alfex Laser*

Our presentation will explain the benefits of using lasers in education, so you may decide for yourself if a laser cutting/engraving system is right for your school.

Discover what a powerful tool a laser can be in engaging, inspiring, and educating students.

Lasers in the classroom can build critical thinking and problem-solving skills, foster creativity, encourage peer collaboration, and create more engaged students.

### **3.11 Introduction to UV printing**

Please refer to session 2.11 above.

### **3.12 Sawstop table saw demonstration**

Please refer to session 1.12 above.

#### **4.04 Using Pro Create to develop Design Y11/12 Portfolio's**

*Corey Gieskens & Keina Dixon, Ferny Grove State High School*

Do you have iPads available in your Design classrooms? Do you have students who have iPads and would like to utilise them some more for your Design subject area? Are you like I was two years ago – unsure how an iPad could help in design?

If you answered yes to any of these questions, this session could be for you. In this session, we will have Keina a Y12 Design student at Ferny Grove SHS unpack how she uses her iPad and Pro Create to take her presentation of her ideas to the next level.

*This is a one-hour session that is limited on numbers (20 max) and requires an iPad with Pro Create already installed on your device.*

#### **4.06 Great ideas for the delivery of VET courses in Construction and Engineering**

*Shane Watson, Blue Dog Training*

See what teachers from all over Queensland are doing to make vet courses more challenging.

#### **4.09 Trotec Laser (Q400) demonstration**

Please refer to session 2.09 above.

#### **4.11 Introduction to a desktop laser**

*Tony Brownbill, Gravotech Australia*

- Overview of the Laser and how it works – cutting vs engraving
- Overview of software
- Overview of the range of different materials
- Demonstration and interactive session cutting and engraving of various materials
- and the different application / projects

#### **4.12 Sawstop table saw demonstration**

Please refer to session 1.12 above.

#### **5.01 General Capabilities - Critical and Creative Thinking workshop**

Please refer to session 1.01 above.

#### **5.02 St Columban's College student built VANS aircraft**

*Simone Buckingham, St Columbans College*

St Columban's College's transdisciplinary STEM Co-curricular Aero club is currently building a VANS RV 12 iS aircraft in partnership with an external non-profit organisation Flight Youth Engineering. This program has been mapped to the Australian Curriculum subjects such as mathematics, science, technologies, and engineering. The key learning objective of this program is to deliver STEM education which increase students' cognitive synthesis of the co-dependent nature of science and mathematics and in turn provide for advances in the knowledge and understanding of engineering and technology.

#### **5.03 No One Said They Couldn't - Creating World Champions with F1 in Schools, SUBS in Schools and Space in Schools**

*Michael Myers, Re-engineering Australia Foundation Ltd*

Re-Engineering Australia Foundation (REA) is a not-for-profit charity focusing on implementing educational programs that take the concept of STEM education to another level. Since 1998 REA has mentored over 1,000,000 students through its programs producing seven World Champion teams and numerous podium finishes in the world's most demanding STEM competitions. Australian students are the best STEM students globally, and this presentation will help you understand why our programs work and the benefits of engaging students in long term STEM programs rather than STEM games. We will look at F1 in Schools, SUBS in Schools & SPACE in Schools.

#### **5.04 Applying the Australian Curriculum - Crash Course**

*Benjamin Terry, Education Queensland*

This presentation will guide teachers and administrators through the Australian Curriculum. Specifically, how to access it and implement the curriculum to design assessment. Adaptation of existing assessment will also be covered. The presentation will also cover how to match content descriptors to current QCAA (Queensland Curriculum and Assessment Authority) standards and elaborations which allow for consistent judgements to be made across all Queensland schools.

#### **5.05 A hands on look at an award winning Tech maker/ learning platform: Be inspired.**

*Peter Riley, Kitsunei*

Enrol for a rewarding hands-on experience with an established Good Design® Gold award-winning tech maker platform: Kitsunei which is both simple, object driven and if need be, code driven. You'll be invited to participate in activities that explore the intersect of computational logic, code and hardware with 3D design. With participation you will be better able to visualise your students utilising the platform to solve their authentic problems.

#### **5.06 Developing Assessment Literate Design and Technologies Students**

*Rosie Sciacca, Moreton Bay College*

In this session we will explore the attributes of an assessment literate student and how we as educators can cultivate these attributes through our classroom pedagogy and the design of assessment tasks. The development of transparent and valid high quality assessment will be investigated, with particular emphasis on connecting task requirements to the criterion of Years 7 – 12 syllabi.

#### **5.07 Re-use Marble Run - \$20 session registration fee**

Please refer to session 1.07 above.

#### **5.08 Design Thinking with 3D Technologies for Primary Schools**

Please refer to session 1.08 above.

#### **5.09 Features and benefits of the Verus CNC Laser Engraving Machine**

Please refer to session 1.09 above.

#### **5.10 Designing / Prototyping in VR**

Please refer to session 1.10 above.

#### **5.11 Introduction to a desktop laser**

Please refer to session 4.11 above.

#### **5.12 Sawstop table saw demonstration**

Please refer to session 1.12 above.

#### **6.02 Education 4.0 - Design Thinking, VR, AR, IoT, AI, STEaM + a mandatory requirement in Industry 4.0 & Design**

Please refer to session 3.01 above.

#### **6.03 SketchUp: A Design Thinking Tool For Design, Visualisation & Prototyping In A Classroom Environment**

*Krystal Lo, Inspired Education Australia*

SketchUp is a simple and powerful 3D modelling software with a broad application across various industries such as architecture, engineering, product design and much more. It's a great (and fun!) tool to facilitate student learning as it offers students the opportunity to work in a simulated 3D environment and allowing them to be in control of their explorations and decision makings. In this talk, you will be able to learn from the Authorised Training Partner of SketchUp Australia on SketchUp and its ability to facilitate the development of students' design skills, experiences and learning in the classroom.

#### **6.04 Developing preferred futures: leading STEM integration through the Technologies learning area**

*David Nutchey, Connected Curriculum*

Learning in STEM can take various forms, from isolated, discipline focussed subjects through to integrated, transdisciplinary learning that spans discipline boundaries. During the workshop, you will select one or more student personas (generated by participants in a previous workshop) and collaborate with other participants to iteratively generate and prototype an idea for project-based learning that will meet the learning needs of the selected student persona(s). You will then share your prototype with other participants and receive critical feedback and suggestions for the project's further refinement. At the end of the workshop there will be an opportunity to gather the prototype projects, which you could then adapt for use in your own classroom.

*Note: Your attendance and participation in this workshop does not require you to have attended the first workshop in the series.*

#### **6.05 Embedding Aboriginal and Torres Strait Islander perspectives into Design and Technology - pedagogy and content**

Please refer to session 3.05 above.

#### **6.06 Great ideas for the delivery of VET courses in Construction and Engineering**

Please refer to session 4.06 above.

#### **6.08 Junior Sheet Metal Creature Design & Make**

*Corey Gieskens, Ferny Grove State High School*

Have you ever wanted to include more sheet metal into your junior curriculum? Do you want a unit of work that does not need a fancy curriculum space, but one that uses a traditional workshop? In this session, we will unpack a junior curriculum unit that not only meets both of the above criterion, it is also maps perfectly to the Australian Curriculum in an easy to follow manner. In this session we will do some hands-on activities with a project that has been developed, refined and taught across a number of schools in the past 10 years.

*This is a two hour session that will mix some lecture style content with hands on learning activities.*

#### **6.09 Laser curriculum ideas for the classroom**

Please refer to session 3.10 above.

#### **6.10 Trotec Laser (Q400) demonstration**

Please refer to session 2.09 above.

#### **6.11 Introduction to 3D printing**

Please refer to session 1.11 above.

#### **6.12 Sawstop table saw demonstration**

Please refer to session 1.12 above.

#### **7.07 Re-use Marble Run - \$20 session registration fee**

Please refer to session 1.07 above.