TECHNET AUSTRALIA CONFERENCE

SuperTechs - From invisibility cloaks to capes; revealing your value

21 – 23 November 2018

Global Change Institute Building,
The University of Queensland, St Lucia, Brisbane
THANKS TO OUR TRADES EXHIBITORS

https://www.adinstruments.com
www.airmet.com.au
https://www.avtservices.com.au
http://www.edwardsco.com.au
http://www.ezzivision.com.au
https://www.johnmorrisgroup.com
www.labtek.com.au
http://lastek.com.au
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http://www.rohde-schwarz.com/au
http://www.scientrific.com.au
https://www.stantonscientific.com
https://triotest.com.au
http://www.vicom.com.au
Acknowledgement of Traditional Owners and Elders
We acknowledge the Traditional Owners of the land upon which The University of Queensland now stands and pay our respect to Elders past, present and emerging.

WELCOME TO TECHNET AUSTRALIA CONFERENCE 2018
On behalf of the organising committee, it is a pleasure to warmly welcome you to TechNet Australia Conference 2018 at The University of Queensland. We look forward to sharing with you a snapshot of our work and facilities, and to learn from all of our experiences as technical, clinical, infrastructure, safety and related staff from universities across Australia, New Zealand and beyond.

This year’s conference theme is ‘SuperTechs: From invisibility cloaks to capes; revealing your value’. Let me reassure you that it is not about becoming superhuman to do more and more! Rather, in our busy and ever-changing working lives, the conference provides precious space to discuss how we – as the tertiary sector technical community – can more effectively demonstrate and communicate our worth, engage proactively with change processes, and prepare ourselves for future career paths. There are also ample opportunities for applied cross-disciplinary and peer learning, for growing your network, raising your profile, and meeting new & old friends. Learning opportunities within the conference sessions are complemented by our generous trade partners and their exhibition material.

Of course, putting together this conference has taken hours of dedication. I must acknowledge the efforts of my fellow conference committee members and helpers, and am particularly grateful to leaders within UQ’s Faculty of Science for championing this event from the start. Thanks also to the speakers and presenters, without whom there would be no conference. Not least, thanks to you, as a participant. I urge you to throw yourself into the TechNet experience! Our keynotes and panelists will provide new perspectives. Knowledge and shared experience will surround you, and proven ideas are ripe for picking. Keep an open mind, ask lots of questions, and enjoy all we have to offer. And then, let’s do it all again in 2019!

- Vanessa Glenn, Chair, TechNet Australia Conference 2018
CONTENTS

ORGANISING COMMITTEE AND KEY HELPERS................................................................. 4
CONTACTS, EMAIL & TWITTER...................................................................................... 4
VENUE MAPS.................................................................................................................. 5-9
SELF GUIDED TOURS AT UQ.................................................................................. 10-11
PROGRAM...................................................................................................................... 12-17
POSTERS......................................................................................................................... 18-20
TALKS, WORKSHOPS AND TOURS.............................................................................. 21-42

Thursday 22nd November
SESSION 1...................................................................................................................... 21
SESSION 2...................................................................................................................... 22-23
TOURS & WORKSHOPS............................................................................................ 23-24
SESSION 3...................................................................................................................... 25-26
TOURS & WORKSHOPS............................................................................................ 27-29
SESSION 4...................................................................................................................... 30-31
TOURS & WORKSHOPS............................................................................................ 32-33

Friday 23rd November
SESSION 5...................................................................................................................... 34-35
SESSION 6...................................................................................................................... 36-38
TOURS & WORKSHOPS............................................................................................ 39
SESSION 7...................................................................................................................... 40
TOURS & WORKSHOPS............................................................................................ 41
SESSION 8...................................................................................................................... 42-43
ORGANISING COMMITTEE AND KEY HELPERS

Vanessa Glenn (Chair), Clint Chapman, Lucy Hurrey, Phoebe Baldwin, Bryn Base, Marianne Doyle-Pegg, Linda Nothdurft, Jonathan Read, Michael Tobe, Ian Lane, Jennifer Waanders, Ron Rasch, and Kerry Vinall.

With assistance from a cast of dozens helping to organise the conference, particularly:

Raeleen Jennings, Erinn Osmond, Ahmed Rezaei, Tom Mason, Ho Vu, Eleanor Fischer, Stephenie Lynch, Alan Reid and the Faculty of Science Workshop staff, Greg Rees, Niranjali Gamage, Lana Bradshaw, Carlos Bran, Vinod Nath, the volunteers from UQ Physics, Patrick Testa, Mark Hayne, staff at: Moreton Bay Research Station, Translational Research Institute, Indooroopilly Experimental Mine Site, Gatton Campus, Global Change Institute, Emmanuel College, Faculty of Science Finance teams, FBS Collections & Receivables PLUS TechNetUQ members and other staff/students assisting during the conference itself.

Contacts, Email & Twitter

Security – Emergency assistance
In an emergency, call UQ Security on 07 3365 3333 or extension 53333 from any UQ phone. UQ also supports the use of the SafeZone app and visitors to campus are encouraged to download and login to the app whilst on campus. This will aid in security locating you quickly in the event of an emergency.

During the conference, the committee can be reached by emailing: technet@uq.edu.au.

A computer room is available to delegates during the conference (3-221/222), and this room also serves as a speaker preparation area. You can access the Wi-Fi via eduroam whilst on campus. You simply need your log in details – username@<your home university>.edu.au or username@<your home university>.ac.nz – and your password. Extra USB charging ports and are available in the computer room.

Please follow us on twitter: @Technet2018. All delegates are encouraged to join the conversation by posting photos and comments using #technet2018.
VENUE MAPS
<table>
<thead>
<tr>
<th>Workshop 1 (W1)</th>
<th>Walk left around the Great Court from the Steele Building. Walk down the path to the left where the fountain is. Walk past the fountain and walk into the entrance to building 7 on the right. Your tour guide will have a sign &amp; be waiting at the door.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tour 1 (T1)</td>
<td>Molecular Biosciences Building 76. Up front stairs to level 2. Access to the floor is by swipe card only. Dr Margaret Butler will meet the tour groups on level 2, outside the lifts, and escort everyone up.</td>
</tr>
<tr>
<td>Tour 2 (T2)</td>
<td>Walk down Cooper Road to Building 50. Walk down ramp under building 50, first left &amp; up ramp and wait at door for tour guide.</td>
</tr>
<tr>
<td>Tour 3 (T3)</td>
<td>Building 20, GCI. Tour starts in front of Green Wall in the GCI Atrium on Level 2, room 277.</td>
</tr>
<tr>
<td>Tour 4 (T4)</td>
<td>Up the ramp into building 49. Your tour guide will have a sign &amp; be waiting at the glass double doors.</td>
</tr>
<tr>
<td>Tour 5 (T5)</td>
<td>Go to back of building 68 off Cooper Road near Research Road. Your tour guide will have a sign &amp; be waiting at the glass double doors.</td>
</tr>
<tr>
<td>Tour 6 (T6)</td>
<td>Walk down Staff House Road. Building 49 is on the corner of Jocks Road, lower side. Walk up the ramp or stairs. Your tour guide will have a sign &amp; be waiting at the glass double doors.</td>
</tr>
<tr>
<td>Tour 7 (T7)</td>
<td>Go to back of building 68 off Cooper Road near Research Road. Your tour guide will have a sign &amp; be waiting at the glass double doors.</td>
</tr>
<tr>
<td>Tour 8 (T8)</td>
<td>The CMM Hawken Lab front door is on Cooper Rd, Level 1 of Building 50. It’s the west side (short side) of the building, under the PSE Library. Your tour guide will have a sign &amp; be waiting at the glass double doors.</td>
</tr>
<tr>
<td>Tour 9 (T9)</td>
<td>Enter building 47A onto level 2 by going ip the ramp off Staff House Road. Your tour guide will have a sign &amp; be waiting on level 2.</td>
</tr>
<tr>
<td>Tour 10 (T10)</td>
<td>Walk down Services Road off Chancellors Place. Walk up first driveway on the right to Building 84A. Your tour guide will have a sign &amp; be waiting at the glass double doors.</td>
</tr>
<tr>
<td>Tour 11 (T11)</td>
<td>Walk down Staff House Road to the first set of roller doors on the right. Your tour guide will have a sign &amp; be waiting at the roller door.</td>
</tr>
<tr>
<td>Tour 12 (T12)</td>
<td>Walk down Coopers Road and take the 2nd path to building 68. Walk up front stairs to the Chemistry Podium. Your tour guide will have a sign &amp; be waiting in the Podium room</td>
</tr>
</tbody>
</table>
SELF GUIDED TOURS AT UQ

UQ Sustainability Walks

UQ's Sustainability Walks tell a unique story and unveil a fascinating snapshot into a few of the sustainability highlights on campus. Some walk locations feature initiatives and cutting edge research work currently being explored by UQ. Others highlight the beautiful grounds of St Lucia campus abundant with native birds and animals. Taking a Sustainability Walk is also being proactive about wellness, incorporating physical activity and creating opportunities for mindful rejuvenation; both are so important in our fast-paced lives.

Each Sustainability Walk is flexible so you can:

- Choose your own path to link the destinations;
- Visit the sites related to a theme such as energy or biodiversity;
- Visit one or two sites of interest.

This is a self-guided activity, or you can ask one of our conference helpers if they can help direct you. You will need the UQnav app.

Museums and Collections Open to the Public

Many of the University’s collections have evolved from the interests of individual scientists. Others have been developed specifically to enhance teaching and learning. The collections play a vital role in the University’s core activities and double as a valuable community resource.

**Anthropology Museum**

*Location:* Michie Building (9), Level 1  
*Admission:* Free; 11am – 4pm, daily.

The Anthropology Museum houses a significant collection of ethnographic material with over 19,000 artefacts and 5000 photographs. It is the largest university collection of ethnographic material and visual culture in Australia and includes unique and rare items. Just under half of the collection comprises things created by, or relating to, Aboriginal Australian culture groups and individuals. An equally large section of the collection is derived from, or concerned with, diverse Pacific peoples. There are also smaller complementary collections from Africa, South-East Asia and China.

**RD Milns Antiquities Museum**

*Location:* Michie Building (9), Level 2  
*Admission:* Free; 9:30am–4:30pm weekdays.

The RD Milns Antiquities Museum is now the foremost collection of classical Mediterranean antiquities in Queensland. A highly accessible museum for both the general public and university-level students and researchers. The Museum has grown from a small collection to a catalogue of several thousands.
SELF GUIDED TOURS AT UQ

Geology Museum
*Location:* Steele Building (3), Level 2  
*Admission:* Free; 9am – 4 pm weekdays.

The Geology Museum is located on the second floor of the Steele Building. It is home to a replica piece from the Dinosaur Stampede at Lark Quarry along with many rock and mineral specimens. Adjacent to the museum is a recently donated Black Smoker chimney recovered from the deep ocean.

Physics Museum
*Location:* Parnell Building (7), Room 231, Ground Floor  
*Admission:* Free; 9am to 5pm weekdays

The Physics Museum houses a collection of instruments, books and memorabilia dating back to the very beginning of The University of Queensland. Amongst other things, it offers visitors an insight into how things used to be done, and to see how to use a slide rule, computer punch cards, computer magnetic memory, a 1 meter searchlight mirror, and shake hands with their own image. Don't miss out on the famous Ig Nobel prize winning Pitch Drop Experiment which has been running since 1927. There is a smartphone audio guide system to use during your visit.

UQ Art Museum
*Location:* James and Mary Emelia Mayne Centre (11)  
*Admission:* Free; 10am - 4pm daily.

The University of Queensland Art Collection is one of Queensland’s most significant public art collections. The Collection comprises works by Australian artists from the colonial era to the present, and the Nat Yuen Collection of Chinese antiquities.
### PROGRAM
#### Wednesday 21st November

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
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</thead>
<tbody>
<tr>
<td>08:45-17:00</td>
<td>Pre-conference tour 1: UQ Gatton Campus</td>
</tr>
<tr>
<td>08:15-17:00</td>
<td>Pre-conference tour 2: Moreton Bay Research Station</td>
</tr>
<tr>
<td>13:00-16:30</td>
<td>Pre-conference tour 3: Translational Research Institute</td>
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<tr>
<td>13:00-16:30</td>
<td>Pre-conference tour 4: Indooroopilly Experimental Mine Site</td>
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<tr>
<td>15:00-17:00</td>
<td>Registration</td>
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<tr>
<td>17:30-19:30</td>
<td>Welcome Event</td>
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</tbody>
</table>

**Global Change Institute**  
*Alumni Court*

### Thursday 22nd November

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 1 Chair: 3-206</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00-9:00</td>
<td>Registration</td>
</tr>
<tr>
<td>9:00-9:15</td>
<td>Welcome and housekeeping Bryn Base</td>
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<tr>
<td></td>
<td>The University of Queensland</td>
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<tr>
<td>9:15-9:35</td>
<td>Opening address and Acknowledgement of Traditional Owners and Elders Vanessa Glenn</td>
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<tr>
<td></td>
<td>The University of Queensland</td>
</tr>
<tr>
<td>9:35-10:30</td>
<td>Plenary: Reimagining tertiary education: potential effects on classical career paths through a life-long learning and skill economy Roger Wepf</td>
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<td></td>
<td>The University of Queensland</td>
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<tr>
<td>10:30-11:00</td>
<td>Morning Tea, posters &amp; trade show</td>
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</table>

**Global Change Institute**  
*Alumni Court*

<table>
<thead>
<tr>
<th>Time</th>
<th>Session 2 Chair: 3-206 Tours – meet at location</th>
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</thead>
<tbody>
<tr>
<td>11:00-11:40</td>
<td>So... What do you do? Morwenna Boddington</td>
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<tr>
<td></td>
<td>University of Southern Queensland</td>
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<td></td>
<td>T1. Tour of the Australian Centre for Ecogenomics labs (15min) Margaret Butler</td>
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<td></td>
<td>11:00, 11:20, 11:40 and 12:00</td>
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<td>76-513</td>
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<tr>
<td>Time</td>
<td>Session 2 Chair:</td>
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<tr>
<td>11:40-12:00</td>
<td>Professional Development of Technical Staff Mark Hayne Queensland University of Technology</td>
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<tr>
<td>12:00-12:20</td>
<td>How did I get here? Sonia Neville The University of Adelaide</td>
</tr>
<tr>
<td>12:20-12:30</td>
<td>Discussion and housekeeping</td>
</tr>
<tr>
<td>12:30-13:30</td>
<td>Lunch, posters &amp; trade show Global Change Institute</td>
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<table>
<thead>
<tr>
<th>Time</th>
<th>Session 3 Chair:</th>
<th>Tours – meet at location</th>
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</thead>
<tbody>
<tr>
<td>13:30-14:00</td>
<td>Supporting the teaching of analytical and environmental chemistry in a changing educational and regulatory framework Travis Naylor The University of Wollongong</td>
<td>W1. First year physics toys – Oops experiments (25min) Marianne Doyle-Pegg 13:30,14:00 and 14:30 7-211</td>
</tr>
<tr>
<td>14:00-14:30</td>
<td>A Life in Death: the rambling of an anatomy technical officer Anthony Wilkes The University of Adelaide</td>
<td>T5. Faculty of Science Glassblowers (25min) Jarred Wright 13:30,14:00 and 14:30 68-105</td>
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<td></td>
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<td>T4a. Immersive 3D visualisation laboratory (25min) Mehmet Kizil 13:30,14:00 and 14:30 49-131B</td>
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<td></td>
<td>T6. UQFire Research Laboratory (25min) Jeronimo Carrascal Tirado 13:30,14:00 and 14:30 49-627</td>
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</tbody>
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# PROGRAM

<table>
<thead>
<tr>
<th>Session 3 Chair: 3-206</th>
<th>Tours – meet at location</th>
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</thead>
<tbody>
<tr>
<td><strong>14:30-15:00</strong></td>
<td><strong>Engagement in Engineering Labs</strong>&lt;br&gt;Simon Cumming&lt;br&gt;CQUniversity</td>
</tr>
<tr>
<td><strong>T7. Faculty of Science Workshop</strong>&lt;br&gt;(25min)&lt;br&gt;Alan Reid&lt;br&gt;<strong>13:30,14:00 and 14:30</strong>&lt;br&gt;68-141</td>
<td></td>
</tr>
<tr>
<td><strong>T8. Centre for Microscopy &amp; Microanalysis</strong>&lt;br&gt;(25min)&lt;br&gt;Ron Rasch&lt;br&gt;<strong>13:30,14:00 and 14:30</strong>&lt;br&gt;50-Level 1 (L100)</td>
<td></td>
</tr>
<tr>
<td><strong>15:00-15:30</strong></td>
<td><strong>Afternoon tea, posters &amp; trade show</strong>&lt;br&gt;<em>Global Change Institute</em></td>
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</table>

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<thead>
<tr>
<th>Session 4 Chair: 3-206</th>
<th>Tours – meet at location</th>
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</thead>
<tbody>
<tr>
<td><strong>15:30-16:10</strong></td>
<td><strong>Redesigning a first aid service: 4 steps to effectiveness</strong>&lt;br&gt;Greg Pullman&lt;br&gt;The University of Adelaide</td>
</tr>
<tr>
<td><strong>W2. The Gatton solar farm</strong>&lt;br&gt;(40mins)&lt;br&gt;Andrew Wilson&lt;br&gt;<strong>15:30 and 16:10</strong>&lt;br&gt;3-315</td>
<td></td>
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<tr>
<td><strong>T9. Spills and thrills: developing local emergency response procedures</strong>&lt;br&gt;(40min)&lt;br&gt;Vanessa Glenn and Ryan Anderson&lt;br&gt;<strong>15:30 and 16:10</strong>&lt;br&gt;47A-577</td>
<td></td>
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<tr>
<td><strong>16:10-16:30</strong></td>
<td><strong>The half-life of a Radiation Safety Officer</strong>&lt;br&gt;Bill Booth&lt;br&gt;University of Technology Sydney</td>
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<tr>
<td><strong>T10a. Simulation Ward</strong>&lt;br&gt;(40min)&lt;br&gt;Suzanne Marshall&lt;br&gt;<strong>15:30 and 16:10</strong>&lt;br&gt;84A-level 6</td>
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<tr>
<td><strong>16:30-16:50</strong></td>
<td><strong>Paper based exercises to practical practicals: facilitating the flip</strong>&lt;br&gt;Linda Nothdurft&lt;br&gt;The University of Queensland</td>
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<tr>
<td><strong>16:50-17:00</strong></td>
<td><strong>Discussion and housekeeping</strong></td>
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<tr>
<td><strong>18:00-22:30</strong></td>
<td><strong>Conference dinner and NEATTS Award</strong>, Featuring the Subatomic Cookie Bandits&lt;br&gt;<em>Dining Hall, Emmanuel College</em></td>
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<tr>
<td>Time</td>
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<td>8:00-9:00</td>
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<td>9:00-9:05</td>
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<td>9:05-9:15</td>
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<td>9:15-10:15</td>
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<td>10:15-10:45</td>
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<td>10:45-11:25</td>
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\(^1\)The University of Queensland; \(^2\)Sustainable Change
<table>
<thead>
<tr>
<th>Session 6 Chair: 3-206</th>
<th>Session 6 Chair: 3-309</th>
<th>Workshops – meet at location</th>
</tr>
</thead>
<tbody>
<tr>
<td>**Point-of-care (POC)</td>
<td><strong>Dee Gibbon</strong></td>
<td><strong>Barry O'Sullivan</strong></td>
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<tr>
<td>analysers: A QA/QC</td>
<td><strong>The University of</strong></td>
<td><strong>Sustainable</strong></td>
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<tr>
<td>dilemma</td>
<td><strong>Queensland</strong></td>
<td><strong>Change</strong></td>
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<tr>
<td>Brian Bynon, Lana</td>
<td><strong>3-228</strong></td>
<td><strong>3-315</strong></td>
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<tr>
<td>Bradshaw, Karen</td>
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<tr>
<td>Jackson</td>
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<td>The University of</td>
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<td>Queensland</td>
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<tr>
<td><strong>11:45-12:05</strong></td>
<td><strong>The start to know</strong></td>
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<tr>
<td>**The Skeleton Crew</td>
<td><strong>Kath Brice</strong></td>
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<tr>
<td>Project</td>
<td><strong>The University of</strong></td>
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<td>Paul Graham and</td>
<td><strong>Queensland</strong></td>
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<td>Margaret Stockill</td>
<td><strong>Adelaide</strong></td>
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<td>CQUnder University</td>
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<tr>
<td><strong>12:05-12:15</strong></td>
<td><strong>Discussion and</strong></td>
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<td><strong>housekeeping</strong></td>
<td><strong>Lunch, posters &amp;</strong></td>
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<tr>
<td><strong>12:15-13:15</strong></td>
<td><strong>trade show</strong></td>
<td><strong>Global Change Institute</strong></td>
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<tr>
<td><strong>12:20-13:15</strong></td>
<td><strong>TechNet Australia</strong></td>
<td><strong>Global Change Institute:</strong></td>
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<tr>
<td><strong>AGM</strong></td>
<td><strong>Seminar Room</strong></td>
<td><strong>Seminar Room</strong></td>
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<table>
<thead>
<tr>
<th>Session 7 Chair: 3-206</th>
<th>Tours – meet at location</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Laboratory</strong></td>
<td><strong>Simulation</strong></td>
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<tr>
<td><strong>enhancements</strong></td>
<td><strong>Ward</strong></td>
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<tr>
<td>Nikititas Economou</td>
<td><strong>(40min)</strong></td>
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<tr>
<td>The University of</td>
<td><strong>Suzanne</strong></td>
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<tr>
<td>Western Australia</td>
<td><strong>Marshall</strong></td>
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<tr>
<td><strong>13:35-13:55</strong></td>
<td><strong>Forging a supply</strong></td>
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<td><strong>chain: the ins and</strong></td>
<td><strong>13:15 and 13:55</strong></td>
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<td><strong>outs of a University</strong></td>
<td><strong>49-131B</strong></td>
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<tr>
<td>Store</td>
<td><strong>13:15 and 13:55</strong></td>
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<tr>
<td>Wendy Brockhouse</td>
<td><strong>84A-level 6</strong></td>
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</table>
### Session 7

**Chair:** 3-206

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>13:55-14:15</td>
<td><strong>What do you mean It’s not ready!</strong>&lt;br&gt;Lynn Ferris&lt;br&gt;University of New South Wales</td>
<td>T11. Tour of the new UQmakerspace – a Space Odyssey!&lt;br&gt;(45min)&lt;br&gt;Vince Kelly</td>
<td>T11. Tour of the new UQmakerspace – a Space Odyssey!&lt;br&gt;(45min)&lt;br&gt;Vince Kelly</td>
</tr>
<tr>
<td>14:15-14:45</td>
<td><strong>Graduate Interns - A New Frontier</strong>&lt;br&gt;Shane Griffin, Gary Morgan and Jennie Nelson&lt;br&gt;Western Sydney University</td>
<td>T12. Chemistry Building back-end tour (40min)&lt;br&gt;Greg Rees</td>
<td>13:15 and 13:55&lt;br&gt;68-332 Chemistry Podium</td>
</tr>
<tr>
<td>14:45-15:15</td>
<td>Afternoon Tea, posters &amp; trade show&lt;br&gt;<em>Global Change Institute</em></td>
<td>45-127</td>
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### Session 8

**Chair:** 3-206

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
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<tbody>
<tr>
<td>15:15-16:05</td>
<td><strong>Plenary: Our tech services journey at Exeter</strong>&lt;br&gt;Elizabeth James&lt;br&gt;The University of Exeter</td>
<td>45-127</td>
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<tr>
<td>16:05-16:15</td>
<td><strong>TechNet 2019: Deakin University</strong>&lt;br&gt;Leanne Farago, 2019 TechNet Australia Conference Organising Committee&lt;br&gt;Deakin University</td>
<td>68-332 Chemistry Podium</td>
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<td>16:15-16:20</td>
<td><strong>TechNet Australia</strong>&lt;br&gt;Mark Hayne&lt;br&gt;Chair, TechNet National Committee</td>
<td>68-332 Chemistry Podium</td>
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<tr>
<td>16:20-16:30</td>
<td><strong>Conference closing address</strong>&lt;br&gt;Marianne Doyle-Pegg&lt;br&gt;The University of Queensland</td>
<td>68-332 Chemistry Podium</td>
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<tr>
<td>16:30</td>
<td><strong>Informal social evening</strong>&lt;br&gt;<em>Pizza Café UQ</em></td>
<td>68-332 Chemistry Podium</td>
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Will Australia embrace the alternative source of energy in the transportation sector?
Mohammad Anwar and Patrick O’Grady
CQ University

Globally the transportation sector is the third largest energy consumer after industry and building sectors, and it is growing faster than others. The transport sector is most reliant upon the petroleum fuels (crude oil derived gasoline and diesel). The cost of this fuel fluctuates day by day, which affects the overall economic status of most countries. The uncertainty and political instability in many primary fuel producing countries also make maintaining a sustainable fuel supply vulnerable. Also, using this fuel leads to the release of nitrogen oxides, unburned hydrocarbons, carbon monoxide and particulate matter into the atmosphere, causing severe health issues. The use of fuel increases global warming, greenhouse gas emissions, acid rain and unpredictable rainfall leading to climate change. Thus, there is an urgent need to find alternative sources of energy that are renewable, cost-effective and able to be produced sustainably. Biofuel, i.e., biodiesel, is a promising alternative fuel for solving all fuel-related environmental problems.

At CQUniversity, we are doing research to explore energy efficient technologies for biodiesels production. These biodiesels are tested in a diesel engine to establish their performance and exhaust gas emissions. A fully instrumented four cylinder 4-stroke, naturally aspirated diesel engine (emissions certificate Tier 2) is used for all experiments. The engine is connected to an eddy current dynamometer. A data acquisition system is used to obtain data i.e. engine speed, torque, air, fuel consumption and temperature. The exhaust gas emissions of NOx and HC in ppm, and CO and CO2 in vol. % are measured with a CODA 5 gas analyzer. For measuring PM emissions, a particulate matter meter (MPM-4M) is used. This e-Poster will demonstrate on some of the research activities that have shown promising results on biodiesel production and its engine performance and emissions control. A couple of feedstocks such as papaya seed oil and stone fruit oil have been used to demonstrate the scope of works in CQUniversity Australia.
Engagement in Engineering Labs
Simon Cumming
CQ University

There is a need to boost our student numbers by increased enrollment of local students. The challenge is to raise an awareness of higher education as an attractive post-secondary option. There is a significant role for technical personnel to encourage local high school students to enroll into University. The ideal is to provide experiences for young students which are fun and challenging without being too difficult or complex. The activity must be relevant to the field of Engineering and the students’ prior experiences. Adding a competitive element can inspire better results. CQU Electrical Power Lab provides access to a variety of hands-on experiences, such as LEGO Robots, 3D printers, motors, generators and other equipment. LEGO Robots introduce students to programming with real world examples in Automation and Mining. 3D Printers are used alongside simple 3D drafting software such as TinkerCad and Microsoft's 3D Builder. Designing tasks that encourage trial and error, creative design, and analysis of comparative results, generates excitement among students as they see their improving results.

High Risk Chemicals: an example of SOP development
Linda Nothdurft
The University of Queensland

High risk chemicals are used widely across Universities and work places throughout Australia. There are varied levels of Occupational Health and Safety policies and procedures surrounding their use based on the chemical itself, the resources available and the culture of the workplace. This poster demonstrates an example of Standard Operating Procedure development using hydrofluoric acid as an example and, describes some of the controls that have been put in pace to help mitigate the risk. Hydrofluoric acid is a strong acid which has the potential for fatality of used incorrectly. This acid is used to dissolve silicates however skin contact and inhalation pose a great risk.
Teaching Immunology students about primary immunodeficiency disease diagnosis through a modified flow cytometry practical.
Amanda Ruggero, Hong Nguyen, Maurizio Costabile
University of South Australia

Flow Cytometry is a key technique used in diagnostic laboratories to analyse leukocyte populations in blood to facilitate disease diagnosis. It is important for undergraduate immunology students to learn the concepts of flow cytometry, however it is difficult to provide a realistic scenario without the inherent dangers of exposing students to potentially infectious patient samples (e.g. HIV) and having to source blood from immunodeficient patients.

An approach was developed at The University of South Australia whereby normal healthy human blood was manipulated to mimic a range of primary immunodeficiency diseases (PID), and then analysed by flow cytometry to generate data that resembled a patient screening. The students were then provided with these data files for analysis and to determine the immunological status of the patient. Individual populations of leukocytes were purified from normal human blood and then returned at varying levels to leukocyte depleted blood to mimic significant reductions in individual populations of cells. The purified cells were also added back to whole blood to mimic an elevation in a cell population. Using this approach, we have initially replicated a total of 7 PID diseases.

This poster outlines the development of this practical and summarises the challenges faced by the technical staff and the solutions to overcome these. This practical was delivered to 2nd year Immunology students in 2018 and may be of use to other Immunology technical staff who would like to incorporate Flow Cytometry into their undergraduate classes. Anonymous student feedback through a questionnaire was highly positive for this new learning approach.
The industrial revolution introduced cycles of innovation and industrial change. These waves of change from around 1770 to 1970 had one thing in common: the time between the changes was always longer than a typical generation time. This allowed individuals to plan their education and career path within their youth and early adulthood period. However, the latest innovation and industrial wave – the “green technology” wave – started around 2010 and has impacted on our day-by-day living and education, particularly with the worldwide instant flow of ideas and opinions.

Shorter change cycle times mean faster changes for individuals, which creates challenges for higher education and future career plans. As for most changes, this creates both hope and insecurity. Slogans such as “Moving to a skills economy”, “Artificial intelligent (AI) driven technology revolution” or “How to survive in the age of automation” do not really help most of us in the day-by-day struggle to find a fulfilling, engaging and meaningful job in an ever faster changing international “learning-society”.

Reflecting on my own career, on the careers of scientists in Europe, and the technical career pathways in my own or peer teams, I will discuss the challenges for our technology driven future, discuss alternative career paths and learning scenarios, and show that highly skilled technicians and scientists have an optimistic future and that (yes we can!) can enrol into leadership positions in industry, society and also into the future higher education environment. Professor Wepf will address the conference theme, Super Techs.
SESSION 2

So…What do you do?
Morwenna Boddington
University of Southern Queensland

This simple question can be a difficult one for technical staff to answer, unless the questioner is prepared for a lengthy response! But within that answer lies the depth and breadth of our knowledge and skills, ones that many people don’t realize, understand or see. Our work is hidden in the background and goes unnoticed, leading many to think we don’t do anything of importance. This needs to change.

As a profession, we need to step out of the shadows and promote what we do and why we can do it. We don’t need to answer this question as a response to small talk. We need to answer it so our managers, Human Resources and the wider education community know and appreciate what we do. We need to highlight how we contribute to education and student success. We need to demonstrate our awesomeness, but where do we start? I have some thoughts, which will be explored through this presentation. However, we are a unique group of people, and one answer will not fit everyone. So, before we educate others, we need to educate ourselves. The more we learn about our roles, the better our response will be. So…What do you do?

Professional Development of Technical Staff
Mark Hayne
Queensland University of Technology

Professional Development (PD) should be beneficial for workers and their employers alike. Yet, it is sometimes, even in universities, treated not as an investment, but as an overhead to be trimmed. Why? Likewise, some well-intentioned PD is seen by technical staff as being of little to no value. Why? PD means different things to different people and their organisations. This presentation explores those differences, how different universities support professional staff development, and suggests how, with a little effort, the diverse TechNet community itself may offer some practical exchange opportunities worth considering beyond the national and regional conferences. Various international PD opportunities including the Endeavour and Churchill Fellowships will be discussed as well.
I'm Sonia Neville and currently work in the Technical Services Unit, for the School of Animal and Veterinary Science, The University of Adelaide. My role primarily is to prepare and set up practical sessions for Veterinary and Animal Science students in a diverse range of subjects. This includes Microbiology, Immunology, Haematology, Parasitology and Physiology. The role is as diverse as it is menial, as difficult as it is mundane and no two days are ever the same. A day can start out by plating out single colonies of bacteria, progress to collecting faecal samples from alpacas, pithing cane toads and end cleaning and packing up microscopes ready for the next days challenges.

So how did I get here? From a Technical Assistant in 1981, drudging through preserved sheep intestines for worm larvae in the Veterinary Sciences division of the IMVS, Adelaide. There were 100 staff who performed every test manually (Chemistry, Haematology etc.) and reported the results handwritten in triplicate using carbon paper. We had tea ladies and glassware washers. From Hippos and crates of live chickens in the basement PM room to the arrival of the first computers and automated systems. From making and conjugating antibodies by hand for Immunology and rooms full of spinning glass tubes growing numerous cell lines for Virology. From New Zealand to a tiny one person Pathology laboratory in the Barossa, my career as a Laboratory Scientist since 1981 is as diverse as the role I now find myself in.

TOURS & WORKSHOPS
**COVERED-IN SHOES ARE REQUIRED FOR ALL TOURS & WORKSHOPS**

Tour of the Global Change Institute
Ron Hohenhaus
Global Change Institute, The University of Queensland

Come see how a busy workplace and function centre operates with no air-conditioning in Brisbane’s sub-tropical climate. Learn about the innovative materials that The University of Queensland used to achieve a zero-carbon, sustainable building of the future.
TOURS & WORKSHOPS

**COVERED-IN SHOES ARE REQUIRED FOR ALL TOURS & WORKSHOPS**

Tour of the Australian Centre for Ecogenomics labs
Margaret Butler
Australian Centre for Ecogenomics, The University of Queensland

Established in 2010, the Australian Centre for Ecogenomics (ACE) is primarily a research laboratory focused on high-throughput sequence-based analysis of microbial communities. Using ‘Next Generation’ sequencing platforms, including the current Illumina and Oxford Nanopore Technologies and the not-so-current Roche 454 and Ion Torrent, staff have been able to provide metagenome sequence data to researchers within the centre. ACE also offers service provision to clients within UQ and external to the university, including non-academic users.

Come for a tour of our 2.75 laboratories and all the different equipment we utilise in our research each day. From the DNA extraction robot called ‘Kermit’ to the sequencer named ‘Lucy’. For those not interested in molecular biology equipment, we also have something on offer for the physical scientists as well. Also take part in discussions of the trials and tribulations of laboratory freezers and how to recycle and have some sort of environmental conscience in the laboratory.

Expansion Tube facilities – Wind tunnels for experimentally testing hypersonic flight
Rory Kelly, Chris James and Ranjith Ravichandran
Centre for Hypersonics, University of Queensland

The Centre for Hypersonics develops and operates high speed wind tunnels (also known as shock tunnels and expansion tubes) to investigate high temperature gas flows relevant to space applications. This tour will visit the two large expansion tube facilities that are used to replicate the conditions experienced by a capsule entering a planetary atmosphere. These tunnels are maintained and operated by technical staff, academic staff, and postgraduate students.
SESSION 3

Supporting the Teaching of Analytical and Environmental Chemistry in a Changing Educational and Regulatory Framework

Travis Naylor, Catherine Lancaster, Stephen Wilson, Clare Paton-Walsh (Murphy) and Glennys O’Brien
The University of Wollongong

The University of Wollongong provides subjects specialising in Analytical & Environmental chemistry at the 2nd and 3rd year levels. In recent years there have been significant changes to these subjects in an effort to provide better outcomes for our students and prepare them for the real world challenges ahead. These changes have been implemented around new educational philosophies and regulatory requirements for some chemicals.

The changes to the educational framework to be discussed in this presentation include:

- Transitioning to an on-line lab report/answers submission for our 2nd year subject.
- Practical examinations in session instead of a written exam at the end for our 2nd year subject.
- 3rd year laboratory based subject where students work as a team to investigate an authentic real world waste sample (Capstone Subject).
- Integrating new instrumentation into existing practicals.

Regulatory requirements to be discussed are focused around the WorkCover NSW 10 priority chemicals that pose significant risk to people’s health and safety. One of these chemical families, Dichromates, is used in our analytical chemistry subjects for its superior oxidative properties and redox chemistry. Dichromates have not been removed from use in our teaching laboratories, however stricter controls around exposure and use have been implemented. The thinking behind these changes was to find the best solution to providing our students experience and familiarity in handling hazardous chemicals without compromising their health and safety.
SESSION 3

A Life in Death: the rambling of an anatomy technical officer
Anthony Wilkes
The University of Adelaide

The School of Animal and Veterinary Sciences enrolled its first cohort of veterinary students in 2008, two years before the main teaching facility was completed (and with only three staff). It probably comes as no surprise that the phrase ‘building a ship at sea’ was uttered many times in those initial years. With a course being written as it was being presented, the rate of change in was significant. In order to facilitate veterinary teaching in a constantly evolving environment, adaptive strategies were required to ensure staff and students received the best possible outcome with limited available resources. This talk highlights the diverse role of the veterinary anatomy technical officer, necessary to meet the changing requirements of a new school, and to produce a broad collection of anatomical material for teaching. This presentation will also touch on some of the processes implemented to maintain high output in an efficient and timely manner. Topics covered will range from the day to day running of an anatomy laboratory, to more complex technical work such as dissection, production of anatomical models, and skeletal preparation for museum display.

Engagement in Engineering Labs
Simon Cumming
CQ University

There is a need to boost our student numbers by increased enrollment of local students. The challenge is to raise an awareness of higher education as an attractive post-secondary option. There is a significant role for technical personnel to encourage local high school students to enroll into University. The ideal is to provide experiences for young students which are fun and challenging without being too difficult or complex. The activity must be relevant to the field of Engineering and the students’ prior experiences. Adding a competitive element can inspire better results. CQU Electrical Power Lab provides access to a variety of hands-on experiences, such as LEGO Robots, 3D printers, motors, generators and other equipment. LEGO Robots introduce students to programming with real world examples in Automation and Mining. 3D Printers are used alongside simple 3D drafting software such as TinkerCad and Microsoft’s 3D Builder. Designing tasks that encourage trial and error, creative design, and analysis of comparative results, generates excitement among students as they see their improving results.
TOURS & WORKSHOPS

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First Year Physics Toys – OPPS Experiments Workshop
Marianne Doyle-Pegg
School of Maths & Physics, The University of Queensland

Come and have a play with some of the experiments our 1st year students do. Build your own house and sheep. Play with charge. Make some lightning. Make smoke disappear. See what you can do with a frog & steel balls. What can you do with a magnet, wire, screw & battery?
While you are here have a look at our recently refurbished 1st year lab. Brought to you with the help of some fantastic physics tutors.

Immersive 3D Visualisation Lab Tour
Mehmet Kizil
School of Mechanical & Mining Engineering, The University of Queensland

The recently installed Immersive 3D Visualisation Laboratory offers users a semi-immersive virtual environment in which a number of engineering project scenarios are simulated. The facility boasts a 180 degree curved screen, powered by three full High Definition 3D projectors each run by its own workstation. The system is capable of running highly detailed Virtual Reality simulations in both 3D and 2D. The facility has also a headset that provides fully immersive experience.

Come and experience the following simulations:

- Experience the feeling of going into an underground mine and see how coal is mined; and
- Teleport into the virtual world with the help of a VR headset for a fully immersive experience.
TALKS, WORKSHOPS AND TOURS
Thursday 22nd November

TOURS & WORKSHOPS
**COVERED-IN SHOES ARE REQUIRED FOR ALL TOURS & WORKSHOPS**

Faculty of Science Glassblowers Tour
Jarred Wright
School of Chemistry & Molecular Bioscience, The University of Queensland

I have been glass blowing for almost 8 years at UQ. We make scientific apparatus for all manners of scientific disciplines from microbiology and chemistry to nanotechnology. The glass blowing trade is a dying art form. There are only a handful of glass blowers left in the southern hemisphere and UQ is very lucky to have this facility and the highly skilled staff to run it. The tour will include demonstrations of the day to day operations of melting, cutting and joining glass on the lathes and some bench work/hand skill demonstrations. We hope this visit is informative and look forward to having everyone here.

Tour of the UQFire Research Laboratory: A pyromaniac facility?
Jeronimo Carrascal
School of Civil Engineering, The University of Queensland

If you wonder what a fire laboratory is and what drives us to make a living as pyromaniacs then don’t miss out on the UQFIRE LAB TOUR. Humanity has used fire throughout all its existence. From this we have thousands of years of experience with fire and we have developed a intuition about its danger and its behaviour. So, why is a Fire Laboratory needed then? Well, there is a clear distinction between intuition and understanding. The Fire Laboratory enables us to study and understand the phenomenon in a holistic way, so that we can help society to design safer buildings, aeroplanes, trains, and spacecraft. This even lets us mitigate the impact of major incidents such as bushfires. This tour will show the state-of-art facilities and the equipment that allows experiments from the very small-scale to the full-scale.
TOURS & WORKSHOPS
**COVERED-IN SHOES ARE REQUIRED FOR ALL TOURS & WORKSHOPS**

Guided Tour of the Faculty of Science Workshops
Alan Reid
Faculty of Science Workshops, The University of Queensland

Take this rare opportunity to visit one of the ‘engine rooms’ of research & development support at UQ. You will be able to observe leading edge computer numerical control machinery in action, producing intricate & at times, esoteric, components for the many world class laboratories within the Faculty. You will also observe the Workshops custom-made 3D printer in operation producing a myriad of components, ranging from highly complex, such as a dog’s skull, down to quite ordinary things, such as helical gears for laboratory equipment.

UQ Centre for Microscopy and Microanalysis (CMM) Tour
Ron Rasch
Centre for Microscopy and Microanalysis, The University of Queensland

The Hawken facility is the material science microscopy laboratory at the Centre for Microscopy and Microanalysis (CMM) hosting scanning electron microscopy (SEM/STEM) and imaging mass spectrometry (IMS) for UQ researchers. It has just completed an extensive expansion and refurbishment to bring it up to world-class standard. The specification requirements of these new research instruments necessitated an extensive design phase for the building refurbishment to ensure many issues such as mechanical and acoustic vibration, stray electromagnetic fields, air quality, chilled water supply, gas supply and electrical power supply were all correctly specified, implemented and then quantitatively tested. The new design ensures the laboratory environment will support and enhance the operation of all current and future instruments and will produce the highest quality, material characterisation research results.
As the front-line of injury management, first aid is a critical service in any organization and is subject to various levels of legislation and workplace policy. To be effective, first aid needs to be readily accessible under different circumstances and times of day, but must also be compliant with record-keeping and incident reporting requirements. The difficulty in balancing these two requirements often leads to either uncontrolled access to first aid kits, or a tightly managed system under direct control of first aiders.

Following its Professional Services Reform in 2016, the Faculty of Engineering, Computer and Mathematical Sciences conducted a detailed review which led to the design of a new four-stage first aid service. The solution is readily accessible while fully compliant with record-keeping and reporting requirements, and caters for many foreseeable situations - those who just need a band-aid for a blister, to those who receive more serious injuries in laboratories, to those who suffer any type of after-hours first aid incident when first aiders are absent. The new first aid system has considerably reduced the administrative overhead of previous systems, made it easier for people to get the most appropriate level of treatment, and reduced the costs associated with maintaining a first aid service.
Radioisotope usage in scientific research has waxed and waned over many decades. Following earlier eras of largely unregulated usage, all States of Australia currently enforce strict compliance with local Acts and Regulations. To aid institutional compliance, most universities have employed a Radiation Safety Officer(s) (RSO) to oversee radiation usage and provide systems and processes to ensure safe work practices. In larger institutions this role may be centralized in, e.g., a Work, Health and Safety unit, and be predominantly administrative in function. In smaller institutions, as is the case at UTS, the role of RSO has fallen to local technical management. On the whole, radiation usage involving unsealed isotopes has declined significantly in the past decade, being replaced by alternative technologies. Yet such usage continues to function, making it necessary that the skills and knowledge underpinning the role not be lost.

In this presentation, I will provide a brief history of my own work with radioisotopes in medical research, as a prelude to accepting the role of RSO at UTS. I will discuss my role as an RSO, the current spheres of radiation usage and the issues commonly faced, the systems employed to oversee radiation work and the training necessary to work safely with radiation.

Traditional practical delivery has often been based on paper exercises with little hands on opportunity. Across the Tertiary sector, academics are continually being urged to flip their teaching styles and deliver more collaborative, hands on experiences for their students however, they do not necessarily have the time or resources to implement such change. In this presentation, I would like to share some examples of more hands on practicals that I have been involved with developing and share the means by which change has been achieved.
TOURS & WORKSHOPS

**COVERED-IN SHOES ARE REQUIRED FOR ALL TOURS & WORKSHOPS**

**Spills and thrills: developing local emergency response procedures**
Vanessa Glenn and Ryan Anderson
Sustainable Minerals Institute, The University of Queensland

Adapting generic emergency response guidelines to create local procedures can be challenging, especially in a research environment where the tasks being undertaken are constantly changing. How can you predict what the worst case scenario will be? If you plan for the worst, will your procedure hold up in a more likely but less severe incident? Using chemical spill response as an example, we'll describe how we came up with a local procedure for our Institute's multi-disciplinary environmental research labs. We'll also discuss the use of scenario-based learning as a tool for training lab users in the procedure. This talk will occur on-site in the labs so attendees will get a first-hand feel for the context. There will also be an opportunity to briefly tour these labs.

*Tour of the Simulation Ward*  *This tour is running in more than one session.*
Suzanne Marshall
School of Health and Rehabilitation Sciences, The University of Queensland

A replica of an Acute Hospital Ward that School of Health and Rehabilitation students use in their Clinical training. An opportunity for students from Physiotherapy, Occupational Therapy, Speech Pathology and Audiology to familiarise themselves with equipment, scenarios and interprofessional workplace training, prior to them going on Clinical Placements to ‘REAL hospitals. Real professional learning occurs, ensuring students confidence and skills.

A variety of stations will be set up for visitors to experience some of this clinical learning.
TOURS & WORKSHOPS

**COVERED-IN SHOES ARE REQUIRED FOR ALL TOURS & WORKSHOPS**

The Gatton solar farm
Andrew Wilson
UQ Sustainability, The University of Queensland

The Gatton Solar Farm is the largest solar research facility of its kind in the Southern Hemisphere. It comprises of over 36,000 individual PV modules across three different tracking technologies with a combined power output of 3.3 MW – meeting over 40% of overall campus energy demand. This presentation will cover the project’s design, its performance over the past three years, and some of the unique challenges that come with managing a facility such as this. It will also touch on UQ’s renewable energy ambitions for the future.
SESSION 5

Keynote Panel

The panel will discuss the conference theme, ‘SuperTechs - From invisibility cloaks to capes; revealing your value’ with questions and discussion with the floor.

Associate Professor Susan Rowland - Deputy Associate Dean Academic (Future Students and Employability), UQ

After completing her BSc Hons and PhD at the University of Sydney, Susan was a Human Frontiers in Science Long-Term Postdoctoral Fellow at the University of Connecticut, USA. After gaining an academic position there, she returned to Australia in 2006 to teach and research at UQ. She completed a Graduate Certificate in Higher Education at UQ in 2007 and in 2009 she was appointed as a full-time teaching-focused faculty member in the School of Chemistry and Molecular Biosciences.

Dr Dee Gibbon - Associate Director, Workplace Diversity and Inclusion, UQ

Dr Deanne (Dee) Gibbon CSC holds a PhD from the University of New South Wales. Her doctoral research focused on finding practical, evidence-based ways of increasing women’s representation in non-tradition occupations. Before leaving her career in the full-time Air Force, Deanne deployed to Afghanistan as NATO’s Senior Gender Advisor to the Resolute Support Mission, where she assisted the Afghan Ministers of Interior and Defence to increase women’s representation in their National Army and Police Force. Deanne also served as the Head of the Australian Defence Force’s (ADF) Sexual Misconduct Prevention and Response Office (SEMPRO) and the Project Director for the ADF’s Review into the Treatment of Women. Deanne was a founding member of the Australian Chief of Defence Force’s Gender Equity Advisory Board (GEAB). Her efforts to progress diversity outcomes in the ADF resulted in her winning the 2013 diversity category of the Westpac and Financial Review’s 100 Women of Influence awards and receiving a Conspicuous Service Cross in the 2014 Queen’s Birthday Honours.
SESSION 5

Keynote Panel

Dr Clint Chapman - Senior Manager, Research Facilities & Infrastructure Planning, Faculty of Science, UQ

Clint provides leadership and strategic direction to the Faculty of Science Research Facilities & Infrastructure Group, comprising the glasshouses, marine research stations, Boating & Diving Unit and Faculty workshops. He also ensures all occupational health and safety legislative and UQ policies are achieved or exceeded by all stakeholders of these facilities.

Barry O’Sullivan - Director of Sustainable Change

A former senior partner at KPMG, Barry now applies his 22 years of Big 4 experience to leadership coaching & building professional presentation skills. Having attended night classes for over 4 years at The Actors Conservatory, Barry’s unique coaching methodology brings together business knowledge, coaching, acting, performance and personality type insights. In his 15 years as a leadership & executive coach, Barry has intensively coached over 500 leaders and executives. His ‘Fear-free presentations’ workshops have been delivered throughout Australia. He prepares executives for major Board presentations and conference keynotes, as well as coaching entrants in pitch competitions.

Panel facilitator

Alina Tollenaere - Technical Services Manager (acting), School of Agriculture and Food Sciences, UQ

Alina completed her undergraduate and Honours studies in marine biology and molecular genetics. Post studies, she worked as a research assistant in the School of Biological Sciences. She then shifted focus from marine animals to legumes as a research assistant and lab manager, then operations manager in the Centre for Integrative Legume Research. Following on from this, she moved to France for 2 years and worked at INRA, Rennes as a research engineer. She returned to UQ in late 2017 as a senior technical officer for the School of Agriculture and Food Sciences and is currently acting in the role of Technical Services Manager for SAFS.
An impact tester for the uninitiated is basically a hammer that is dropped, swung or otherwise flung at the specimen under test in order to measure its resilience to the abuse. It breaks things. In late 2017, QUT was awarded a $1.4M ARC LEIF grant, led by Prof David Thambiratnam, to develop a 50m/s, 125kJ impact tester following the success of our novel horizontal 10kJ impact tester built in 2012. To put things in perspective, 125kJ at 50m/s is the equivalent of dropping 100kg from a height of 129m. In our case, space constraints require us to find a practical and safe way to achieve the same velocity and energy in less than 4m. Horizontally. Structural target specimens can be of any material or geometry and axially loaded up to 300kN. It can take an entire day to setup one specimen yet the test is all over in a mere 0.3s. The velocity of 50m/s is 180kph or 1mm every 20us which is at the upper end of likely vehicular impact speeds directed at civil structures. Reliably and accurately measuring what happens during the impact is a crucial part of the project. This involves cameras recording at 50,000 frames per second to measure surface stress fields on the specimens via Digital Image Correlation. In addition, strain gauges, accelerometers, laser displacement transducers and load cells, including in the projectile itself, all have to be faithfully recorded. The mechanical design process has already exhausted two initial flywheel based concepts and has now settled on a compressed air cannon approach which is currently being refined. Many aspects of the project are at the very limits of materials, technology or funding. This presentation will explain a little about ARC LEIF grants generally, a review of existing impact testers and what they break and the current state of our project, the solutions found and the problems remaining.

The start to know
Kath Brice
The University of Adelaide

The history on how the technical service started. In 1991, the College merged with the University of Adelaide and became the University’s Roseworthy Campus, part of the Faculty of Agricultural and Natural Resource Sciences to the start of the School of animal and Veterinary Sciences.
SESSION 6

Point-of-care (POC) analysers: A QA/QC dilemma
Brian Bynon, Lana Bradshaw and Karen Jackson
The University of Queensland

Within the veterinary science industry and particularly within veterinary clinics, point-of-care (POC) analysers are increasingly used with approximately 80% of veterinary clinics having an in-house laboratory containing any combination of: a haematology analyser, a biochemistry analyser, a urinalysis machine, a blood gas analyser, a glucometer, and a coagulation analyser. At the School of Veterinary Science Gatton campus, although we provide an onsite reference laboratory (Veterinary Laboratory Services), we are no exception to this rule with POC analysers common, as patient side testing is often required for particular testing and afterhours work. As laboratory workers we understand the importance of quality assurance and quality control but as the staff who manage these POC analysers are often clinically or teaching oriented without laboratory experience, how do you best manage the maintenance and QA/QC of these analysers? At SVS we have recently introduced a program where the laboratory staff from the VLS have developed internal quality plans, provided advice on SOPs surrounding machine maintenance and use, performed preventative maintenance, and provided troubleshooting advise while also educating the clinical and teaching staff members on how to perform and record the daily maintenance. We will present our preliminary findings on how well this system is working for better patient care and interdepartmental communication.

The Skeleton Crew Project
Paul Graham and Margaret Stockill
CQUniversity

For many years CQUniversity has owned a collection of museum-display skeletal material that has been used to aid the teaching of anatomy, zoology and other courses. In time, they sort of become part of the furniture - always there when they’re needed, interesting to bring out for open day displays and irreplaceable when it comes to teaching. Like everything, now and then it needs a bit of TLC and for at least 30 years, these hard working (literally worked themselves to the bone) displays have gone about their business of teaching without a single complaint. SO… When The Skeleton Crew acknowledged that the displays were looking a bit tired we thought ‘We should fix these up, what a brilliant end-of-year project!’ Continued over the page...
CQUniversity has a commitment and a strong consideration for ethics. From that perspective alone, the renovation/rejuvenation work shows respect for the animals’ lives that are represented by these displays, as well as considerations of whether they are replaceable or not. Each display was inspected and a plan of action was determined... yep, pull it apart, clean it up, do the repairs and put it back together again. Sounds simple right? Yeah that’s what we thought too. To put it simply, the challenge was unknown. We had no idea what level our skills would be stretched to, we had no idea of the new skills and tricks of the trade that we’d learn along the way, but what has transposed has been a very enjoyable and VERY rewarding experience.

**Design and Construction of the CMM Hawken Laboratory**  
Ron Rasch  
The University of Queensland

The Hawken facility is the material science microscopy laboratory at the Centre for Microscopy and Microanalysis (CMM) hosting scanning electron microscopy (SEM/STEM) and imaging mass spectrometry (IMS) for researchers at The University of Queensland. It has just completed an extensive expansion and refurbishment to bring it up to world-class standard. The CMM Hawken laboratory now hosts new state-of-the-art machines, such as Cs corrected STEM for atomic resolution imaging and characterisation, and Electron Beam Lithography (EBL) for quantum computation and nano-patterning research. The specification requirements of these new research instruments necessitated an extensive design phase for the building refurbishment to ensure many issues such as mechanical and acoustic vibration, stray electromagnetic fields, air quality, chilled water supply, gas supply and electrical power supply were all correctly specified, implemented and then quantitatively tested. The new design ensures the laboratory environment will support and enhance the operation of all current and future instruments and will produce the highest quality, material characterisation research results. The talk shall go over many of the design considerations and solutions enacted in the refurbishment of the CMM Hawken laboratory.
WORKSHOPS & WORKSHOPS
**COVERED-IN SHOES ARE REQUIRED FOR ALL TOURS & WORKSHOPS**

Strategies for overcoming challenges faced by women techs & workshop staff
Marianne Doyle-Pegg & guest presenter
The University of Queensland

In this workshop we are focusing on what strategies we can use when faced with situations where gender inequality raises its ugly head in our labs, workshops and other technical workplaces. Scenarios, statements and possible interventions you can use in your everyday workplace will be explored. At the end of the conference we will present a tool box for you to use. The session will be guided to draw solutions/strategies from the discussion not focus on the upsetting situations we have all faced. This is an equal opportunity session for all genders.

Presenting with confidence and impact – to get the results you need
Barry O'Sullivan
Sustainable Change

Leaders within an organisation's senior leadership team regularly compete for scarce resources (people, dollars, infrastructure). More often than not, those leaders seeking additional funds which promise more revenue win out over leaders seeking funds to improve or maintain day to day operations.

The question for technical and operational leaders is how to present with such impact and persuasiveness that CEOs and Boards are compelled to approve their submissions. In this highly interactive 90-minute workshop, Barry O'Sullivan, leadership coach and pitch professional, will take attendees through a business case template that enables leaders to quickly develop a powerful submission. The session will also demonstrate the need to deliver a presentation with confidence, vocal variety and audience appeal.
In this presentation I will endeavor to stimulate your minds on how to improve the look of you labs. Create a safer environment as well as improve the esthetics of the lab Yes, it will cost money but not hundreds of thousands of dollars to rebuild the lab. It is just a matter of thinking out of the square and make little improvements.

Most times you can push safety issues get around the negative responses you will ultimately meet from your superiors and fellow workers as I did. Careful thinking and planning as well as getting reasonable quotes for your improvements will help achieve your ultimate goal.

Forging a Supply Chain: The Ins and Outs of a University Store
Wendy Brockhouse
The University of Adelaide

This is a look at the many facets of a University store and the bumps in the road of forging a reliable supply chain. It is a journey from paper to spreadsheets to databases, all to keep stock of laboratory equipment, chemicals, paperwork and suppliers. It may be of interest to anyone who purchases goods or tracks inventories.

What do you mean it’s not ready!
Lynn Ferris
University of New South Wales

The fun filled roller-coaster ride that is the floor to ceiling rebuilding of a PC2 lab. One lab manager’s journey of discovery on the importance of consultants, and project managers; what 3 meters looks like to builders, academics and technical staff, and a builder’s definition of the word finished. Difficult technical points will be discussed such as who pays for the “I’m sorry we flooded your office for the third time” fruit basket and why it is not my fault the light switches are on the far side of the room. What worked and what didn’t work and what I would do differently. Audience contributions would be most welcome.
Technical Support Services at Western Sydney University is based on a consolidated and centrally led model. Technical Support Services is delivered by “clusters” of specialists providing support teaching and research across a wide range of disciplines.

These clusters include:
- Computing, Construction and Engineering
- Health
- Science
- Institutes
- Social Sciences and Humanities

We provide work integrated training opportunities for Western Sydney graduates as a critical part of student development to assist in value adding to their University Education. The Technical Support Services Graduate Intern Program is specifically designed by technical staff to provide a Western Sydney University Graduate with an opportunity for career preparedness as a Technical Officer through strengthening knowledge, skills and workplace experience in their chosen discipline.

Each Graduate Intern will have at least one Mentor and Team Leader to ensure the intern is offered appropriate and useful experiences to develop their vocational expertise through guided and situational learning.
TOURS & WORKSHOPS
**COVERED-IN SHOES ARE REQUIRED FOR ALL TOURS & WORKSHOPS**

Tour of the new uQMakerSpace - a space odyssey!
Vince Kelly
EAIT Faculty Workshop Group, The University of Queensland

Come and tour the new uQMakerSpace and marvel at the array of equipment and facilities available for UQ students and staff. What is a MakerSpace you may ask? No it is not a celestial machine that warps the fabric of time and space, but rather a learning facility where people can meet, collaborate, experiment and create. Yes it has machines, but it is more than just that – it is about a place where dreams are made into reality by the action of hands-on Making. In the tour we will have a look at the facilities and equipment, but also discuss the complex journey of setting up this new venture at UQ. We welcome any questions during or after the tour.

Chemistry Building Backend Tour
Greg Rees
School of Chemistry and Molecular Biosciences, The University of Queensland

The Chemistry Building (68) at UQ was built in the early 70s and has been progressively refurbished from 2002 to 2016. Every floor has been upgraded, as well as having major improvements to service provision. This short tour will highlight some of the improvements and lessons learned during this protracted improvement phase. This presentation is not intended to be lab tours, but will concentrate instead on building infrastructure and service provision within the building that support the research and teaching labs.
In 2015 the University of Exeter embarked on an ambitious transformation programme to create a single Professional Services team to support the academic endeavour at the University. One of the first areas to go through the transformation process was technical support. Technical staff used to be managed as teams in the six academic colleges with no managerial oversight of this group of staff as a whole. In August 2015 all technical staff were ‘homed’ in the newly formed Technical Services under the management and responsibility of a new post of ‘Head of Technical Services’. The aim of the new service was to 1) create a Technical Service that is efficient and agile enough to meet the changing demands of academia 2) to find ways to invest in Technical Services staff enhancing professional skills and building a community of best practice and 3) to create an attractive career path for the next generation of technicians to aspire to.

In 2017 Exeter joined the Technician’s Commitment, a UK initiative that aims to ensure visibility, recognition, career development and sustainability for technicians working in higher education and research, across all disciplines. I will reflect on what we have achieved by going through this transformation process, what the Technician’s Commitment means to Exeter, and what we hope to achieve as a service in the future.
TALKS, WORKSHOPS AND TOURS
Friday 23\textsuperscript{rd} November

SESSION 8

2019 conference at Deakin University
Leanne Farago
TechNet Australia Conference 2019 Organising Committee, Deakin University

As host of the 2019 TechNet Australia Conference I will introduce you to Deakin University, the conference theme and Geelong.

Conference Close
Marianne Doyle-Pegg
The University of Queensland

Marianne will close the conference and wrap up the proceedings from the last few days.

We thank you for coming to the TechNet Australia 2018 conference and look forward to seeing you next year at Deakin University!

Join TechNet Australia http://www.technetaustralia.org/