



## Teachers develop skills to integrate automation

With the resources sector becoming increasingly automated, young people entering the industry will need to have new skills sets that include programming and highly-developed problem solving skills.

Twenty engineering technology teachers from across the state are now better able to integrate these automation concepts into their teaching, following a teacher professional development workshop in Brisbane. With the guidance of electrical engineer Dr Damien Kee, the teachers investigated programming and application of an Arduino electronics platform.

Rio Tinto's Principal Advisor, HME and Materials Management, Technology and Innovation, Iain Curran then provided teachers with examples of resources sector applications of the control systems and automation concepts being investigated, including an overview of global operations being controlled from Brisbane.

Queensland Minerals and Energy Academy teachers Karl Bittner and Max Condon

shared examples of how they have integrated the teaching of control systems and automation processes into their classroom. Both of these teachers are leading the way in integrating automation skills into their curriculum and commented on the engagement level of their students when performing these tasks.

The QMEA STEM PD program has also included opportunities for teachers to attend Earth science based workshops in Moranbah and Wandoan. Three additional workshops in Rockhampton, Brisbane and Ipswich will be offered in early December.

The program for 2013 will be available on the website from January.



## Date Claimers

### DECEMBER 2012

- 10** TESEP PD (Brisbane)
- 11** TESEP PD (Ipswich)
- 12** TESEP PD (Rockhampton)
- 12** Science Olympiad (Brisbane)
- 14** School Finishes

### JANUARY 2013

- 29** School resumes

### FEBRUARY 2013

- 11** TESEP Workshop (Wandoan)
- 13** TESEP Workshop (Brisbane)
- 13-15** Maths Intensive Workshop (Moura)
- 20** Inquiry-based Science (Miles)
- 21** Inquiry-based Science (Moura)
- 25-26** Spatial Technologies (Roma)

### MARCH 2013

- 6-7** QMEA Awards Event
- 8** International Women's Day
- 19** TESEP Workshop (Brisbane)
- 20** TESEP Workshop (Toowoomba)
- 28** Term 1 Ends

**Venues listed above are proposed. A full list of confirmed QMEA activities will be available on the QMEA website in early February.**

## Professional Pathways

The QMEA 'It's All about M.E. Professional Pathways Experience' saw more than 40 students and teachers from Cloncurry State School, Spinifex Senior College and Good Shepherd Catholic School learn first-hand what a professional career in the minerals and energy sector might include.

Industry representatives from Xstrata's engineering, geological, environmental and surveying departments facilitated a number of fun hands-on activities for the Mount Isa and Cloncurry students. Following the workshops, CSIRO allowed students to try a number of exciting experiments and activities relating to geology. The day was also supported by five student ambassadors representing Queensland University of Technology (QUT) and James Cook University (JCU) who provided invaluable information relating to the day-to-day life of a university student.



The day provided a worthwhile experience for students considering a professional career in the resources sector. The QMEA wishes to acknowledge and thank Xstrata, CSIRO, QUT and JCU for their generous support of this event.

## Earth Science

The QMEA Earth Science Experience aims to increase students' knowledge and interest in different careers, by showcasing scientists from a range of strands working within the resources sector. The purpose was to highlight that a career in earth sciences offers diverse career pathways with the opportunity to travel and experience new cultures.

More than 70 students and teachers learnt first-hand what a career in earth science might include as the day began with Professor Paul Dirks' captivating presentation on his archaeological dig for humanoid species in South Africa. Students and teachers then took part in a field trip up to Townville's Castle Hill, where James Cook University (JCU) lecturers Tom Blenkinsop and Zaoshan Chang looked closely at the geomorphology of Castle Hill. A site tour of JCU followed, where students were involved in a rock excursion and insightful tour of the university amenities guided by student ambassadors James Murr and Hannah Hilbert-Wolf.



The students, from Kirwan State High School, St Margaret Mary's, Ayr State High School, Burdekin Catholic High School and Shalom Christian College also partook in a variety of hands-on 'rock story' activities with CSIRO Geologist Megan Spandler, reinforcing the 'science experience' theme. Student ambassadors from JCU assisted with the interactive workshops and doubled as valuable networking opportunities for the school students. Industry experts, Geologist, Matthew Fist, and Environmental Scientist, Mark Jones, both from BHP Billiton Cannington, charismatically presented their life journey stories to the group, giving an insightful view of professions within the minerals and energy sector.

The day was a great success where students learnt that geologists & environmental scientists have the opportunity to help make a difference in the future through research and discovery.

We would like to acknowledge and thank BHP Billiton Cannington, CSIRO and JCU for their generous support of this event.

### QMEA Right Direction Award 2012

Each year QMEA Right Direction Awards are presented to outstanding students in QMEA schools.

This year's recipients in the Northern Region are:

Cloncurry State High School	Tarnishia Sarmardin	Year 12
Kirwan State High School	Bradley Quantrill	Year 12
Spinifex State Secondary College	Caitlynd Gardner	Year 12

## Women In the Workforce

Congratulations to the ten ladies from Moranbah that recently completed the Women In the Workforce program, each being awarded a Certificate I in Resources & Infrastructure Operations.

The group, including eight Moranbah State High School students and two mothers, have worked through a program of classroom delivery, on-site visits and practical projects to demonstrate an understanding of the basic operations and processes required to work in the mining industry.

The qualification developed by SkillsDMC, has been designed in consultation with industry to equip participants with a working knowledge of the risk assessment, hazard management, communication and work procedures to be able to contribute safely to the general operations of an organisation as soon as they arrive on site.

The program was sponsored by BMA, in partnership with Moranbah State High School, Qld Minerals & Energy Academy, and Central Qld Institute of TAFE, with support from local industry including BMC and Anglo American Coal, who provided guest speakers and industry experts throughout the course and site visits for the group to observe the processes in practice.

The program was delivered at the Coalfields Excellence Training Centre (CTEC), which is an industry standard facility. It enabled the group to participate in the theory aspects and practical activities required in the course to complement their site based observations.



The participants were presented with their certificates at a graduation breakfast in November. Michelle Ash, BMA Head of Alliance Planning & Coordination, and guest speaker at the event, shared her insights into education in regional areas and pathways into the resources sector. She provided an insight into the under representation of women in the mining industry, encouraging participants to consider a career in mining.

CTEC trainer Cassie Fudge said she was impressed with the enthusiasm the ladies showed throughout the course, and the career choices that were now being considered.

### QMEA Right Direction Award 2012

Each year QMEA Right Direction Awards are presented to outstanding students in QMEA schools. This year's recipients in the Central North Region are:

Dysart State High School	Amy Crooks	Year 11
Moranbah State High School	Katie Lynn	Year 11
Emerald State High School	Brandon Sue	Year 12
Pioneer State High School	Lachlan Brand	Year 12

## Expand Your MINeD

With help from four very talented industry representatives from BMA Blackwater, students from North Rockhampton State High School and Blackwater State High School spent a day working in teams to overcome varying engineering challenges at the 'Expand Your MINeD' challenge.

Blackwater State High School played host to visiting North Rockhampton students in a number of friendly science and engineering-based challenges. Each school fielded 30 of their top year 10 students and the day proved to be an overwhelming success.

The tasks, many of which were designed by industry, provided students with the opportunity to replicate real world challenges and develop innovative engineering solutions in collaboration with BMA staff.

Thanks must go to all BMA staff and QMEA teachers involved in the day.



## Biodiversity Day

QMEA, along with Ecological Consulting gave Gladstone students an opportunity of a lifetime last week when 20 year 9 students were selected to participate in a biodiversity field day.

The students from Gladstone State High School, Chanel College, Tannum Sands State High School and Toolooa State High School were given the opportunity after proving their skills in science and the environment.

The biodiversity field day, saw students investigate the changes within the local populations of *Cycas megacarpa* (that's cycad to you and me), situated on LNG Gas Transmission Pipeline (GTP) Right Of Way (ROW) in the Calliope Range.

Being the very first students to ever step foot on the temporary and permanent translocation sites for the endangered species, the pioneering spirit was shared throughout the group.

Working with ecologists and environmental engineers, students were coached in the daily procedures undertaken on both rural sites. Students gathered data on the condition of individual plants and made comparisons of these conditions between sites and the different stages of translocation.

Students were able to report on the progress of the cycad relocation program and make personal recommendations for the future success of the program.

The day was rounded off by industry representative discussing their career pathways and how the resource sector and the environment work collaboratively.



## It's all about ME

Three female year 10 students from Tannum Sands and Biloela kick-started their careers in the minerals and energy sector by attending a two day course, known to industry as a 'qualification must' to enter the resource sector.

An initiative of the QMEA and the four Gladstone LNG proponents, the training was conducted by TNT Training of Calliope, and ensured the students were taught correct procedures of risk control, occupational health and safety, emergency reporting and hazard identification.

The students visited a real mine site at Queensland Energy Resources (QER) as well as the CQ Diesel fitting and maintenance workshops. Here the students conducted risk assessments and experienced first-hand the vital role workplace health and safety plays in the resource sector.

The training followed a larger QMEA event hosted in early 2012, where close to 80 female students from across the region converged on Gladstone to participate in a number of hands-on activities, based on the minerals and energy sector.

QMEA Director, Mr Roger Atkins said the support from local industry is what enables opportunities like this for young people to build their industry skills and knowledge.

'The QMEA and our sponsors Arrow Energy, APLNG, GLNG and QGC, along with the generous support from TNT Training, will provide these girls with the best possible start to their resource career pathway'

'What better place than Gladstone, and in a world-class facility like QER, could these students receive a better introduction to the resource sector', Mr Atkins said.



### QMEA Right Direction Award 2012

Each year QMEA Right Direction Awards are presented to outstanding students in QMEA schools. This year's recipients in the Central South Region are:

Biloela State High School  
Blackwater State High School  
Chanel College  
Gladstone State High School  
Moura State High School  
North Rockhampton State High School  
Tannum Sands State High School  
Toolooa State High School

Tom Evetts	Year 11
Blake McGuiness	Year 11
Joshua Baxter	Year 10
India Fallon	Year 11
Tara Ogden	Year 12
Thomas Illott	Year 11
Emily Braithwaite	Year 11
Ben Lumsden	Year 12



## Is Automation the Future?



Twenty year 10 students from Nanango State High School are on their way to developing skills to enable them to pursue a career in automation in the resources sector, following a half- day intensive workshop with electrical engineer, Damien Kee.

Under the guidance of Dr Kee, the students programmed robots to complete a number of tasks simulating mine rescue and networking, as they will be the next wave of engineers that work on solving problems and further automating industry.

Nanango State High School students have also been involved in a number of challenging tasks in senior physics, working with local engineers to investigate the conversion of kinetic energy to electrical energy.

## Underground in Brisbane - MyneStart

Very few 15 year olds get to experience working underground, but MyneStart’s new facilities at Pinkenba provided just that opportunity when 22 Year 10 students from Alexandra Hills State High School, Bundamba State Secondary College and Wavell State High School were fortunate enough to complete a tour recently.

Following a brief induction about underground mine safety, the students and their accompanying teachers were fitted out with personal protection equipment, a miner’s belt complete with a self rescuer and battery pack for their headlamp, a hard hat and safety goggles.



While touring the purpose built underground mine, the students were introduced to mining equipment including a man transporter, bolters and borers, a long wall shearer and conveyor belt. In order to keep the consistency right and the simulation authentic, all equipment was sought from real coal mines. Resting in the ‘crib room’, students were briefed about the usual day in the life of a miner working a 12 hour shift underground.

At the conclusion of the underground tour, the students were given a lesson in fire fighting, using a fire simulator which can be programmed to represent various grades of fire intensity. The students then fought the fire while competing against each other to extinguish the fire in the fastest time.

### QMEA Right Direction Award 2012

Each year QMEA Right Direction Awards are presented to outstanding students in QMEA schools. This year’s recipients in the Southern Region are:

Alexandra Hills State High School	Alannah Quinn	Year 11
Anglican Church Grammar	David Boulton	Year 12
Bundamba State Secondary College	Kayne Harris	Year 12
Nanango State High School	Dylan Stimpson	Year 11
Wavell State High School	Joshua Madden	Year 12



## A Coal Goal

Forty girls from Alexandra Hills State High School, Bundamba State Secondary College, Ipswich Girls' Grammar School and Wavell State High School have a coal goal in their sights, following a hands-on look at careers in the resources sector at the 'A Coal Goal' breakfast and workshop.

The half day event, sponsored by Anglo American, provided Year 9 and 10 students with an opportunity to learn more about the range of career opportunities that exist for women in the coal industry.

'With a skills shortage and women representing only 15 percent of our industry in Queensland, it makes sense to encourage more women to consider careers in the sector,' said Michael Roche, Chief Executive of the Queensland Resources Council.

Staff from Anglo American provided students with first-hand information from women working in the sector, and hands-on activities including drill core analysis, mechanical engineering processes, environmental science and social policy.

They also worked with students to solve mechanical engineering problems, identify rock samples and plan mine paths based on geological information. The students also had the opportunity to discuss the importance of health and safety on-site and environmental processes associated with mining, although perhaps the highlight of the day was dressing in underground mine gear.

Sincere thanks to Rebecca Capper and Kate Whiting for their organisation of the event, and all Anglo American staff involved in the presentations. The knowledge shared provided a valuable insight in to what women can achieve in the industry.



## National Award for a Worldclass Program

Moranbah State High School (SHS) has been awarded the coveted 'School Pathways to VET Award' at the 2012 Australian Training Awards, the prestigious annual awards to recognise the best and brightest in Australia's vocational education and training sector.

Moranbah SHS has become a beacon for schools looking to innovate and diversify training opportunities for students, with their mission 'creating positive pathways for diverse futures'.

Key to the success of Moranbah SHS's win at the national training awards is the 'Get Set for Work- GEMS' program which caters for at-risk youth in the Central Highlands, and the MAST and RIO Programs that ensure students are work ready on completion of their senior studies, and have the skills that industry is looking for.

Moranbah SHS Business Development Manager Melissa Westcott, said that it is with the ongoing support of industry and community that the programs have been a success.



'Through the ongoing support of BMA, Anglo American, QMEA and Arrow Energy, as well as all the small businesses in town, our students have a wealth of experience at their doorstep'.

QMEA Project Officer, Delaney Nugent, said 'Special thanks must be given to BMA for their continued support for the programs that we offer. Through the funding of the community partnership program, as well as the sponsorship of events throughout the year, BMA continues to support our students and have become a key driver in the success of our students'.

The QMEA would like to congratulate all those involved in achieving this prestigious award.

## Its all about ME

Fifty-eight female students attended the Queensland Minerals and Energy Academy (QMEA) 4Girls2 'It's all about M.E. (Minerals and Energy)' networking lunch in Chinchilla in October.

The year 10 and 11 students and their teachers from St John's College in Roma, Tara State College and Chinchilla State High School were inspired by key speaker Lisa Cecchi, Manager Water Strategy and Communication at QGC. Lisa graduated with honours in Civil Engineering from the University of Queensland and has been working in the water industry for over a decade.

Lisa spoke passionately about her profession and gave the students valuable insight into how her engineering skills have enabled her to work across a number of different fields, including irrigation infrastructure design, water planning and policy and more recently, project management of large scale water infrastructure, including the Kenya to Chinchilla Weir Pipeline.

The students also had the opportunity to network with industry representatives from QGC, Origin Energy and Arrow Energy over lunch, providing an opportunity for students and professionals to learn from each other and explore new opportunities.



### QMEA Right Direction Award 2012

Each year QMEA Right Direction Awards are presented to outstanding students in QMEA schools.

This year's recipients in the Surat Region are:

Miles State High School	Tyler Keys	Year 12
Wandoan State School	Isobel Power	Year 10
Downlands College	Gordon Dyball	Year 12
Oakey State High School	Charles Evans	Year 12
Pittsworth State High School	Kate Lack	Year 12
Roma State College	Valentina Kiseleva	Year 12
St John's School	Julia Proud	Year 11
Tara Shire State College	Chloe Massey	Year 11



## Where to in 2013?

This year has been a busy one for QMEA students and teachers. A range of programs have provided students with a greater understanding of the career opportunities that exist in the resources sector, while the STEM teacher professional development program has aimed to enable the confident teaching of STEM concepts within a resources sector context.

The QMEA Project Officers have been instrumental in making the programs a reality and ensuring the success of the QMEA. It is with sadness then that the end of this term will see the departure of three project officers, Justine Ball, Maree Higgins and Delaney Nugent. We wish them well in their future endeavours.

A revised program of activities and events based on school and industry feedback will be introduced in 2013. The programs will more closely reflect the implementation of the Australian curriculum in schools, while also showcasing the innovative and emerging technologies in industry.

We look forward to the exciting activities that will emerge as part of the new program.