Advanced engineering industry work placements

Broens South Australia is working with local northern Adelaide schools to offer up to 40 one-week work placements to students this year.

Broens SA, based at Elizabeth South is a subsidiary of Broens International, an advanced, high-tech engineering company.

Brenton Schulze, a DECD pathway broker said that Broens SA has enthusiastically embraced the Advanced Technology Project from ‘day one’ by being a member of the industry-led advisory committee and hosting industry tours for teachers.

“Broens strongly believes that the survival of advanced manufacturing in the defence industry in Australia is based on attracting the right people and developing a highly skilled workforce,” said Mr Jos Verschuren, Broens Apprenticeship Manager.

Heather Bitter, an industry skills manager for the department’s Northern Adelaide/Barossa region is coordinating the placements on behalf of the schools in the wider northern Adelaide region.

“The industry placement brings together a real-life understanding for students of the maths, science and literacy facets of their education, combined with vocational related courses,” said Heather.

Fremont Elizabeth City High School teacher, Graham Kilpatrick said, “With the positive relationship that Broens has established with Fremont and the regional VET program, students have been able to get a realistic insight to engineering career pathways.”

Project personnel update

Brenton Schulze, Advanced Technology Pathways Broker retired in February 2012. Pam Gerrard, originally from Department of Further Education, Employment, Science and Technology (DFEEST) was appointed as the new Advanced Technology Pathways Broker in May 2012. Brenton Schulze will continue to support the project to develop industry connections on a part time basis during 2012.

Pam is located one day per week at the Defence Teaming Centre (DTC) gaining valuable information about the South Australian defence supply industry which enables the development of industry/school partnerships.

The DTC is the peak defence industry association in South Australia, with national capability and is a valuable supporter of the Advanced Technology Project. They support industry by strengthening their ability to win a larger share of the defence business locally, nationally and internationally.

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Energising Hallett Cove School

Hallett Cove School has been fortunate this year to experience two exciting events from Adelaide and Flinders Universities.

During Term 2, Professor Joe Shapter from Flinders University visited the school with an amazing presentation on renewable energy. Year 10 science students were engaged in a fun-filled and interactive workshop and learned more about energy transformation, different sources of energy, the world’s and Australia’s energy reserves, current world problems as well as other exciting and mind-challenging facts and concepts.

During the presentation, ‘energy’ was transformed from the professor’s muscular energy into electrical energy using his funny ‘hand-cracked’ generator and also sensed in the atmosphere, flowing between the professor and the students.

Students from year 10 science classes also had the opportunity to visit Flinders University and participate in various scientific workshops, organised exclusively for Hallett Cove School students. It was an excellent way for students to get involved in a range of experiments such as cooling gases, robotics, environmental issues and microbiology.

The workshops examined topics such as the accuracy required for programming robot-cars to move without a driver. Autonomous robotic devices play an increasing important role in fields such as surveillance, medical, underwater and space exploration and warfare.

Students, parents and staff of Hallett Cove School are very grateful for the time and effort put in by Flinders University staff that made this wonderful event relevant to students’ interests and career aspirations. We hope to provide our students will more excursions of this type in the future.

Students from year 10 science classes are also participating in the 2012 Sustainable Engineering Challenge run by the University of Adelaide’s, School of Mechanical Engineering.

The students design and build wind-turbine models for maximum energy production, which they will test at the University of Adelaide’s wind tunnel under the supervision of professional engineers.

The main aim of the Sustainable Engineering Challenge is to educate students in ‘real world’ applications of science, technology, engineering and mathematics (STEM) and to promote higher-order thinking.

This project couldn’t have happened without a collaborate effort from students and staff of the school including year 12 students who helped during the first stage of the design project and of course the assistance of staff from the University of Adelaide.

Written by Julia Burdakova, Maths and Science Teacher and Mark Danrell, Assistant Principal Mathematics and Science from Hallett Cove

Celebrating everyday STEM and working in the field

Gleeson College hosted its annual STEM (Science, Technology, Engineering and Mathematics) Expo in June. The expo was designed to celebrate the work of students and explore the importance of the application of STEM in a day-to-day context as well as a career choice.

STEM projects this year for year 8 and 9 students aim to develop and build skills in problem solving and critical thinking and allow students to see real life connections to STEM subjects.

Kellie Caimanos from ETSA, Marco Di Girolamo from the Women’s and Children’s Hospital and two of our current year 12 students, Adrian Daniele and Brittany Howell spoke on the night about the importance of science and mathematics and the numerous opportunities and pathways to which they can lead.

The Gleeson College STEM Grand Race and outstanding examples of year 9 multimedia presentations were shown and student class winners were presented with a certificate and show bag containing a range of prizes.

The extremely high standard of work was evident to all. Year 8 winners won a book voucher from UniSA and other prizes donated by the Advanced Technology Project. The year 9 winner received a framed certificate, a $50 book voucher donated by UniSA and sponsorship by the college to attend the 2012 Science Experience at the University of Adelaide.

The Science Experience is a three day program in January that introduces students to some of the wonders of science and technology. They will have the opportunity to perform experiments, hear from leaders in science and learn where science and mathematics can take them.

We would like to thank and acknowledge our sponsors, the University of South Australia, Fizzics Education and the Advanced Technology Project for their support of STEM at Gleeson College.

Written by Mrs Kate Morgante, Science Coordinator, Gleeson College
A taste for life at sea

LOCAL high school students are being encouraged to pursue a career on fishing boats in a bid to address a shortage of workers in the seafood industry.

Twelve students from Ocean View College, Le Fevre and Seaton schools trialled a ship safety course at the Australian Maritime and Fisheries Academy last month.

Marketing manager Maureen Jones said the Port Adelaide-based college had noted a shortage of skilled workers in seafood.

She said experienced employees were being lured to more lucrative careers in the oil and gas industry. “Coming from school, they have to start their career somewhere and the seafood industry is a good place to get their sea time and experience,”

Ms Jones said. “Workers in the oil and gas industry are often away for eight months and they wouldn’t employ young kids out there. “This way they (high school graduates) can go out for two months as a deck hand in the fishing industry, get their sea time and move into the maritime industry if they want.”

The Year 10 and 11 students completed a shipboard safety course, which is part of the Certificate II in maritime operations and a compulsory qualification before entering the industry. Ocean View College student Chelsea Poulish, 16, completed the course last month and now wants to pursue a career at sea.

Article reprinted with permission from Portside Messenger.

GUILLOTTINES and drills are replacing books and pencils at Le Fevre High.

Students from across the western suburbs are travelling to Semaphore Park to learn the tricks of the maritime industry trades.

Fifteen Year 11 and 12 students are working at the school’s recently opened Conrad Carey Trade Training Centre, with students from Seaton High and Ocean View College also taking part.

Le Fevre Maritime Project Co-ordinator Rod Hunter said students working towards a Certificate Two in Engineering were learning a range of skills.

Le Fevre Maritime Project Co-ordinator Rod Hunter said it was an opportunity for the school to showcase its maritime focus.

“This equipment is at the largest industrial scale all to prepare them for technical engineering,” Mr Hunter said.

“This program needs to be put on the map.”

Teacher Chris Chrisakis, who was a fitter and turner for 20 years, has been passing on his knowledge and expertise to his class.

“I’m teaching them the skills I learnt as an apprentice,” Mr Chrisakis said.

Year 11 student Curtis Jackson, 16, who is hoping to become a boiler-maker, said he enjoyed working in the new workshop and loved classes with “Mr C”.

“He’s a really good teacher and I’m learning a lot from him,” Curtis said.

The centre is named after the pioneering technical studies teacher, Conrad Carey, who taught at the school from the 1940s through to the 1970s. The school is also aiming to be the first in the country to offer a Certificate Three in Engineering.

Article reprinted with permission from Portside Messenger

Year 10 and 11 Ocean View College students at the ship safety course, Falie-Brandon Miller, 15, Chelsea Poulish, 16, and Chris Derrick, 17. Picture courtesy Neale Winter (NewsPix)
Demystifying engineering

Through demonstrations, information sharing, and tours of engineering workshops, teachers recently learned about applied engineering principles and practical ideas for classroom activities that help demystify engineering.

The University of Adelaide’s Faculty of Engineering, Computer and Mathematical Sciences held the Engineering Equipped workshop for 38 teachers in March 2012.

Johanna Kohler, manager of the university’s Marketing and Communications unit introduced the Engineering equipped day and discussed how students access engineering courses and ways teachers can better prepare their students for university.

Mark Jaksa, associate professor of the School of Civil, Environmental and Mining Engineering presented information about civil engineering aspects of building structures including bridge construction and how soil types affect building foundations.

Dr Paul Medwell, a lecturer on sports engineering, provided an overview of his work at the University of Adelaide and demonstrated practical ways teachers can get their students to measure and test how effective sports shoes are or how far a tennis ball bounces.

In the afternoon session, teachers met with Dr Cristian Birzer from the Centre for Energy Technology, School of Mechanical Engineering to discuss the Sustainable Engineering Challenge and how their students might be involved.

The Sustainable Engineering Challenge will involve students researching, designing, constructing and testing a wind turbine blade. Successful school teams will visit the university to test their final design in the university’s wind tunnel, and meet with university students and engineers to discuss their designs.

The university has organised engineering student mentors to support teachers and students in this challenge at their school. Final judging of this challenge will be in September 2012.

What employers are looking for – workforce skills for industry

A teacher’s role in addressing skills shortages in the defence industry was the focus of professional development workshop held recently in Adelaide.

The event brought maths, science and technology teachers face-to-face with industry representatives to discuss what employers are looking for in terms of workforce skills from prospective staff.

The results of the discussions are being channelled back into classrooms via the Advanced Technology Project, helping teachers to develop tasks that enable students to appraise their own skills and capabilities in relation to defence industry careers.

“The conversations with industry representatives provided teachers with a direct explanation of the contemporary skills and capabilities that are valued by industry,” said Steve O’Connor, manager of the project.

“This will allow teachers to better inform students about the importance of studying maths, science and technology for future careers in the growing defence industry in South Australia, as well as the general skills and capabilities that are valued by the sector.”

“After the workshop, teachers were able to make clearer links between science, technology, engineering and mathematics subjects and potential careers.”

The workshop on June 13 was the fourth and final of a series of professional development days organised through the Advanced Technology Project, by staff from the Australian Science and Mathematics School.

The project was set up to increase the number of students studying science, mathematics and technology in a bid to address skills shortages within the defence industry.

“The professional development day was one of a number of industry engagement opportunities for teachers that will support and encourage the study of science and mathematics and its links to industry,” said Mr O’Connor.

“Other opportunities for teachers include industry tours and placements in industry.”

“The main aim is to raise awareness of the importance of science, mathematics and technology in meeting South Australia’s future skills needs in defence-related industries and, in turn, increase the participation rates in these subjects by developing an engaging and relevant curriculum.”

Steve Faulkner, CEO of Pacific Marine Batteries, said that the opportunity to meet with teachers and give them a first-hand account of defence industry career opportunities was greatly appreciated.

“I was very impressed with the genuine interest in our business and the sector, but most importantly how this information could be used to give a relevance to students of where their schoolwork may take them.”

Fifty teachers from nineteen schools and eleven industry representatives from seven defence companies were involved in this day. Companies represented included: ASC, Pacific Marine Batteries, Lockheed Martin, Kadego, J&H Williams Holdings, Nova Systems and Codan.

Steve Faulkner (Pacific Marine Batteries) discusses work place skills and capabilities with Nichole Mitchell, Valley View Secondary School and Sandy Moran from Henley High School
**Motivating and inspiring Indigenous students**

The Pathways forum for indigenous students recently provided opportunities for 28 secondary students to explore career pathways in science, technology, engineering and mathematics (STEM) and to network with students from other schools who have similar career aspirations.

Under the umbrella of the western region Advanced Technology Project, the day was organised in April by Carman Asche an Aboriginal education teacher based at Henley High School.

The forum was designed to motivate and inspire young Indigenous students to consider careers in advanced technology. Students discovered that young people entering technology careers today have the potential to become high-end tradespersons, engineers and scientists in areas as diverse as electrical, pipe plumbing and engineering trades and electrical engineering in the Royal Australian Navy.

Hayden Lee, an electrical tradesperson and Daniel Misiewicz, graduate engineer from the ASC (formerly the Australian Submarine Corporation) spoke to students about their work and provided career information and advice.

Two University of South Australia Indigenous students also provided insights into their courses in laboratory medicine and civil and structural engineering.

An electrical engineer from the Royal Australian Navy also spoke about his career.

During the forum, students gained first-hand experience by assembling a diverse range of technology kits such as ‘robo battlers’ and ‘road racers’. Marshall Teale, a year 12 Henley High School student assisted and shared his inspiring robotic creations with the students.

Another forum is planned for Term 3 in 2012.
Written by Jeremy Lecornu, Gifted and Talented Manager Henley High School
For more information http://dlb.sa.edu.au/atmoodle

**Encouraging gifted and talented kids**

This year, two gifted and talented forums have been held for western Adelaide regional schools.

Initiated and planned by Henley High School and held in different western Adelaide schools, the forums attracted students from Ocean View College, Le Fevre High, Woodville High, Underdale High, Seaton High and Henley High.

In February, a group of year 9, 10 and 11 students, participated in a ‘Gifted and Talented’ engineering forum at Seaton High School.

The day started with an informative presentation about the different options for engineering offered at Adelaide University and the wide range of career pathways.

An architectural engineering presentation led into an activity where small groups of students undertook a task of constructing a bridge out of straws. The aim was to build the lightest bridge that could support the most weight.

Henley High proved very successful in this challenge, with students achieving first and second place.

The second forum was held in May at Woodville High School. Woodville High is not directly involved in the Advanced Technology Project, but are keen participants in these forums.

The theme was forensic science and the day started with a video of a mock crime scene and all the different skills and techniques involved in solving the crime.

Chris Pearman, from Forensic Science SA, who has over 20 years experience working in the field of forensic science also talked about what it’s like to be a forensic scientist.

These forums were informative and enjoyable and a great opportunity for students to socialise with others from different schools who share similar interests. We look forward to future forums to be held later in the year.

Gaining valuable industry perspectives

Valley View Secondary School electronics teacher, Nicole Mitchell, recently undertook a placement at the ASC (formally the Australian Submarine Corporation) to upgrade her skills. The main goal of the placement was to review the Electrotechnology industry pathway program and to investigate the skill sets valued by the ASC when selecting apprentices.

Nicole gained an industry perspective on employment and career opportunities within the company. She talked with first year apprentices and observed the skills and competencies required to align industry requirements with the Electrotechnology industry pathways program.

For this placement Nicole was located at the Air Warfare Destroyer and Collins Class Submarine sites within the Electrical Department. Her time was spent interviewing first and second year apprentices to gain an insight into their work requirements, how knowledge is applied and to identify any gaps between students’ secondary school education and industry requirements.

Anetka Korepta, training administrator at the ASC said, “Nicole spent some of her time assessing the apprentice testing material and apprentice electrical logbooks. This enabled her to better understand the learning requirements for year 11 and 12 students applying for an apprenticeship at the ASC.”

“During my placement at ASC I wanted to investigate what teachers can do to better prepare students to work in the electrical industry,” said Nicole.

“While at ASC I had the opportunity to interview and see first-hand what apprentices are expected to achieve from the application process through to completion of their apprenticeship. From these experiences I noted how far schools have come in making their industry pathway programs meaningful for students by connecting with industry. As teachers, we acknowledge there is still more to be done to ensure that when our students enter a workplace they can fully meet all the challenges required of them.”

Funding is still available for industry placements in 2012. The main aim of the advanced technology teacher placement is to develop sustainable partnerships between education and industry, and curriculum resources that can be directly used and shared across the project schools to improve student learning outcomes.

During Semester 1, 2012 design and technology teacher, Martin Thompson, from Reynella East College was placed at Flinders University.

Martin worked with staff from the Electronics Engineering Faculty at Flinders University to refine and develop resources to support the programming of interactive electronics game, ‘Flii’.

These resources can be used to support the Stage 2 design and technology systems and control products major task and are now available online from the Flinders University wiki at https://wiki.flinders.edu.au/

For more information visit http://dlb.sa.edu.au/atmoodle/

Maritime pathways program

The Maritime High School project is funded by the Government of South Australia. The South Australian Advanced Technology Industry School Pathways Program is a Commonwealth National Partnership Agreement funded by the Defence Materiel Organisation (DMO) of which Le Fevre High School is a partner school and Henley High School the lead school for the western Adelaide region.

Schools participating in the Maritime High School project are clustered together in the western Adelaide trade school for the future region to share resources and services. Le Fevre High is offering a Maritime Engineering Pathways Program for western Adelaide regional students, and additional maritime science and mathematics courses.

New maritime courses at Le Fevre

Le Fevre has established a vocational maritime engineering pathway course for students in stage 1 and 2. Strong demand for the stage 1 course has resulted in additional classes being established with students from neighbouring schools. A stage 2 maritime engineering pathways course will be available for students in 2013, providing career pathways into the maritime industries.

In addition to the maritime vocational courses, a number of maritime scientific studies courses have been developed providing opportunities for students to study ship design, electronics, radar, GPS and navigation technologies.

The recently completed Le Fevre Trade Training Centre provides access to industry standard fabrication and metal machining facilities. The ASC (Formally the Australian Submarine Corporation), Australian Maritime and Fisheries Acayclad, the Australian Maritime College and local maritime industries are significant partners in the Maritime High School program.

Rod Hunter is the Maritime Coordinator based at Le Fevre High School.

Dates for Term 3 & 4, 2012

Term 3

- Friday 3 August – Week 2:
  Semester 1, 2012 Quantitative data due
- Wednesday 8 August – Week 4:
  ATP Managers meeting (8:30 am – 12:30 pm)
- Tuesday 14 August – Week 5:
  Southern Schools Science Expo
- Monday 27 August – Friday 14 September:
  ATP Science21 online evaluations

Term 4

- Friday 9 November – Week 5:
  Curriculum presentations (8:30am – 3:30 pm)
- Monday 3 December to Wednesday 5 Dec – Week 8:
  Robotics PD for teachers