The Maritime High School, based at Le Fevre High School, is an initiative of the South Australian government which combines secondary school studies with a specific focus on high level maths and science and technical Vocational Education and Training (VET) within a maritime context.

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. This provides a training pathway towards achieving a nationally recognised vocational accreditation and the South Australian Certificate of Education (SACE) at the same time.

Cutting Edge STEM – Naval Engineering at Le Fevre High School

In semester 2 2017, Stage 1 SACE students at LeFevre High School studied STEM themes relating to the design and engineering of sailboats.

Thierry Herman, ATP Manager at LeFevre said that the study includes hydrodynamic principles and aerodynamic principles such as Archimedes Principle, Lift, Variation of Momentum and how it relates to forces, Centre of Lateral Resistance (CLR), Centre of Effort (CE), torque and navigation principles.

“Aside from studying the properties of our sail boats built in previous years, Stage 1 Naval Engineering students were challenged to design and make remote controlled sand yachts,” he said.

The structure of the land yachts was designed using a computer design package and parts were made on a CNC Epilog Laser Cutter and on a 3D printer.

“Students used their skills to produce advanced technical parts such as 3D-printed articulated wheel hubs and wheels as well as part of the structure of their land yacht. These are in the integration and completion phase and should be finished shortly.”

In year 12, the LeFevre High School Advanced Naval Engineering students have taken on the challenge of making a functional replica of the Bluefin, flagship of the Australian Maritime College based in Tasmania.

Thierry Herman, ATP Manager at LeFevre said that this involved studying the plan, designing the various parts of the hull and superstructures, then designing and fitting the remote-control systems on the ship.

“This project has allowed students to study STEM themes relating to technologies found in modern ships including the Air Warfare Destroyer,” Thierry said.

Praise for DIPP12 course

Defence Industry Pathways Program (DIPP) teacher, Eddie Grzeskowiak at Le Fevre High School says that the quality of work achieved by the students completing the DIPP course has grown exponentially since his first involvement in DIPP4.

“I commend the vision of those organisations behind this project – the ASC, DECD Advanced Technology project, TAFE SA and the Maritime Skills Centre – for exposing students to the new era of advanced manufacturing,” said Eddie.

“The ability for students to work in a three-dimensional space will allow a smoother transition into the Virtual Reality worksites of the future. These skills will be essential in South Australia’s role as the naval shipbuilding capital of Australia.”

Leading the growth and development of young South Australians is a key feature of the DIPP course, which aims for a deep understanding of the role STEM skills play in this and other forms of engineering.

The DIPP courses run in semester 1 and 2 for a day per week at Regency TAFE.

“The response from students to the experience is very good,” says Eddie. “Many want the course to keep going! Demand for places is high.”

Any students interested in the DIPP course should see their STEM/ATP manager for details.
Two students from Pedare Christian College have experienced the 3 day tour of the Australian Maritime College (AMC), located in Launceston, Tasmania, over the past 3 years.

Julia Blackman successfully completed her first year studying a Bachelor of Engineering with Honours, whilst Curtis Graham will be travelling to Tasmania to determine whether this is the pathway that he would like to pursue next year.

Advanced Technology Project (ATP) Manager at Pedare Christian College, Leonie Brown, said that both students found the experience of applying for this tour really helped them think more carefully about their future and that the application form was easy to complete.

"Julia returned from her visit 2 years ago excited and motivated in her studies and we look forward to Curtis's report when he returns," she said.

Curtis in year 12 at Pedare said that the opportunity to visit the Australian Maritime College was one of the most memorable experiences of his life.

"The lecturers at AMC create a great atmosphere as they are so enthusiastic about providing unmatchable world-class teaching."

Julia Blackman, now in her second year of study at AMC, also sings the praises of the AMC in her email below:

"I am currently in my second year at the Australian Maritime College in Launceston Tasmania, studying a Bachelor of Engineering (Naval Architecture) with Honours.

What this means is that at the end of my degree I will be a qualified engineer, specialising in the design of big ships and submarines. My course involves extensive mathematics and physics, but also the study of engines, ships and all their components, with projects such as self-steering robot boats and how to power a boat with a rat trap.

I first found out about this field of engineering in year 11, when I was lucky enough to be selected to take part in a 3 day tour of the university facilities.

This involved completing a survival at sea imitation, trying out the ship simulation training facility and spending time out on the university boats along with gaining information about the engineering field.

Although at the end of year 12 I was still hesitant about moving interstate where I would know no-one, I was convinced that this was the right course for me; and looking back I know that this was the best decision I have ever made."

The South Australian Maritime School, Le Fevre High School, invited 14 students and 5 staff with an interest in maritime engineering to a 3-day visit at the Australian Maritime College. The school wanted to expose students to the broad range of study opportunities in maritime career pathways and how they link into the future naval shipbuilding program.
**Subs in Schools competition**

Le Fevre High School did well again at the annual Subs in Schools competition, held at the 2017 Royal Adelaide Show during show week.

The competition covered a range of criteria with formal judging and scrutineering processes. Led by Mitchell Baker, the team interacted with show patrons and gave away gifts during the week.

DIPP teacher, Eddie Grzeskowiak at Le Fevre said, “for the third year in a row, we had the best engineered submarine and also the best watercraft. Unfortunately, we were pipped again by St Paters Girls, who won the overall prize, while our team Nautilus, won first for engineering and sea trials.”

“All students gave up their time to manufacture and test their submarine together, with a lot of effort required to produce supporting documentation,” he said.

“These amazing young students gained a great deal of knowledge about themselves and their ability to work together as a team. It was pleasing to see the growth in their confidence around adults. Every one of them played their part and supported each other.”

Team members were Mitchell Baker, Omar El-awad, Daniel Slater, Drew Anderson, Hayden James, Chloe Jones and Georgia Wilkie.

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**Huntington Ingalls Industries visits Le Fevre High School**

Americas largest military ship builder, Huntington Ingalls Industries (HII), visited Le Fevre High School after hearing about its focus on developing the skills and capabilities that will be vital for the nation’s future ship building plans.

DIPP teacher, Eddie Grzeskowiak said that HII is looking to secure the rights to Le Fevre’s Naval Maritime College, to be operational in 2018.

“The focus of their tour was to see how they can support and nurture the programs we already have in place. They were impressed by the work Thierry Herman has developed in the fields of naval engineering/architecture, as well as his enthusiasm and passion.”

Eddie said that Deklan Soeroes gave an impressive account of the CAD work he is doing as part of the naval course and made a comment about the knowledge and understanding Thierry has of complex theories.

“Chloe Jones represented students undertaking the Subs in Schools challenge and she spoke well about their progress and planning. The delegates made particular note about how enthusiastic these young people were, which I believe reflects upon the dedication of the staff at LFHS.”

“The enthusiasm and expertise of your team was very evident, as was their enthusiasm and engagement,” said Jeff McCray, Vice President Business Development, HII.

“As HII toured our facilities, they were especially pleased with our results in developing future trade capabilities through our Certificate I Engineering course. Chris Chrisakis explained in detail how the students make their way through the course and that the students are treated as apprentices, which holds them in good stead in the future,” said Eddie.

“The size and scale of the Naval Shipbuilding program can be difficult to quantify, but there is a strong indication that it has the potential to create generational work across a broad range of skills.”
Seafaring skills through the Maritime Industry Pathway Program

Le Fevre High School students recently completed their final unit in the Maritime Industry Pathway Program.

The program exposes students to aspects of seafaring that provide not only vocational skills but also life skills as recreational boaters.

With the announcements about the naval shipbuilding in South Australia, the maritime industry is likely to influence the lives of a lot of local people.

The Maritime Program Leader, Eddie Grzeskowiak said, "there is an interesting book written about the impact the maritime sector has on our lives and the products we use — it’s called 90% of EVERYTHING. Shipping is the most efficient way to transport goods around the globe.”

On completion of the Maritime Industry Pathway Program course, students gain a Coxswain Grade I Certificate, which covers: elements of shipboard safety, engineering, seamanship and navigation.

“A sailing voyage on the One and All is a great highlight early in the year for the students to gain some exposure about what being part of a crew is like. We encourage students to use their volunteer membership of the One and All to gain experience and have their task books signed off,” said Eddie.

When asked what they most enjoy about the course, the overwhelming response is always “everything!” From maintaining outboard engines and understanding the workings of diesel power, to extinguishing fires and sea rescue, the students are definitely engaged. Learning how to plot a course, predict weather patterns and driving the 'Dougy P, students learn skills that can be applied to many areas of their lives.

The Maritime Industry Pathway Program is a practical, hands-on course that provides skills recognised around the world.

Students who are interested in learning more about career pathways in the maritime field should consider applying for the next course. Application forms and information are available from schools’ VET coordinators, ATP managers, or online at www.wats.sa.edu.au

Tampion hand over to Royal Australian Navy

On 5 July 2017, Le Fevre High School’s VET Maritime Engineering class officially handed the ‘tampion’ over to Captain Steve Pearson of the Royal Australian Navy.

A ‘tampion’ is a decorative feature on the 5-inch gun at the bow of the ship. It is only put onto the gun when the ship enters a port, and is purely for decoration.

The ceremony was on board the soon-to-be-commissioned ‘HMAS Hobart’ at the ship building site at Osborne, Adelaide.

Anisa Pilt was given the privilege to present the highly polished ‘Tampion’ to Captain Pearson with the sailor in charge of maintaining the guns’ operation, close at hand. Anisa and Captain Pearson then placed the tampion over the guns’ mussel. If our calculations were correct, the steel cylinder with the 3mm rubber insert should see the Tampion slide neatly over the mussel, and it did!

The Tampion was 8 months in the making and was shared amongst the 2016 and 2017 classes. It is a 210mm diameter by 200mm high by 3mm, rolled mild steel cylinder with one end sealed. As a token gesture we decided to engrave the ships crest onto a 100mm diameter by 3mm brass disc and attached it to the front of the Tampion.

After the ‘Handover’ ceremony Captain Pearson gave the group a personal tour of the Hobart and as you would expect there were quite a few rooms we were not permitted to enter for security reasons.

This was a proud and honourable day for the Maritime Engineering Class and Le Fevre High School to be part of and celebrate the new Destroyer built for the Royal Australian Navy here in Adelaide.

If you would like more information about the Maritime program, contact Chris Chrisakis, Maritime Engineering trades teacher via Chris.Chrisakie521@schools.sa.edu.au.