

## 21ST CENTURY SKILLS

In today's schools, 21st Century knowledge, understandings, skills and values must be at the heart of great teaching and inspired learning. Young people must develop a core of academic knowledge as well as the skills of working collaboratively and applying innovative solutions to problem solving. 21st Century Skills are the set of skills students need to succeed in learning, work and life in this century. To ensure success, students need both deep understanding of the major principles and facts in core subjects as well as the ability to apply this knowledge using a variety of skills. To be proficient in solving problems in our complex, fast changing world, students must become flexible, creative thinkers who can work well with others. Key skills that have been identified as essential are:

**Collaboration:** Students are able to work effectively with diverse groups and exercise flexibility in making compromises to achieve common goals.

**Creativity:** Students are able to generate and improve on original ideas and also work creatively with others.

**Communication:** Students are able to communicate effectively across multiple media and for various purposes.

**Critical thinking:** Students are able to analyse, evaluate, and understand complex systems and apply strategies to solve problems.

There is agreement amongst researchers that these skills of collaboration, communication, creativity and critical thinking are necessary and must be integrated into our classrooms. These skills are vital for everyone's success in our times, and global competition, increased access to technology, digital information and tools are only increasing the importance of these 21st century knowledge and skills.

Davidson High School is accomplishing this by offering a different, exciting new approach to the curriculum. We are dedicating an elective line for the development of these skills using projects that staff are passionate about delivering. Through project based learning, students will investigate real world problems and design their own solutions. Students will use technology not just to access valuable content but also to create it. By working collaboratively, students will tackle big issues—in their communities and the larger world. Through effective teamwork, students will also hone important social skills, learn to respect diverse viewpoints and resolve conflicts peacefully.

## **FITNESS INDUSTRY (PD/H/PE)**

This course is for students who want to take their knowledge and understanding of the fitness industry to the next level. Participants in this course will undertake modules in various types of fitness training such as resistance training, plyometrics training, aerobic training and strength training. Students will also learn about the nutritional and dietary requirements for people undergoing a fitness training program and understand how to design meal plans and training sessions.

## **TELLING STORIES (ENGLISH)**

It's late. You're home alone. You hear a noise downstairs and think it must be your parents getting home. Then you realise there's no car in the driveway. You freeze, barely breathing, straining to hear. Is that it again? Could it be footsteps? Maybe the click of a lock? Or something worse? Frantically you run through all possible scenarios in your mind . . . . .

Sound familiar? Do you often find yourself dreaming up crazy ideas? Do you love telling stories? Your imagination is an incredible tool, able to transport you from your reality to anywhere you choose. If you love writing and have a big imagination, this is the course for you. Together we will explore different genres and styles of creative writing.

This will be a practical course in which students will develop and refine their writing skills, experiment with different ways of using words to engage readers and ultimately work towards publishing their own polished piece of creative writing.

## **GLOBE TROTTERS (HSIE)**

This course is aimed at developing students' cultural awareness about the world around them. As they 'board the plane' in Sydney, students will travel around the globe investigating different customs, cultures and beliefs as well as investigating the physical environments of the places they journey to.

Students will not only refine their research skills, but will also develop their critical and creative thinking skills through a variety of projects they will work on throughout the course. Students will take on the role of a travel agent as they produce travel itineraries and brochures and will also work in teams to produce a short documentary, based on their research of different societies and various parts of the world. Although there are no formal fees for this course, there will be some costs throughout the year as students will also have the opportunity to sample various cuisines from different countries.

## **POWERFUL ADVERTISING (ENGLISH)**

How to be a critic: View, investigate and analyse the persuasive techniques used by creators of advertisements. How do they position your opinions, spending habits and understanding of the world through their masterful manipulation in the construction of texts? How do we, as responders create meaning about our world through our own filters of experience and values?

This course will look at the language of advertising and students will be given the opportunity to work collaboratively to brand a product and present it to a real world audience.

If you love your screen and want to understand the process of creating and communicating meaning, then this course is for you.

## **PRODUCT DESIGN (TAS)**

Product Design involves the creation, designing, refining, producing and marketing of a solution for the modern economy. It can involve design development as well as physical products. Currently in Stage 5, it is limited to wood and metal products including small scale designs and storage solutions. Students will have the opportunity to also design and produce a prototype using a 3D printer and computer aided design. The project-based course will require students to work independently and to a high level. It will be both demanding and rewarding, with constant deadlines.

The course aims to equip and develop students with basic entrepreneurial skills, giving insight into the world of business and the manufacturing and creative industries. Creative and critical thinking is the core development of the course where students learn to solve and overcome everyday design problems and produce creative solutions.

Students will learn: The Design Process, Perspective drawing and Computer aided Design, 3D modelling, Manufacturing methods, Prototyping/model building skills, Marketing and Advertising

The course is project based and students will be working on minor and major assignments in Product Design. Students will have the opportunity to design product solutions to specified design briefs as well as open ended designing and producing. Students will study design, including reasons for success and failure of past and present products. Approximately 40% of the course will be practical based in the wood workshops where students can build, test and refine their products.

## **YOUNG INVENTORS (HSIE)**

Are you interested in how inventions have shaped the world we live in? Do you enjoy coming up with solutions to real-life problems? If so, this may be the course for you.

Students who undertake this course will develop a range of critical and creative thinking skills to equip them for the 21st Century workplace. Students will develop research skills as they investigate key inventions and inventors and learn about how their ideas have changed the world around us.

Critical and creative thinking is at the core of this course. Working in groups, students will have the opportunity to brainstorm and discuss a current issue, problem or area of need and then develop a solution for this. Students will also be able to meet with a professional designer to discuss their ideas and as well as come up with a marketing campaign to show case their final product.

## **POTTER ABOUT (CAPA)**

Do you enjoy getting your hands dirty? Are you interested in creating your own collection of everyday objects with creative flair?

You've had a taste at producing clay-built fish and small animals in Visual Arts in Stage 4, but you now have the opportunity to create an array of functional, yet decorative objects using clay as your medium. You will be able to create original urns, vases, mugs, platters and other everyday objects.

In this course you will:

- Learn how to use techniques such as coil work, slab work and learn how to use the pottery wheel
- Create a research portfolio on the history of ancient and contemporary pottery, and examining pottery as a form of craftsmanship
- Make conscious decisions on the best method of creating your collection of objects
- Learn about various applications of glazing, and
- Develop an understanding of the process of firing.

## **BEHIND THE SCENES (CAPA)**

Have you ever wanted to be involved in the 'behind the scenes' and design process of a theatre production or performance, but lack the skills to do so?

In this course you will:

- Examine the important roles behind the scenes from stage manager through to director
- Working in groups, learn how to use the lighting desk and acquire basic sound engineering skills in the Dance and Drama studios, and learn how to light objects to create mood for a performance
- Research and create costume designs, set design models and promotional material for your production, using a variety of materials and technology to bring your creative ideas to life
- At the end of the course, you will work with your group to present a pitch to a panel, using your skills and models to convince a panel that your production ideas are terrific!

## **YOU ARE WHAT YOU EAT (TAS)**

In today's society we are bombarded with a plethora of information about health, nutrition, diets and super foods. Students will critically analyse current trends in eating and investigate claims made by the media about what we should eat and why. What are superfoods and why are they constantly changing? Do we need nutritional supplements in our diet? This course will provide an indepth investigation into nutritional claims made by the media and draw conclusions. Is Stevia good for us? What about coconut oil and coconut sugar? Butter vs margarine and everything in between. Students will learn how to modify recipes to make them healthier. Students will investigate each topic and present their findings. Can healthy eating be tasty? Students will plan, prepare and evaluate meals that are related to their nutritional investigations.

## **MARINE AND AQUA-CULTURE TECHNOLOGY (SCIENCE)**

Like getting your feet wet? This course is for anyone who has an interest in the marine environment, enjoys looking into rock pools and wondering what those funny little things are. The study of this topic includes some understanding of the ecology and biology of the marine environment, plus we look at economics of fishing, going to the beach and aquaculture. We might even design a fish tank.

The course will involve a fieldtrip to a marine environment, such as a rock shelf or the Sydney Aquarium to do a "hands on" biological assessment of both the variety and population of intertidal marine life. Students may investigate: How does marine life survive in the pounding waves? What sticks them to the rock? Why can't we make glue that good?

## **SLEEK GEEKS (SCIENCE)**

If you like to investigate scientific ideas in depth, have a passion for science, enjoy watching Dr Karl and like to entertain then this is the course for you. You will be asked to tell a scientific short story via a short DVD of up to 3 minutes in length. It can be in any format including stop motion animation. The movie will be entered into The University of Sydney Sleek Geeks Science Eureka competition in May, with finalists from across Australia being showcased at a major awards night in August. (<http://australianmuseum.net.au/eureka>)

The second part of the course involves designing a 15 minute science show that will be presented to a real audience (most likely a local primary school class). The show must be entertaining, get the audience involved and thinking, cover one concept or many, it can be based on your idea from the first task or be based on new ideas altogether. Think Dr. Karl and Adam Spencer, the Powerhouse Museum, the reptile show all rolled into one for your presentation. The only limitations will be your imagination and maybe some equipment!

## **PHILOSOPHY AND ETHICS (TEACHING AND LEARNING)**

Should schools limit what students are allowed to access on the internet? Should cell phones be banned in school? Should we have a school uniform? Is it ever OK to murder someone? If your life depends on it, is everything justified? If everyone is unique, why can't some people drive before 16? Are there situations where drug use should be legalised? If someone you love is in pain should they have the right to end their own life?

Is it fair that the first world has 86% of the world's resources with only 20% of the population? Should we allow gay people to marry? Is there really any such thing as right and wrong or is it all about how we look at things? Should abortion be legal? Should we have the death penalty in Australia? Should humans ever be cloned? Do the nutrition and safety benefits outweigh the extra cost of organic food? Do sport stars and movie stars deserve to be paid as much as they are? Is life ever really fair? How much should we trust what we know? Does God exist?

For the first time at Davidson we are offering a course for students who like to question, argue, debate and think about controversial issues. We will discuss, argue and explore some of these questions and others that you are interested in. You will learn how to spot good and poor arguments and develop your ability to discuss and share ideas on some of the BIG questions.

## **ROBOTICS (MATHEMATICS/TAS)**

As automation and technology are becoming more prevalent, 75% of the fastest growing jobs by 2020 demand STEM proficiency, particularly an aptitude in computer science and robotic systems. Developing an interest in STEM at school – and, in particular, the knowledge of how to program robots and use them to solve complex problems – is crucial in encouraging students to continue with STEM subjects through to the end of Year 12 and into their tertiary studies. It is the best way to prepare them for the workplace of the future.

Davidson HS has partnered with Elevate Education to run the eduSTEM robotics program developed by Carnegie Mellon University. Carnegie Mellon is a leader in robotics and computer science, and combines an extensive teaching curriculum with a range of software and LEGO robots to immerse students in the world of coding, programming and robotics.

The eduSTEM robotics program teaches students how to code and use high-level programming commands to make a robot move, as well as turn and rely on a range of sensors (including a colour sensor, touch sensor, gyro sensor and sonar sensor). The curriculum requires students to learn each set of skills and then apply them to solve a real world problem (for example, navigating a driverless car); through this process, students will also improve their problem-solving, teamwork, communication and logical thinking skills.

Students will work with physical robots and on simulated, virtual environments to ensure the learning process is engaging and challenging. Students will also have access to the curriculum and software at home so they can work on projects out of class time.