

YEAR 10 EMERGING TECHNOLOGIES, SYSTEMS AND DESIGN

Students create and design objects related to students interest such fashion accessories, technological toys, entertainment systems, sustainability solutions, mechatronics, bio-technological products.

Students will develop a sound understanding of the new and emerging technologies, such as Additive manufacturing and design, Robotics and Automation. Students will aim to become proficient in the use of new technologies such as 3D Printing, designing and 3D Scanning. Student will also learn to solder and use other emerging technologies such as laser cutters. This course will also introduce students to concepts of mechanical, electronic engineering, energy transformation and energy management and its role in sustainability. Students will apply design thinking as they apply their learning to the development of integrated projects to design solutions. This course forms a pathway to VCE Systems Engineering, a bonus subject for entry to engineering courses in Victoria

Students will learn:

- The workings of a 3D Printer and its advantages and limitations
- To design using TinkerCAD or Autodesk Fusion to design creative prototypes (depending on your proficiency)
- To use a 3D scanner
- To use a laser cutter
- The basic concepts of Mechanical systems
- The basic concepts of electronics and the skills in using tools such as soldering irons.
- To develop simple Robotics systems and develop an understanding of the functionality of a robot to enhance human efficiency
- How energy transformations take place and the role of new technologies in impacting energy efficiency and sustainability
- How to apply design thinking and project management skills to produce a functional prototype as a solution for some open ended challenges for global issues.

Students will be able to:

- Become critical users of technologies, and designers and producers of designed solutions
- Investigate, generate and critique designed solutions for sustainable futures
- Use design and systems thinking to generate innovative and ethical design ideas, and communicate these to a range of audiences
- Create designed solutions suitable for a range of contexts by creatively selecting and safely manipulating a range of materials, systems, components, tools and equipment
- Learn how to transfer the knowledge and skills from design and technologies to new situations.
- Understand the roles and responsibilities of people in design and technologies occupations, and how they contribute to society.