

iSTEM- Engineering and Robotics

The iSTEM elective course focuses on the study of engineering and robotics. Students will develop the skills associated with mechatronics through practical project based learning activities as they design, construct and code robots for a range of different purposes.

As part of the course students will compete in the FIRST Lego League Robotics competition in Yr 9 and the FIRST Robotics Duel Down Under competition in Yr 10 as members of a school team.

Course content- There are core modules to be completed in Year 9 and a selection of elective modules to be completed over the 2 years. Each module involves analytical and creative thinking, problem solving, resourcefulness, collaboration and ingenuity. Modules include;

- **STEM fundamentals** –using a range of technologies to design investigations in the areas of mechanics by applying problem solving and design strategies.
- **Mechatronics** – building mechatronic components, constructing mechatronic projects and using programming to control mechatronic devices.
- **CAD/CAM** – learning about designing and manufacturing three dimensional objects while developing skills in Computer Aided Design (CAD) and Computer Aided Manufacture (CAM).
- **Biomedical innovation** –developing skills and understanding associated with the use of robotics in biomedical innovation. Possible themes include design of a biomedical innovation, biomedical engineering and forensics.
- **Motion** – integrating basic electronic circuitry, gyroscopes, energy sources and motors into electric vehicles.

Assessment in iSTEM

Assessment will involve group work for the majority of tasks and will take the form of a project or design task. There will be one task per module.

NB: The Yr 10 course may run partially offline on Tuesday afternoons to allow collaboration between NSG and Cammeraygal High School in using their amazing new robotics workshop.

