Stage 5 students can choose from the following technology-based Electives, to deepen the fundamental theory and practical skills developed during Stage 4 Compulsory Technology subjects.

STEM and project-based learning approaches are now second nature to Stage 5 students who are independent learners, responsible for both personal and collaborative assessments, and who are supported in the College-wide culture of academic excellence.

These electives are highly interactive and clarify the many opportunities that technologies present in a modern society.

Participating in these electives prepares students for the HSC Design & Technology and HSC Engineering Studies courses, inspiring students in their progression toward future employment and tertiary studies.

STEM

In the STEM elective, teams of students engage in practical, problem-based learning that integrates Science, Technology, Engineering and Mathematics.

Inquiry and discovery projects may be either teacher-defined or student-defined, and provide for students to explore, create and communicate solutions or opportunities relating to an engineered system. Students investigate physical, digital and crossover systems, developing designing, making and coding skills. They explore issues and solutions relating to sustainability, ethical design and production, and the responsible use of resources.

Students’ learning is augmented by real-world and industry connections, and the use of rapid prototyping technologies such as laser cutting and 3D printing.

FOOD TECHNOLOGY

Student teams apply project-based learning principles through aspects of a food and menu design project.

Project components include precise weighing and measuring, computational thinking, and application of nutrition and physiological sciences (through the use, modification and creation of new food algorithms) to engineer quality food solutions.

Students use the design cycle to ideate, plan, prototype, test, evaluate and modify menus in preparation for their three-course restaurant functions.
YEAR 10 SCIENCE & ENGINEERING CHALLENGE

The Science and Engineering Challenge is a nationwide STEM outreach program presented by the University of Newcastle. The Challenge focuses on inspiring students in year 10 to consider a future career in science and engineering.

Through the Challenge, students experience aspects of Science and Engineering which they would not usually see in their school environment. The Challenge focuses on students working in small groups to collaboratively produce a creative and effective solution to a specific problem.

DESIGN & TECHNOLOGY

Students use the design process to engage with challenges representing real-world scenarios. In creating design solutions, students access traditional and emerging technologies in a broad range of fields and using a variety of materials and processes.

Design challenges fall into the areas of products, systems, and environments, and—in addition to traditional design and production methods—students use rapid prototyping technologies such as 3D printing and laser cutting in realising their solutions.

Areas for exploration include industrial design, graphic design, architecture, fashion, and interior design. Students are encouraged to become responsible designers and consumers, responding to issues of sustainability, environmental impact, globalisation and fair trade.

INDUSTRIAL TECHNOLOGY (METAL & WOOD)

Students apply engineering design as part of workshop projects, (for example, steering mechanisms on billy carts).

Students will explore materials science, measuring and calculating materials, and the use of both manual and digital engineering and construction technologies in the design and testing cycle of their project, as well as the manufacturing process.

Documentation and evaluation are important components of these projects, demonstrating logical planning and critical reflection during development and at the conclusion of the project.