

4.

## Why do Software Engineering?

The study of HSC Software Engineering enables students to develop an understanding of the fundamentals of computer science using a range of technologies including the Python programming language. Students will develop knowledge and understanding of software engineering, hardware and software integration, and the development, implementation and evaluation of computer programs.

- Develop your capacity to think creatively to develop and program software solutions
- Apply software solutions that you develop to real-world problems, using exciting new hardware.
- Improve your ability to apply knowledge, understanding and thinking skills to develop and communicate solutions to real-world problems.

5.

## Career Opportunities

The course is recommended for students looking to pursue further study in computer science and related fields.

The technology industry continues to grow and is crying out for people in Australia. Other countries are already teaching their preschoolers to code, it is THE 21st century skill that everyone should be learning.

*"Everyone should know how to program a computer, because it teaches you how to think."*

- Steve Jobs



## Software Engineering

YEAR 11 & YEAR 12 COURSES



**COFFS HARBOUR**  
SENIOR COLLEGE

1.

## Year 11 Course

Programming fundamentals including software development; designing algorithms; data for software engineering; and developing solutions with code.

The object-oriented paradigm (OOP) including Understanding OOP; and programming in OOP.

Programming mechatronics including understanding mechatronic hardware and software; designing control algorithms; and programming and building mechatronic systems.

2.

## Year 12 Course

Secure software architecture including designing software; developing secure code; and the impact of safe and secure software development.

Programming for the web including data transmission using the web; and designing web applications.

Software automation including algorithms in machine learning (ML); programming for automation; and the significance and impact of ML and AI.

Software engineering project.



3.

## Learning

Software Engineering 11–12 introduces students to key concepts in software development as part of computer science. Students learn how to design, build and evaluate computer programs using a structured, problem-solving approach. The course covers topics like programming basics, object-oriented coding, mechatronics, web programming, secure architecture, and automation. Students apply their skills in a major software project, working in teams to solve real-world problems and build communication and collaboration skills.

Students also explore how technology impacts society and the environment, and how software is used across industries. The course builds skills in four key areas: technical abilities, project management, creative thinking, and social awareness—preparing students for future study or careers in tech.