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WILLETTON SENIOR HIGH SCHOOL

APPLICATIONS FOR 2023 NOW CLOSED

YEARS 8/10

COMPUTER SCIENCE SPECIALIST

(EXTENSION PROGRAM)

2023/25

COMPUTER SCIENCE PROSPECTUS

COMPUTER SCIENCE (THREE YEAR COURSE)

The aim of the Computer Science (Specialist) program is to develop and extend students' skills in computer programming and computing science.

The program has successfully operated at Willetton Senior High School for many years and entry is highly competitive. Many of the graduates of this program continue on to ATAR/tertiary study and careers in the computing area as well as a range of careers which require high level computing skills. Many have supported their tertiary studies by working part-time in the computing field, utilising skills gained by their participation in this program.

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THE SPECIALISED COMPUTER SCIENCE PROGRAM

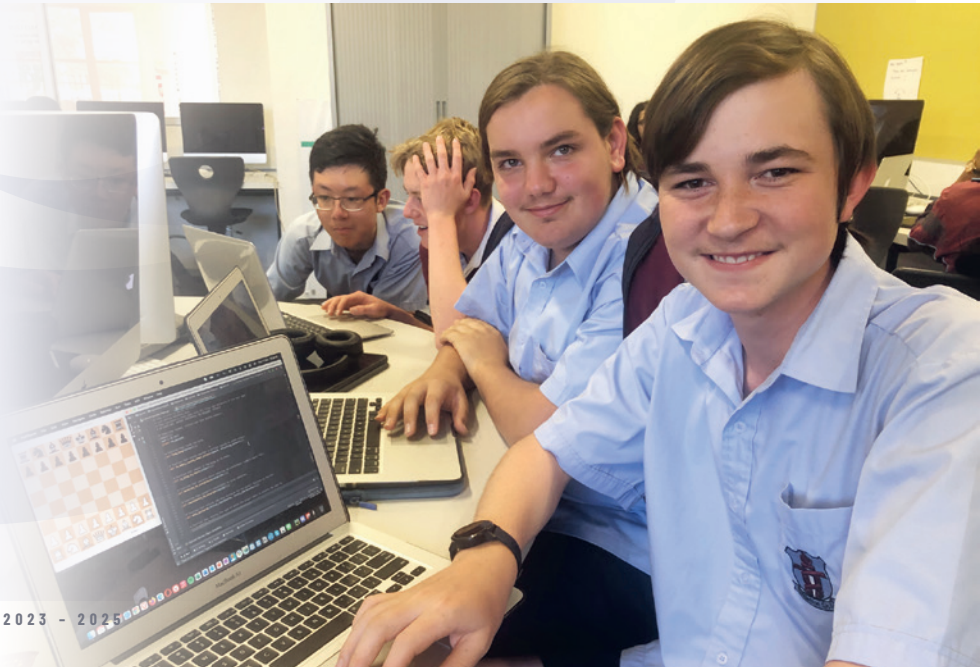
Willetton Senior High School will award places in the three-year, Specialist Computer Science Program to 25 students at Year 8 level. It is expected that students will maintain a sound academic performance and that they will actively participate in all class activities. Students are also expected to conform to the school's assessment & behaviour management policy. An annual fee is charged. The program occupies two hours of formal tuition per week in each semester plus some extra-curricular after school activities and excursions, providing a superset of the mandatory SCSA 'Digital Technologies' Curriculum required for all Year eights. Specialist computing staff will teach and mentor the students. Students' skills and knowledge will be significantly extended and enhanced through the varied program elements each year.

The focus for Year 8 is to introduce students to each of the program elements as outlined below. The focus on coding extends to using professional tools to develop real world programs around fundamental coding principles.

The focus for Year 9 is to extend students on each of the program elements outlined below, introducing data communications concepts and involving more external resources. The focus on coding remains and includes using professional tools to develop for iOS/ mobile devices (iPhones, iPads, Apple Watch etc) whilst also gaining an understanding of the breadth of the field of Computer Science and the "workstyle" of those who make careers in the IT industry.

In Year 10, the course builds upon the basic elements from years 8 & 9 including advanced understandings of computer networking and security. All the theoretical and practical skills gained to this point provide a springboard for each student's "Personal Project". The time involved in these activities will involve significant co-curricular work. Initially, students will work individually to select a "personal project". This project will create a fully documented and operational information solution that mimics or addresses a real-world community issue/service/business suitable for presentation and demonstration in an 'exposition' environment featuring parents and industry/ tertiary representatives. Then, as time permits, students will work together in small groups (possibly with an industry mentor) to develop a team solution to a significant external requirement.

During each year of the course, students will be exposed to an "Experts in Residence" program, where Computer Industry specialists will come into the school to work with students. Also, there is an excursion program, where students will visit local sites of significance in the IT industry. One class per week has been scheduled in session 5 so that these activities can (on occasion) extend after normal school hours to provide the time required to maximise these learning opportunities that are only available to Scholarship program participants.



The elements or themes of the Computer Science Specialist (8–10) program include:

- **Become a Coding Ninja:** be able to code demonstrating correct, professional programming principles
- **Real World Solutions:** implement algorithms common in everyday use on the internet
- **5Cs of 21C:** Communication, Collaboration, Creativity, Critical thinking + Curiosity
- **Shine your own light:** participate in external competitions – prepare to be judged!
- **Be your own Boss:** project management basics, basic business/budget principles
- **Taste the Goodness:** explore breadth of CompSci-data science, visualization, AI, ML etc.
- **Inclusivity:** incursions from inclusivity specialists eg. ACS Women in Technology (WiT), Girls Programming Network (GPN), Web design UI/UX inclusivity specialists
- **Own IT! Be a superhero:** What the world needs next - don't fear to fail! (See **https://www.acs.org.au/superhero.html**)
- **Expert in Residence (EiR) program**
- **Excursions to Computing sites of significance: eg. Curtin's HIVE Visualisation Centre, Pawsey Super Computer Centre and others**

It is anticipated that everyone enjoys the great opportunities presented by participation in this specialist program in 2023.

SELECTION CRITERIA

To be eligible an applicant must:

- have a good academic record, particularly in the field of mathematical reasoning
- demonstrate commitment and capability in the field of Computer Science (for example, through performance in year 7 digital technologies and/or participation in home/community coding activities – coder dojos etc...)

SELECTION PROCESS

The initial stage of the selection process consists of two standardised aptitude tests of computer, mathematical and reasoning skills and abilities. Subsequent to the stage one aptitude testing, a select group will be invited to progress to stage two. This will involve a computer based activity to be undertaken at home during the semester holiday break. Stage three involves internal review of student academic histories (including primary school where available) and interviews with selected teachers and their year co-ordinator). On completion of the selection process the candidates will be ranked and the top 25 students will be offered a position. This announcement usually takes place by Week two of term three.

All students must attend with a fully charged device running a web browser as all test materials are online.

For further information please contact:

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