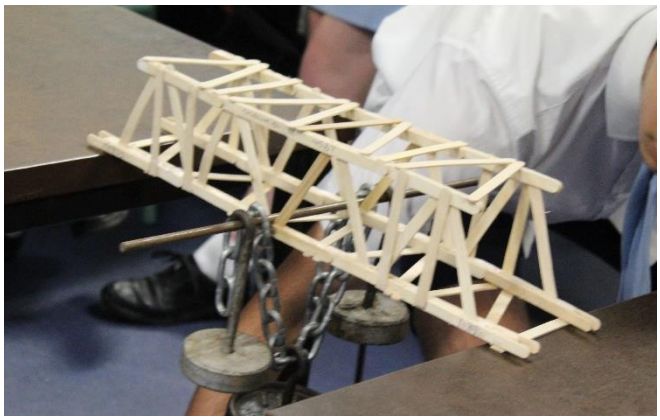
PENNANT HILLS HIGH SCHOOL

INDUSTRIAL ARTS – HSC SUBJECTS

Engineering Studies – Industrial Technology - Wood and Metal

What is the difference between the courses?

Engineering Studies is a theoretical course that introduces students to the world of engineering and prepares them for future studies in engineering, industrial design and applied science such as building science. The majority of the class time is spent on theoretical work with a small amount of practical work. It is suited to students who enjoy science, mathematics and solving problems.



Truss Testing

Industrial Technology is a practical based course that teaches students advanced knowledge and skills in the Timber and Furnishing industry.

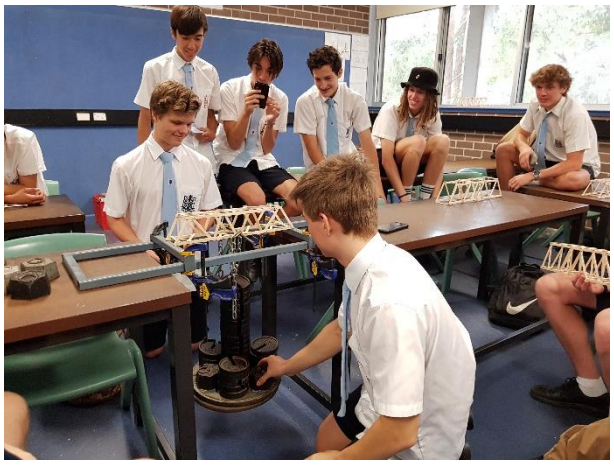
You spend Year 11 building a quality piece of furniture form Australian Hardwoods and the majority of class time is spent on practical work and culminates in the construction of a piece of furniture in Year 12 that accounts for 60% of their HSC mark.

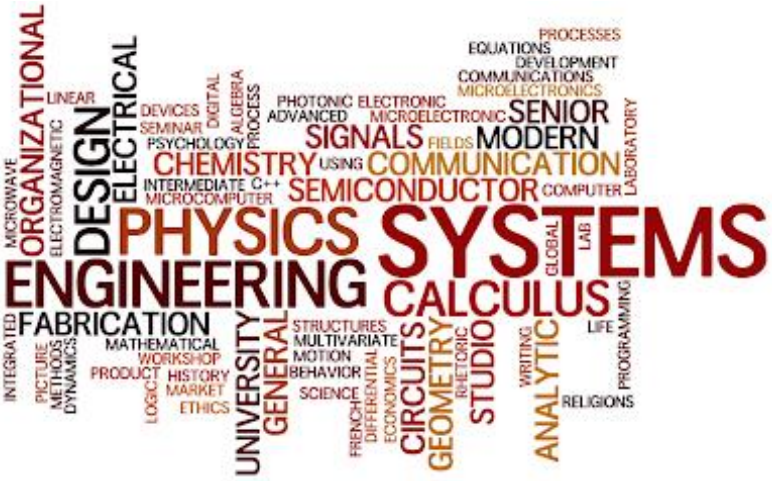
Information Processes and Technology versus Software Design and Development

Information Processes and Technology	Software Design and Development
No Programming About hardware, software and data/information and people. Looks at how computer systems are used with business. Topics include networking, automated manufacturing systems, multimedia systems, system design , database design Major project is a report about building a computer system for a business and building an actual working database in Microsoft Access Major project is internally marked No prerequisites	Programming (Therefore, you must like programming!) All about programming (Still must like programming!!). How to program properly and efficiently, all the procedures and conventions Topics include software development cycle, binary math's and electronic circuits Major project is a report about creating a program and working program of your choice Major project is internally marked High end mathematics is NOT needed. But some mathematics is helpful.

Engineering Studies

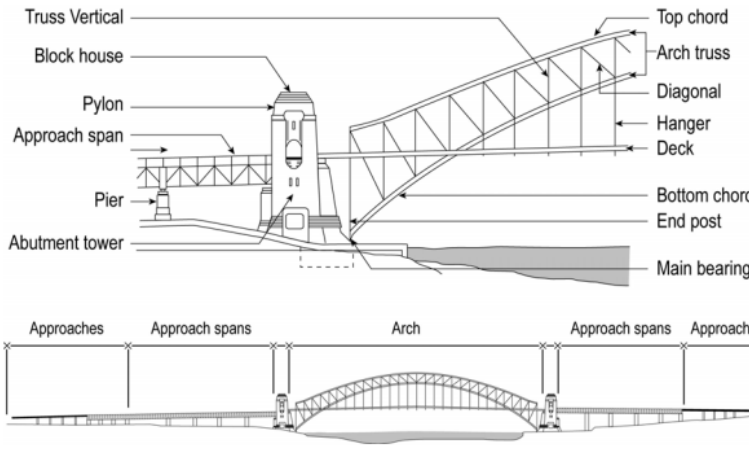
This subject develops invaluable skills and knowledge to be used in future studies of Engineering, Building, Science or Applied Science or related TAFE studies and technical vocations. It involves the study of materials (metals, plastics, ceramics and composites) and the use of graphics and calculations to solve engineering problems.





Year 11 students testing their truss bridges

Several modules are studied including Engineering Fundamentals, Braking Systems, Biomedical Engineering, Civil Structures, Personal and Public Transport, Aeronautical Engineering and Telecommunications Engineering. These allow us to investigate the inter-relationship of materials, their physical and mechanical properties and aspects of technical drawing.



Sydney Harbour Bridge Truss Analysis Excursion

The study of the role of Engineers and the preparation of Engineering Reports form an integral part of this course. Practical activities involve the construction of engineering models, the testing of engineering materials using sophisticated testing equipment and computer simulations, and workshop activities to examine the structure of materials and how their properties can be modified.

Industrial Technology – Timber and Furnishings

This subject is a workshop based course and a practical aptitude is essential.

Year 11 provides students with a solid foundation in advanced cabinet-making and wood-machining techniques and processes, experience with a range of timbers and timber products and broad knowledge of wood technology. Practical skills are advanced through the construction of selected projects.

Year 12 is spent constructing a carefully designed and planned Major Project selected by the student. A detailed Design Folio records the design development and construction of the project and is submitted with the project for marking by a visiting team of examiners.

The Practical Project together with the Design Folio contribute 60% of the Higher School Certificate Marks.

The final examination of wood technology and related industries contributes the remaining 40% results.

Projects constructed by past students include:

Roll-Top Desks, Computer Desks, Dining Tables, Display Cabinets, Lounge Chairs, Grandfather Clocks, Pool Tables, Sideboards, Dressing Tables, Blanket Chests, Entertainment Units, Bars, Room Dividers, Rocking Chairs

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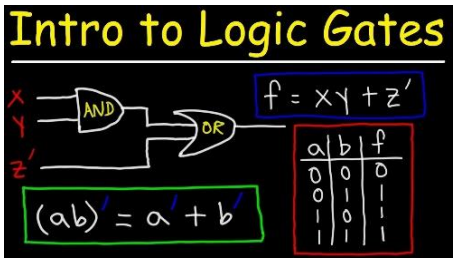
Students construct a wide range of projects including workbenches, tool cabinets, furniture, trailers and machinery.

Results at Pennant Hills High are consistently well above the state average and in the last 10 years have achieved a 1st, 2nd, 5th, 8th and 9th in the state.

Software Design and Development



This Computer Science course is a 2 year long elective option for Years 11 and 12. If you enjoy creating or want to learn how to create user interfaces, mobile and computer programs/applications, finding out and changing how things work inside a computer, gaming or just computing in general, you should think about selecting Software Design & Development as one of your subject choices. Your learning in this course is showcased in an internally marked, student selected HSC Major Project at the end of the HSC course.

```
#!/usr/bin/env python
import sys
import os
import simpleknn
from bigfile import BigFile

if __name__ == "__main__":
    trainCollection = 'toydata'
    nimages = 2
    feature = 'f1'
    dim = 3

    testCollection = trainCollection
    testset = testCollection

    featureDir = os.path.join(rootpath, trainCollect
    searcher = simpleknn.load_model(os.path.join(fea
```

Software Design and development (SDD) will provide students with the knowledge and skills to solve complex problems through algorithm design and software solutions. You will explore complex problem solving, individual and collaborative work and learn to code in a range of different programming languages. This course will include project design and management skills, computational thinking and collaborative team work, all skills to enable you to be creators of your own software solutions, rather than consumers of others.

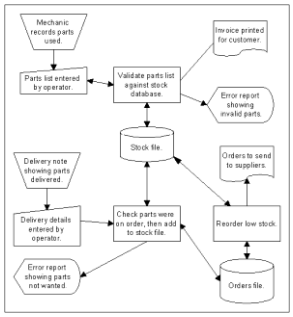
If you enjoyed studying Information & Software Technology in Years 9 and 10 you would find SDD to your liking, however it is not at all necessary for you to have studied IST.

Information Processes and Technology

In IPT you will learn about Project Management and Information Systems through the understanding of current and future trends in technology. During the Preliminary year you will develop your understanding of how computers work, aspects of data and how they manipulate and store information.

The HSC year augments your knowledge about database management systems, communication systems and two option topics from the following list:

- Transaction Processing Systems
- Decision Support Systems
- Automated Manufacturing Systems
- Multimedia Systems Project based learning assists you in applying your theoretical knowledge to practical applications. This can include websites, databases with forms, queries and reports, as well as spreadsheets, Photoshop and audio files.



Information Processes and Technology Stage 6 is designed to enable students to become confident, competent, discriminating and ethical users of information technologies, to possess an understanding of information processes and to appreciate the effect of information systems on society.

(Information Processes and Technology, Stage 6 Syllabus; Board of Studies NSW;2009)