KINGSCLIFF HIGH SCHOOL

ACHIEVEMENT THROUGH ENDEAVOUR

Industrial Arts & Computing Studies Faculty Stage 5 Electives

Course Information

Elective Courses Available

Hands-On Practical courses in well equipped workshops

- iSTEM (Integrated STEM)
- Human Powered Vehicle – Engineering
- Industrial Technology – Engineering
- Industrial Technology – Timber
- Industrial Technology – Metal
- Industrial Technology – Multimedia
- Information & Software Technology

iSTEM

- A great course for those interested in applying STEM to practical projects.
- Emphasis on engineering challenges that involve teamwork, problem solving, communication and creativity.
- Learn industry specific skills in STEM fundamentals, including 3D Computer Aided Design, Rapid Prototyping, Laser Cutting and mechatronics.
- Units include:

Year 9 (Module 1):

- STEM Fundamentals 1 & 2
- Aerodynamics & Mechatronics 1

Year 10 (Module 2):

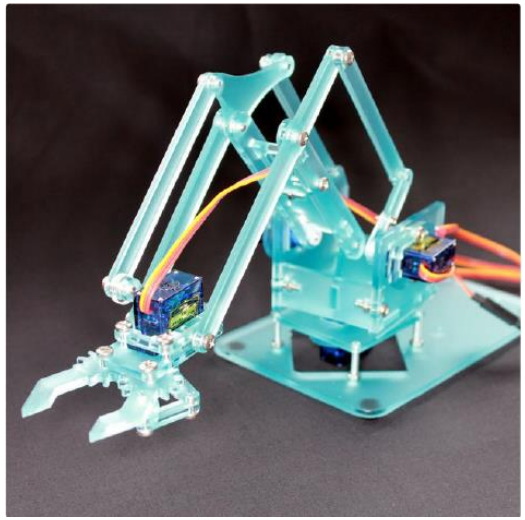
- Motion & Renewable Energies (Solar Car Challenge)
- Mechatronics 2 (Arduino Controlled Robotic Arm)

Links well to University studies in Engineering and STEM related fields.

iSTEM

- Aerodynamics Unit
  - Participate in the Australian Aeronautical Velocity Challenge.
  - Work in teams to build and compete in model rocket and flight competitions.

- Mechatronics Projects
  - Robocup Junior Challenge
  - Drone Challenge
  - Arduino Robot



- Motion & Renewable Energies
  - Solar Car Challenge

Human Powered Vehicle – Engineering

- Study Industrial Technology – Engineering in a different format.
- Work in a team to prepare and race two Human Powered Vehicles in the QLD HPV Super Series (8 Riders and 2 Pit Crew/Team) whilst learning about engineering (Students choosing the subject commit to the competition and excursion costs).
- Provides opportunities for students to develop knowledge and skills in the use of materials, tools and techniques to design solutions to engineering problems through hands on learning.
- Units Include:

Year 9:

- Engineered Structures (Model Frame Testing)
- Mechanisms (Human Powered Vehicle)

Year 10:

- Alternative Energies (Solar Car Challenge)
- School Developed Module (Human Powered Vehicle)

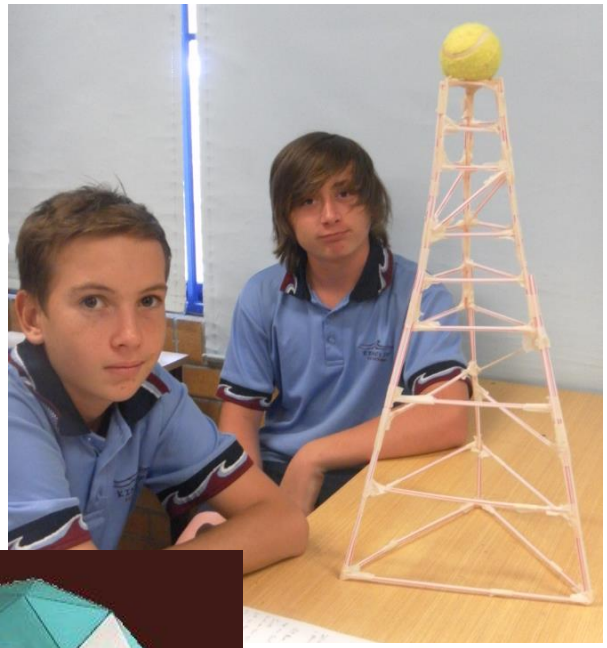
- Links well to Trade, TAFE and University qualifications in all fields of engineering
- Most projects are challenge based.

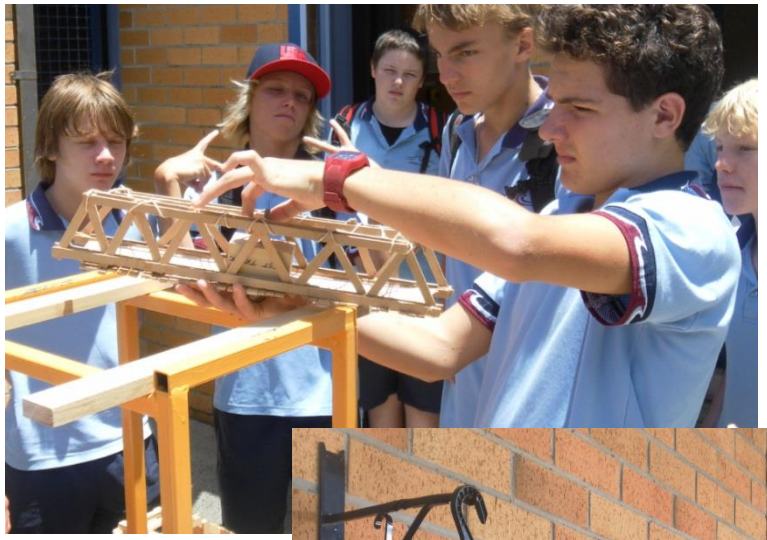
Human Powered Vehicle – Engineering

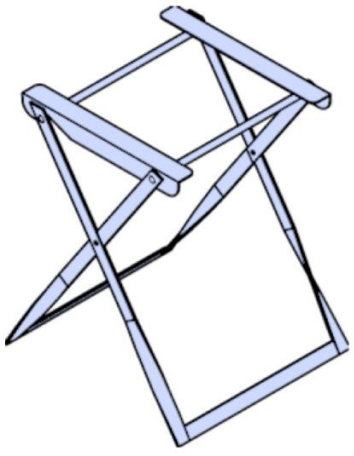
Industrial Technology – Engineering

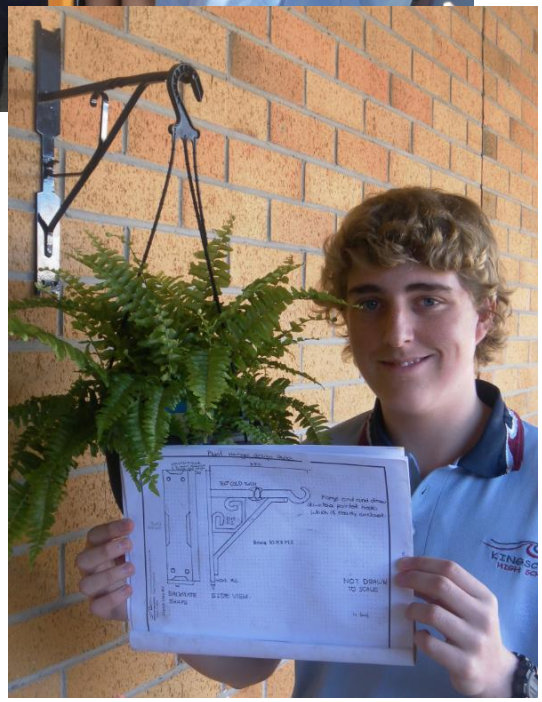
- Provides opportunities for students to develop knowledge and skills in the use of materials, tools and techniques to design solutions to engineering problems through exciting and challenging practical projects.
- Units Include:
  - Engineered Structures & Mechanisms
  - Alternative Energy
  - Control Technology
- Links well to Trade, TAFE and University qualifications in all fields of engineering
- Most projects are challenge based.

Industrial Technology – Engineered Structures

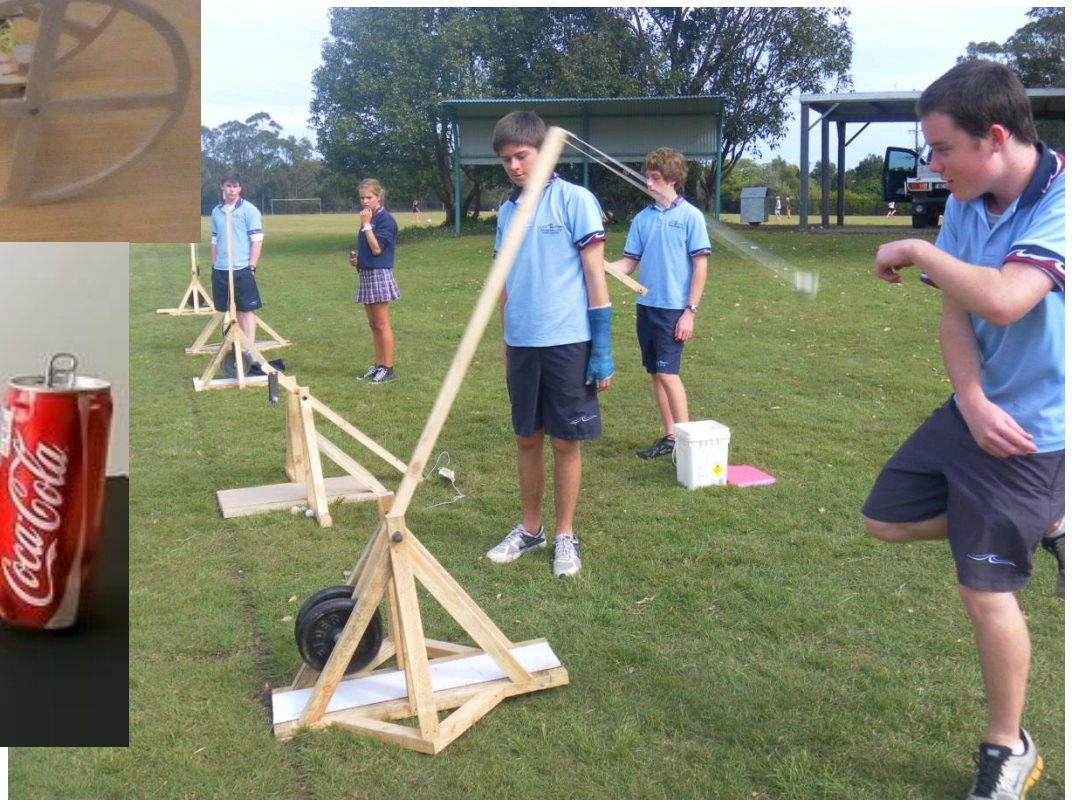








Industrial Technology – Engineering Mechanisms



Co2 Racers – KHS 2015 Tweed Valley Champions

Industrial Technology – Engineering
Solar Powered Boats

Industrial Technology – Timber

- A great course for those who enjoyed using tools and equipment to design and make timber practical projects in Technology in years 7 & 8.
- Builds on those skills and introduces students to a range of new cabinetmaking skills, equipment and machines.
- Develops knowledge and skills in the use of materials, tools and techniques related to timber and timber products.
- Links well to trade and TAFE qualifications in Cabinetmaking and Carpentry.

Industrial Technology – Timber

- Year 9 Projects

Industrial Technology – Timber

Year 9 classes laser cut clock faces using marquetry (different coloured timber veneers).

Industrial Technology – Timber

- Year 10 Semester 1 Projects

Industrial Technology – Timber

- Year 10 Semester 2 sample project.

Industrial Technology – Metal

- Great course for those students who are interested in designing and making useful practical projects from metal.
  - Sheet metal
    - Using magnetic bending equipment
    - Spot welding
  - Fabricating from steel
    - Welding – Oxygen-Acetylene, MIG
    - Fabrication – Hand and machine tool skills, Plasma Cutting
  - Machining
    - Metal Lathe work
    - Milling machine

- Links well to trade and TAFE qualifications in Metal Fabrication, Fitting and Machining and Mechanical Engineering

Industrial Technology – Metal

- Projects Include

Computing Studies Electives

- Industrial Technology – Multimedia
  - Photography, animations, game design, virtual reality, short films
  - Design multimedia products
- Information and Software Technology
  - Database design, programming, robotics, etc..

Please refer to the Computing Studies PowerPoint.

Questions?