FAIRFAX SINCERITAS LABORIS

Design and Technology

Course highlights:

Design and Technology offers students the opportunity to identify and solve realistic problems by designing, modelling, prototyping and manufacturing products and/or systems. Through studying GCSE Design and Technology, students will participate with confidence in an increasingly technological world; develop their awareness of and learn from the wider influences of design and technology; consider historical, social, cultural, environmental, and economic factors including industrial practices; explore the benefits of undertaking a risk taking approach to design with 'Good' Health and Safety practices demonstrated throughout their practical and workshop experiences.

Core principles and student learning

Students require core knowledge and understanding of technical principles which include eight key areas:

- Design and technology and its place in the world
- The work of other designers. In particular, designers from other cultures.
- Materials classification: Material characteristics, properties, applications and uses
- Smart and composite materials including new and emerging technologies
- Mechanical components and devices, mechanisms and motions
- Industrial applications: CAD/CAM, Laser cutting and 3D printing
- Modelling with Risk taking
- Electronic systems and programmable components

Students are expected to demonstrate in-depth knowledge and understanding of at least one specific material area to support their design and make activities.

How is it assessed?

Component 1: Design and Technology in the 21st Century: Written examination: 2 hours: 50% of qualification

A mixture of short answer, multiple choice, structured and extended writing questions assessing candidates' knowledge and understanding of:

- Technical principles
- Designing and Making principles with an ability to
- Analyse and evaluate design decisions and wider issues in design and technology.

Component 2: Design and make task: Non-exam assessment: approximately 35 hours: 50% of qualification

A sustainable, client based design challenge, the outcomes of which can be modelled and/or prototyped based on a contextual challenge set by the exam board. This assesses the candidates' ability to:

- Identify, investigate and outline design possibilities
- Design, model and make prototypes
- Opportunities to take risks
- Analyse, evaluate and justify design decisions
- Consider the wider issues of Design and Technology, for example, *all inclusive design, Sustainability and the Carbon Footprint*

Other Information:

This Design and Technology GCSE offers learners the opportunity to work with a wide range of materials and to produce high quality items with commercial potential. The learners will focus on examples of good, inspirational design to help encourage, inspire and develop innovative ideas of their own.

Careers available from this course:

Careers aspirations from this course can develop into careers such as Industrial Design, Graphic Design, Architecture, Fashion Design, Game Design, Interior Design, Engineering, Teaching and many more.

Employability skills

Independent enquiry is used to identify and conduct relevant and appropriate research such as reciprocal conversations with clients

Creative thinking is essential when solving problems, generating new and innovative ideas and when modelling.

Reflective thinking is applied throughout the entire design process, when evaluating design solutions and when engaged in workshop practices.

Teamwork/Working in collaboration is demonstrated through the design and manufacture of items to be batch produced within a group.

Self-management is required when modifying ideas in the light of on-going analysis and evaluation and throughout the entire NEA.

Effective participation is practised through understanding the impact and responsibility that designers have.

Cross curricular elements and subject links

This course complements Creativity and Design subjects, such as GCSE Art & Design.

Links with

Literacy, Maths, Science, Geography and History

Please see **Miss Brooks-Henderson or Miss Yip in D3** to discuss the course.