



OVERVIEW

Engineering KS4 students at ICA will apply maths and science to solve real-world problems. This involves an understanding of the different disciplines of engineering and how they have shaped the products and projects of the modern world. Students will be able to read and produce technical drawings, select appropriate materials (along with tools and machinery) and know how to carry out a practical task. Students will be expected to work in a safe manner, in line with current health and safety legislation.

Autumn

Unit 1 – (Written Exam)

- Health & Safety
- Engineering Disciplines
- Tools and Equipment
- Engineering Materials (Timbers, Plastics, Metals & Composite)

Unit 2 – (Coursework)

- Research – Risk assessment / Materials
- Tools & Equipment
- Engineering Drawing – CAD / Hand Drawn
 - Orthographic Drawing
 - Isometric Drawing
 - Exploded Drawing

Assessment:

Books and practical work will be marked and assessed throughout the project.

Personal development:

Students will develop skills for life through the practical designing and manufacturing activities in the project.

Spring

Unit 2 – (Coursework)

- Planning for Production
- Manufacturing the scale model
- Project Evaluation

Unit 1 – (Written Exam)

- Materials
- Engineering Drawings
- Application of SI Units of Measurement

Assessment:

Books and practical work will be marked and assessed throughout the project.

Coursework Submission

Personal development:

Students will develop skills for life through the practical designing and manufacturing activities in the project.

Summer

Unit 1 – (Written Exam)

- Applied Science and Maths in Engineering
- Computer-aided design (CAD)
- Production planning techniques
- Applied processing skills and techniques (CAM)
- External exam revision (*all topics*)
- Mock Exam Papers

Assessment:

Books will be marked and assessed throughout the topics.

External Exam

Personal development:

Students will develop skills for life through the practical designing and manufacturing activities in the project.

Useful resources for supporting your child at home:

Online platforms such as Technology Student.com and BBC Bitesize.

Students will be provided with an Engineering Revision Booklet and an Engineering Revision Guide.

Homework:

Homework will be set every week. Students will need to use the revision materials provided to complete the set tasks.