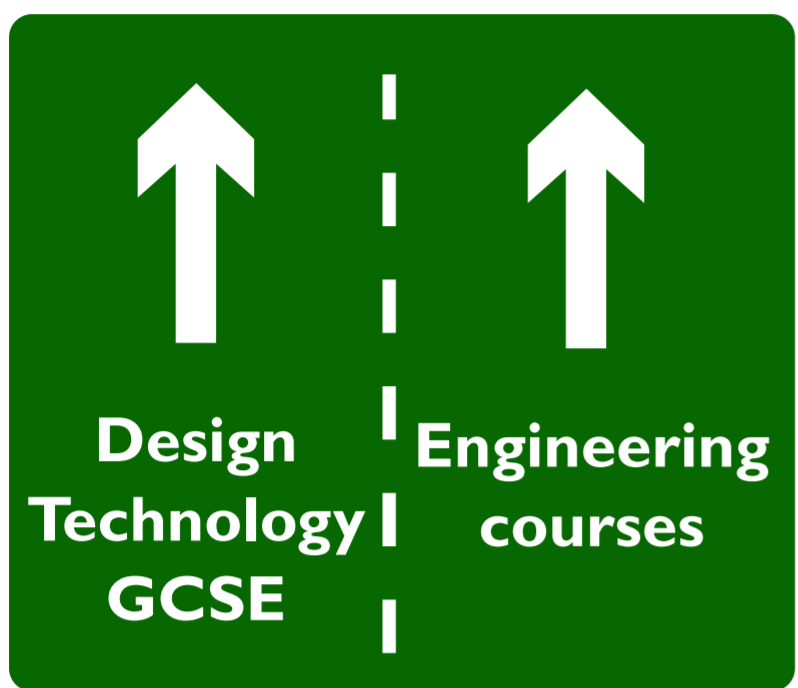


# A Level Design Engineering

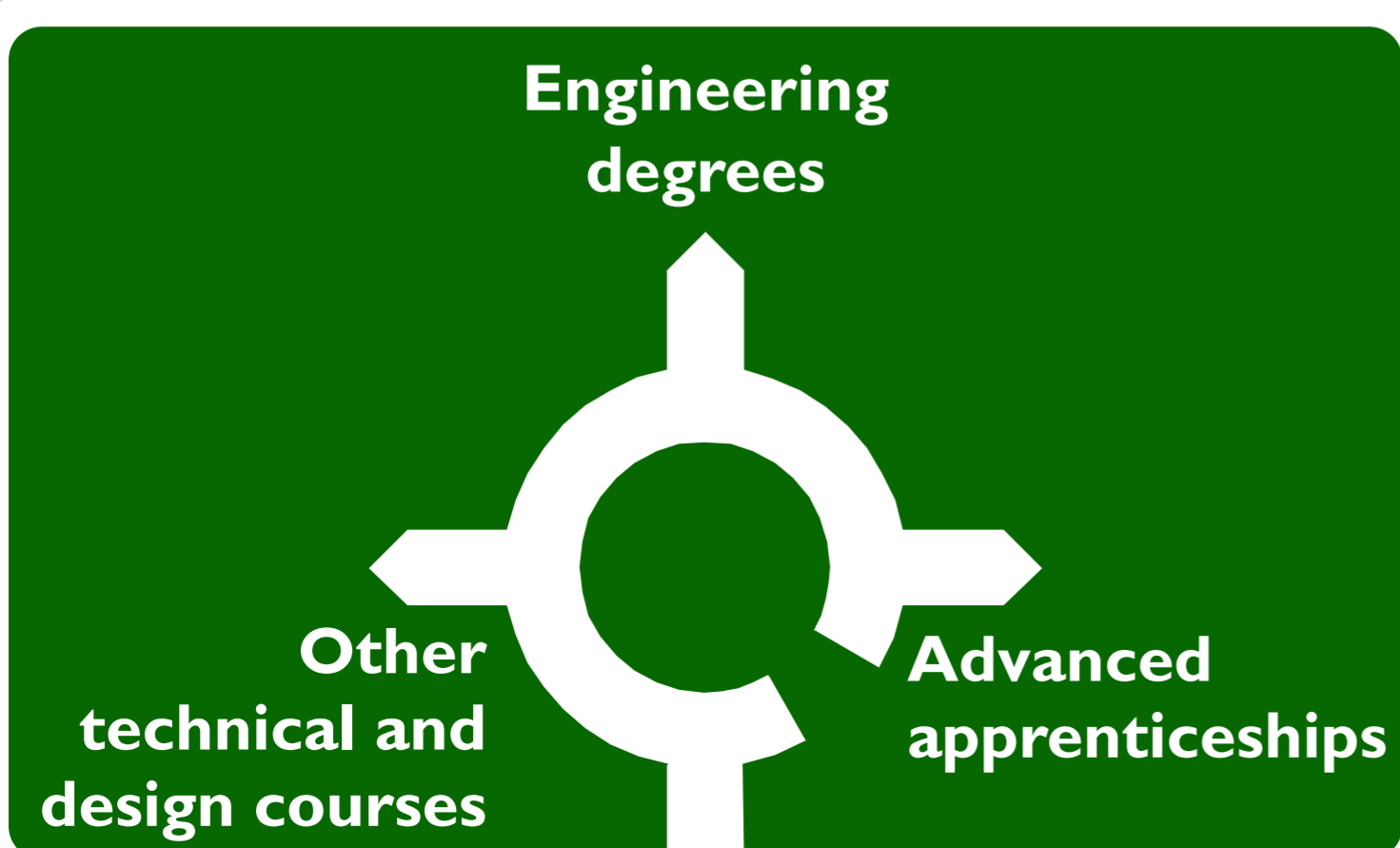
## Where might you have come from?



If you have not followed either of these routes please talk to us - we have always taken enthusiastic students without these backgrounds

The entry requirements are at least a grade 5 in Maths and ideally at least 5 5 in double award Science. A grade C or above in Electronic Products or equivalent in Engineering would also be desirable

## Where might you be going?



## The course and its content

The course has been designed for progression - to allow students to progress from GCSE level courses and for them to move forward and be able to progress onto higher education.

A key aspect of the course is iterative design - students will learn that when products are designed they are rarely perfect first time. They will be encouraged to be critical and test their design, collect data and performance statistics and then use them to produce a second, improved version before repeating the process until an optimum solution is arrived at.

They will study:-

2D and 3D CAD and the use of CAM, materials covering examples of metals, polymers, timbers, textiles and composites including their physical properties and characteristics, mechanisms, forces, lubrication, electronics systems and circuit design including programming microcontrollers, current and historical design movements, ethical and environmental design issues and iterative design techniques leading to manufacturing of products in school and how they would be manufactured commercially.

## Assessment

### Principles of Design Engineering exam

**1 hour 30 minutes**  
**26.5% of complete A level**

A series of varied style questions asking students to analyse existing products, demonstrate and apply their mathematical knowledge, demonstrate their knowledge of materials and processes and be able to demonstrate an understanding of wider social, moral and environmental issues

### Problem Solving in Design Engineering exam

**1 hour 45 minutes**  
**23.5% of complete A level**

Students are given a resource booklet and have to use it to solve a variety of design problems.

The booklet will contain information such as formulae, materials data, information on current products.

Students will be asked to identify issues relating to a given context before using their maths skills to confirm technical parameters and be able to use the resource booklet to suggest for example, manufacturing methods

### Iterative Design project

**Approx. 65 hours - Non-exam assessment**  
**50% of complete A level**

A context will be set each year by the exam board and students will have to use this to identify a design problem or opportunity of their own choice.

They will need to demonstrate all they have learnt by undertaking "a substantial design, make and evaluate project centred on the iterative processes of explore, create and evaluate."

They will create and submit a portfolio of evidence that records all of the stages and decisions they have made as well as documenting the development of their design through numerous iterations to a final manufactured product or system.