



ST CHRISTOPHER'S SIXTH FORM

# PRODUCT DESIGN

BRIDGING UNIT



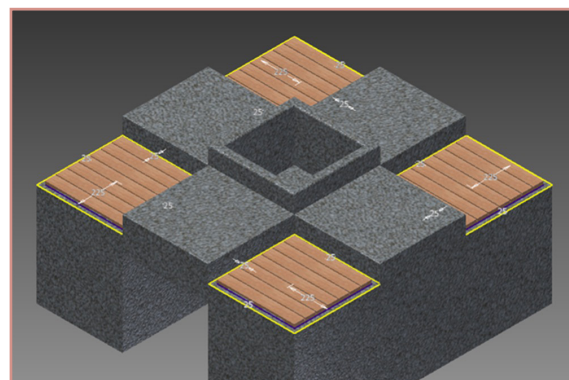
# Product Design

## Getting Ready for A-level Product Design

To prepare yourself for the start of this course you will need to complete the following tasks:

### Task 1

Take digital photographs of outdoor public seating in your local area. Make sure you have permission to take photos first, particularly if they are in use. Also take overall measurements. Consider the design, and manufacture and of these products through sketches and notes (preferably word processed). Analyse at least three different examples of seating.



### Task 2

You will be expected to show a high level of 3D CAD (Computer Aided Design) modelling at A Level.

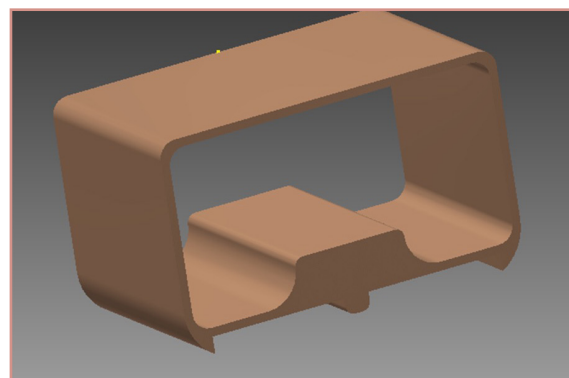
Autodesk Fusion 360 is a commercial 3D modelling program that is free to download from the internet for students and install on your home computer (PC or Mac). Please download and practice using it before the start of term.

Go to:

<https://fusion.online.autodesk.com/>

Some helpful tutorials can be found at:

[https://warwick.ac.uk/fac/sci/wmg/about/outreach/resources/fusion\\_tutorials/](https://warwick.ac.uk/fac/sci/wmg/about/outreach/resources/fusion_tutorials/)



## Course Specification and Overview

The course follows the WJEC Eduqas GCE A LEVEL DESIGN AND TECHNOLOGY (Product Design) specification. A copy of this specification can be found here:

[https://www.eduqas.co.uk/qualifications/design-and-technology-as-and-a-level/#tab\\_keydocuments](https://www.eduqas.co.uk/qualifications/design-and-technology-as-and-a-level/#tab_keydocuments)

## Overview of the course

### What is this course about?

This course is where creativity meets real-world problem-solving. You'll explore how great products are designed, developed, and made — from the first sketch to the final prototype. Whether you're inspired by architecture, engineering, fashion, or sustainability, this course gives you the skills and mindset to design for the future.

### You'll learn to:

- Research and analyse real design problems
- Develop practical solutions using sketches, models, and prototypes
- Understand materials, industrial processes, and environmental impacts
- Apply scientific, mathematical, and technical knowledge to product development

### How will I learn?

You'll experience a blend of creative project work, applied theory, and technical learning that builds your confidence as a designer.

## Year 12 – Foundation Year

### Bauhaus Seating Project

You'll begin with a practical design challenge: create a public seating prototype inspired by Bauhaus design. This helps you develop design thinking, user-centred research, aesthetic understanding, and workshop skills.

### CAD/CAM & Digital Design Project

You'll also undertake a CAD/CAM project, using industry-standard tools like laser cutting, 3D modelling, and CNC fabrication. You'll learn how modern manufacturing transforms ideas into reality.

### Theory in Context

Alongside your projects, you'll study key topics from the A-Level specification, including:

- Materials and their properties
- Manufacturing techniques and production systems
- Ergonomics, sustainability, ethics, and the environment
- Innovation, branding, and product analysis

### Start of NEA Project

At the end of Year 12, you'll begin your Design and Make Project (NEA) by identifying a real design problem, conducting research, and developing a design brief.

# Product Design

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## Year 13 – Independent Design & Development

Your focus in Year 13 is your NEA project — a sustained, self-led challenge where you'll:

- Explore user needs and commercial design contexts
- Develop design ideas using advanced modelling and prototyping
- Justify decisions using data, theory, and client feedback
- Produce a final high-quality prototype backed by detailed evaluation

You'll also deepen your knowledge of:

- Industrial and commercial production systems
- Quality assurance and sustainability
- Marketing, public interaction, and ethical design practice

## Assessment Breakdown

| Component                                            | Type                | Weight |
|------------------------------------------------------|---------------------|--------|
| Component 1: Design & Technology in the 21st Century | 3-hour written exam | 50%    |
| Component 2: Design and Make Project (NEA)           | Coursework project  | 50%    |

## Where can this course lead?

This course provides a strong foundation for a wide range of university degrees, apprenticeships, and careers, including:

- Product Design
- Robotics
- Mechanical Engineering
- Aerospace Engineering
- Automotive Design
- Industrial Design
- Architecture
- Fashion and Textile Design
- 3D Design
- Sustainable Technologies
- Design Engineering

and many more.

## Skills You'll Develop

- Creative problem-solving
- Independent project management
- Hands-on prototyping and fabrication
- CAD/CAM and digital design
- Research, analysis, and evaluation
- Collaboration, presentation, and critical thinking

## Suggested Reading (Optional)

### 1. Design Theory & User-Centred Design

#### **The Design of Everyday Things**

Author: Don Norman

Why: Fundamental principles of affordance, feedback and human-centred design—essential for the “understanding user needs” strand.

#### **Emotional Design: Why We Love (or Hate) Everyday Things**

Author: Don Norman

Why: Builds on Norman’s first book by exploring the role of emotion in product interaction and appeal.

#### **Design is a Job**

Author: Mike Monteiro

Why: Insight into the professional realities of design practice, client relationships and ethics.

### 2. Materials, Manufacturing & Sustainability

#### **Cradle to Cradle: Remaking the Way We Make Things**

Authors: William McDonough & Michael Braungart

Why: Introduces sustainable design frameworks you can apply to specification “sustainability and lifecycle analysis.”

#### **Materials for Design**

Author: Chris Lefteri

Why: A richly illustrated survey of modern materials—metals, polymers, ceramics and composites—with commentary on properties and manufacturing.

# Product Design

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## Equipment Needed:

You will be provided with the textbooks you need for the course. Please provide a range of pencils, coloured pencils, fine-liner pens, ruler, and a USB pen drive. Please note that you will be asked to contribute towards specialist materials.

Have a great summer, enjoy the reading and we look forward to discussing all these exciting topics with you in September.

If you require any additional support or clarification regarding the transition tasks, please do not hesitate to contact:

**Mr L Price** - Subject Leader

Email: [L.Price@st-christophers.org](mailto:L.Price@st-christophers.org)





**“For I know the plans I have for you,” declares the Lord,  
“plans to prosper you and not to harm you,  
plans to give you hope and a future.”**

Jeremiah 29:11

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