

AQA Product Design

Guildford County School



A Level Handbook

2020 -2021

Introduction

Welcome to your A level Product Design course. Product Design is a wonderfully challenging, exciting and rewarding subject with many real life applications. As the Design and Technology Department at Guildford County School, we are passionate and committed to our subject and we aim to deliver and facilitate an enjoyable and fulfilling Design education for you. What really makes this course a success is you and your ideas and we look forward to helping you to fulfil your design potential.

Over the next two years you will have opportunities to develop your design and development skills through a wide range of practical contexts. You will use materials, equipment, machinery and techniques to help you realise your ideas. Being a Product development course, there will be opportunities to study various materials and use these for a range of different practical applications.

You will need to be organised, self-motivated, be willing to share ideas and have an open mind. These qualities will allow your work to develop in exciting and inspirational ways that you never thought possible.

A successful Product Design student:

- Is organised and well planned
- Is willing to listen and take advice and show evidence of this in their work
- Takes risks with their iterations and reflects upon design failure as well as design success
- Uses their knowledge of the world around them to meet the needs of the people they design for

Qualification aims and objectives

The aims and objectives of this qualification are to enable students to:

- Use creativity and imagination when applying iterative design processes to develop and modify designs, and to design and make prototypes that solve real world problems, considering their own and others' needs, wants, aspirations and values
- Identify market needs and opportunities for new products, initiate and develop design solutions, and make and test prototypes
- Acquire subject knowledge in design and technology, including how a product can be developed through the stages of prototyping, realisation and commercial manufacture
- Take every opportunity to integrate and apply their understanding and knowledge from other subject areas studied during Key Stage 4, with a particular focus on science and mathematics, and those subjects they are studying alongside A Level Design and Technology
- Be open to taking design risks, showing innovation and enterprise while considering their role as responsible designers and citizens
- Develop intellectual curiosity about the design and manufacture of products and systems, and their impact on daily life and the wider world
- Work collaboratively to develop and refine their ideas, responding to feedback from users, peers and expert practitioners
- Gain an insight into the creative, engineering and/or manufacturing industries
- Develop the capacity to think creatively, innovatively and critically through focused research and exploration of design opportunities arising from the needs, wants and values of clients/end users
- Develop an in-depth knowledge and understanding of materials, components and processes associated with the creation of products that can be tested and evaluated in use
- Be able to make informed design decisions through an in-depth understanding of the management and development of taking a design through to a prototype
- Be able to create and analyse a design concept and use a range of skills and knowledge from other subject areas, including mathematics and science, to inform decisions in design and the application or development of technology
- Be able to work safely and skilfully to produce high-quality prototypes
- Have a critical understanding of the wider influences on design and technology, including cultural, economic, environmental, historical and social factors
- Develop the ability to draw on and apply a range of skills and knowledge from other subject areas, including the use of mathematics and science for analysis and informing decisions in design.

Year 1 Overview

- A series of short mini projects focussed around designing, iteration and making/modelling Autumn and Spring Term
- Theory sessions linked to Project Topics - ongoing
- Progress assessment and Yr12 Mock Exam Paper (Internal)
- Summer Term NEA AO1

Year 2 Overview

- Autumn Term: NEA AO1, AO2 and AO3
- Yr13 Mock Exam (Internal)
- Spring Term: NEA AO3 and AO4
- Theory sessions linked to Project Topics - ongoing
- Examination preparation (External)

How you will be assessed: Product Design A Level

Written Exam

2 End of course examinations - 50% of A Level, in the form of 2 written papers

Paper 1: Technical Principles

2.5 hrs, 120 Marks 30% of A Level – A mixture of short answer and extended response questions

Paper 2: Designing and Making Principles

1.5 hrs, 80 Marks 20% of A Level – A Mixture of short answer and extended response questions.

Section A: Product Analysis: 30 marks

- Up to 6 short answer questions based on visual stimulus of product(s)

Section B: Commercial manufacture: 50 marks

- Mixture of short and extended response questions

NEA (Non-Examined Assessment)

Extended project for students to demonstrate the practical applications of technical principles, designing and making principles.

100 marks, 50% of A Level

Assessment overview

The NEA is internally assessed and externally moderated.

Students will produce a substantial design, make and evaluate project which consists of a portfolio and a prototype.

The portfolio will contain approximately 40 sides of A3 paper (or electronic equivalent)

There are four parts to the assessment:

Part 1: Identifying and outlining possibilities for design. Identification and investigation of a design possibility, investigation of client/end user needs, wants and values, research and production of a design brief and specification.

Part 2: Designing a prototype: Design ideas, development of design idea, final design solution, review of development and final design and communication of design ideas.

Part 3: Making a final prototype: Design, manufacture and realisation of a final prototype, including tools and equipment and quality and accuracy – photographic evidence of prototyping work will be submitted as part of the portfolio.

Part 4: Evaluating own design and prototype. Testing and evaluation.

Course Text books

The following reading resources will be provided for each student:

AQA A Level Design and Technology: Product Design Textbook – Ian Granger, Will Potts, Julia Morrison, Dave Sumpner (Hodder Education) ISBN 978-1-5104-1408-2

My Revision notes AQA A Level Design and Technology: Product Design – Julia Morrison, Dave Sumpner (Hodder Education) ISBN 978-1-5104-3229-1

Other useful resources

- 2 Lever Arch Files
- 20 Subject Dividers
- A4 or A5 sketch book

Course Reading List & Materials Books

- Handbook The Sustainability Handbook for D&T Teachers — Produced by Practical Action in collaboration with the centre for Alternative Technology and Loughborough University. Funded by the European Community and the Countryside Council for Wales.
- Cresswell L — Understanding Industrial Practices in Product Design (Nelson Thornes, 2005) ISBN 0748790233
- Mayor J — Understanding Industrial Practices in Resistant Materials Technology (Nelson Thornes, 2004) ISBN 0748790217
- Cresswell L — Understanding Industrial Practices in Product Design (Nelson Thornes, 2005) ISBN 0748790233
- Denison E and Cawthray R — The Big Book of Packaging Prototypes (Rotovision, 2010) ISBN 9782888930983 • Mayor J — Understanding Industrial Practices in Graphic Products (Nelson Thornes, 2005) ISBN 0748790225 • Roth L and Wybenga G — The Packaging Designer's Book of Patterns, Fourth Edition (John Wiley and Sons, 2012) ISBN 9781118134153

Audio resources and Online Magazines:

- B is for Bauhaus: An A-Z of the Modern World – available on Audible
- Blueprint Design Mag. (Free Online) <http://www.blueprintmagazine.co.uk/>
- Dezeen Magazine (Free Online) <https://www.dezeen.com/>
- Design Milk Magazine (Free Online) <https://design-milk.com/>
- InDesign Magazine (Free Online) <http://indesignmagazine.co.uk/>
- DesignWeek Magazine (Free Online) <https://www.designweek.co.uk/>

Podcasts, Websites, YouTube and Pinterest

- **10 Most influential product designers** <https://designwanted.com/design/10-most-influential-product-designers/>
- **Principles of good design** <https://www.vitsoe.com/gb/about/good-design>
- **Good Design Vs Bad Design: Six examples in everyday life** <https://medium.com/@marion.bonin/good-design-vs-bad-design-6-examples-in-everyday-life-30d807801971>

Follow:

- **Design Milk YouTube Channel:** <https://www.youtube.com/user/designmilk>
- **Product designer maker** - https://www.youtube.com/channel/UC62Ngsd_ZBWkX-6yFV-10UQ
- **Pinterest** – search, create your own boards and follow inspirational design boards.

Useful websites

- www.biothinking.com - Bio thinking Information on developing new ecology derived techniques.
- Cradle to cradle design - https://www.youtube.com/watch?time_continue=84&v=umUYM6xDNVU
- Cradle to cradle EPEA website - <https://www.epea.com/cradle-to-cradle/> -
- <https://ejfoundation.org/> - Demanding basic human rights, clean oceans, reducing pesticide use.
- www.bsigroup.co.uk - The British Standards Institution Information on CE Marking, Kitemark etc. www.cat.org.uk - Centre for Alternative Technology (CAT) Information on globally sustainable, whole and ecologically sound technologies and ways of life.
- www.data.org.uk - The Design and Technology Association List of resources for design and technology.
- www.hse.gov.uk - Health and Safety Executive Information on risk assessment. www.stepin.org Sustainable Technology Education Project Information on raising awareness of sustainable technology.
- www.nationalstemcentre.org.uk/tep - Technology Enhancement Programme (TEP) Programme aimed at supporting and improving the teaching and learning of technology in schools and colleges.
- www.bpf.co.uk British Plastics Federation Information on plastics.
- www.diecasting.org/faq North American Die Casting Association Information on die-casting. www.ssina.com The Specialty Steel Industry of North America Information on stainless steel.
- www.designtechnology.org

Department Expectations

Please ensure that you read the following information and share it with your parents / guardians.

Expectations

By opting to do the Product Design course you are making a commitment. We are committed to providing you with the best possible opportunities to nurture, develop and demonstrate your ability. In return our expectation is that you will do your best at all times and work effectively to reach your potential. As an A Level student you will experience greater freedom and independence with your learning, but there are a number of expectations that must be kept in mind:

Deadlines

Internal deadlines for NEA and exam work must be met. Deadlines will be clearly communicated to you by your teacher and will be organised to help support you with your time management. Pressure of work from other subject areas should not be used as an excuse for missed deadlines or underdeveloped work. You will be provided with clear guidance throughout the course to ensure that your work is progressing at the correct pace and short term deadlines will be in place for your extended NEA project work.

Health and Safety

There will be times where you may need to use the work rooms and workshops outside of curriculum time. We are keen to create these opportunities but any Design and Technology facilities must always be used with the permission of your teacher and with prior arrangement. It will be important to agree what work you wish to do so that they correct resources are available. You are not permitted to use any machinery, tools or equipment without permission and prior arrangement as some activities will require supervision. All students are expected to follow all Health and Safety expectations.

Respect for work and work spaces

There is an expectation that you will tidy up effectively at the end of each session. This includes putting away of work, cleaning of equipment, returning equipment to the correct storage space and wiping down of surfaces. Work that is needlessly left out might get lost or damaged.

Homework

You will be set homework every week and you are expected to complete it on time and to the best of your ability. If you experience a problem with the homework, it is YOUR responsibility to approach your teacher and ask for help.

Be ready to work

You must attend every lesson and arrive promptly. You should also ensure that you have the correct equipment with you to progress with your work. This will include your theory folder/s and sketch book and other support materials.

Attendance at help sessions

If it is felt that you are not making appropriate progress you will be given the opportunity to attend an after school help session. The expectation is that you will attend until your work is back on track.