# POST 16 SUBJECT OVERVIEW

**Post 16 Subject Overview**

**Name of Subject**
Product Design

**Which Examination Specification is Studied for this Course?**
Pearson Edexcel Level 3 Advanced GCE in Design and Technology

**Why should I study this course?**
This is the opportunity for you to study a subject that promotes and develops intelligence.
In this subject, you will not only acquire knowledge and skills, you will apply them. This is the definition of intelligence and is why the most sought-after, employability skills that companies look for are eminent within Design and Technology: creativity, computer skills, problem solving, adaptability, communication.

Design and Technology is integral to the future as most, if not all, careers involve technology to some degree. By studying DT, you choose to prepare yourself for this future. Essentially, you equip yourself with a technological advantage over your peers.

**Equipping you with skills**
You will be able to recognise design needs and develop an understanding of how current global issues, including integrating technology, impacts on today's world. You will be confident in your use of design software, which will be demonstrated in a portfolio of work.

**Encourages creativity and innovation**
You will have the confidence to innovate and produce creative design solutions. You will be able to develop your own design brief with a client/end user. You will be able to use computers to design complex ideas which you will be able to laser cut and 3D print.

**Future**
You will open up a huge world of career opportunities within one of the country's biggest industries: the creative industry. You will boast creative aptitude and computer competence, much sought after by employers.

**Who is suitable to study this course? -**
This course is perfect If you are interested in design or wish to pursue a career in design. It is also ideal for those who have a love for technology and using computers, building, inventing or crafting. You may be interested in becoming a games designer, graphic designer, product designer, engineer or architect etc. Conversely, you may just want to balance out an otherwise academically heavy selection of courses, with something more creative.

You must be open to new ideas, concepts and willing to push the boundaries of conventional design. The course does involve critical thinking and is heavily linked to STEM with some focus on Mathematics.

**What GCSE Qualifications Support the Study of this Course?-** The following would be advantageous: a grade 5 in Maths at GCSE, and either a BTEC pass (level 2) in any Design and Technology related subject OR a grade 5 at GCSE Design and Technology.

**What are the Qualification Requirements for this Course?** As a guide: 5 passes. GCSE grades 9-4 or BTEC Level 2 passes.

**How is the Course Delivered?**

**Taught hrs p/w:** 5 hours per week
**Expected independent study:** 3-4 hours per week
**Software:** 90% of the course is delivered through google classroom and the portfolio will be completed on google slides. This ensures you have seamless access to your work at school and at home. Sketchup is used for creating the architectural model and this can be downloaded and used at home.

**Lesson allocation:** 2hrs a week on the exam content. 3rs a week on the practical/portfolio - design and build (NEA)

**Exam Content**
Across the two years you will cover the 12 topics that will feature in the exam at the end of yr 13.

**Coursework Project (NEA)**
Across the two years you will develop the confidence to use a wide range of tools, machines and CAD to create prototypes suitable for a client/user. You will also have the opportunity to develop your creativity using a range of different presentation techniques. You will widen your knowledge of the design and make process. You will use the latest CAD software and be able to freely use the Laser Cutter and 3D Printer.

You will design and make an architectural model. This will cover social and moral implications of design, manufacturing, materials and finishes. You will have the opportunity to identify a problem, for an architectural context of your own choice, and create a portfolio of evidence to support the design and make of the building.

| **Subject Overview** | | |
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| **Half Term** | **Year 12** | **Year 13** |
| **Autumn 1** | **Coursework Project (NEA)**<br>Identifying a client<br>Practical Skills<br><br>**Exam Content**<br>Topic 1: Materials | **Coursework Project (NEA)**<br>Creating CAD drawings for laser cutting and 3d printing<br><br>**Exam Content**<br>Topic 7: Potential hazards and risk assessment |
| **Autumn 2** | **Coursework Project (NEA)**<br>Identifying a design problem<br>Practical Skills<br><br>**Exam Content**<br>Topic 2: Performance characteristics of materials | **Coursework Project (NEA)**<br>Practical Skills: laser cutter, 3d printer, vac former, Modelling with plaster<br><br>**Exam Content**<br>Topic 8: Features of manufacturing industries |
| **Spring 1** | **Coursework Project (NEA)**<br>Creating Design Ideas | **Coursework Project (NEA)**<br>Manufacturing the architectural model |

| | | |
|---|---|---|
| | Sketching techniques<br>Using Sketchup, 3D software, to generate design Ideas<br>Practical Skills<br><br>**Exam Content**<br>Topic 3: Processes and techniques | **Exam Content**<br>Topic 9: Designing for maintenance and the cleaner environment |
| **Spring 2** | **Coursework Project (NEA)**<br>Developing Ideas<br><br>**Exam Content**<br>Topic 4: Digital technologies | **Coursework Project (NEA)**<br>Manufacturing the architectural model<br><br>**Exam Content**<br>Topic 10: Current legislation |
| **Summer 1** | **Coursework Project (NEA)**<br>Developing ideas using google sketchup to make an accurate model<br><br>**Exam Content**<br>Topic 5: Factors influencing the development of products | **Coursework Project (NEA)**<br>Evaluating the build<br><br>**Exam Content**<br>Topic 11: Information handling, Modelling and forward planning |
| **Summer 2** | **Coursework Project (NEA)**<br>Developing continued<br><br>**Exam Content**<br>Topic 6: Effects of technological developments | **Exam Content**<br>Topic 12: Further processes and techniques. |

**How is the Course Assessed?**

There are two parts to the course: an exam and a coursework project (aka NEA)

## 1 - Coursework Component: Independent Design and Make Project

Non-examined assessment 50% of the qualification 120 marks

**Assessment overview**

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

## 2 - Exam Component: Principles of Design and Technology

Written examination: 2 hours 30 minutes 50% of the qualification 120 marks

**Content overview**

Topic 1: Materials
Topic 2: Performance characteristics of materials
Topic 3: Processes and techniques
Topic 4: Digital technologies
Topic 5: Factors influencing the development of products
Topic 6: Effects of technological developments
Topic 7: Potential hazards and risk assessment
Topic 8: Features of manufacturing industries

Topic 9: Designing for maintenance and the cleaner environment
Topic 10: Current legislation
Topic 11: Information handling, Modelling and forward planning
Topic 12: Further processes and techniques.

You will be assessed on one of these topics, each half term, across the two years.

**Assessment overview**
The paper includes calculations, short-open and open-response questions, as well as extended-writing questions focused on:

- analysis and evaluation of design decisions and outcomes, against a technical principle, for prototypes made by others
- analysis and evaluation of wider issues in design technology, including social, moral, ethical and environmental impacts.
- Calculators may be used in the examination.

**What is our Recommended Subject Reading list to Support your Study?** - *Book list can also include articles, websites, podcast, wider reading, links to a school intranet of resources etc*

Watching Grand Designs is essential. However, the following are interesting and will give you a broader perspective of design and the world:

TV

- Grand Designs is essential viewing in order to complete this course (4onDemand)
- Abstract: The art of design (Netflix)
- Tiny House Nation (Netflix)
- Amazing Interiors (Netflix)
- The Creative Brain (Netflix)

Podcasts:

- 50 things that made the modern economy

- The Design of Business | The Business of Design
- The Crazy One
- The Deeply Graphic DesignCast
- Method Podcast from Google Design

Games

- HouseFlipper

Youtube

- Marques Brownlee