

A Level Design Technology : Presentation 2024



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Departmental Staff

Head of Design Technology

Mr G Wykes

Teacher of Design Technology,

Mrs L Odams

Teacher of Design Technology

Mrs J Summers

All the members of staff have had industry experience before teaching bringing a real world view to the subject



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Departmental Resources

- DT1 **Engineering workshop**
- DT2 **Main workshop**
- DT3 **Graphics Room**
- DT4 **Engineering Computer Room**



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Courses Offered at A Level

A Level Product Design

Product Design covers a multi skill set within the course

Engineering

Electronics

wood skills

Graphics

CAD

Design

The course leans towards independent and forward thinking through the NEA



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Course Suitability

- **Ideal** for those who have studied GCSE Design Technology and have gained at least a grade 4 APS.
 - **Potentially** suitable for someone who has not studied Design Technology at GCSE but has demonstrated equivalent attainment in another creative subject e.g. Art / Food Preparation.
 - **Suitable** for students who thrive on coursework based subjects but also have academic qualities.
- Technical
 - Creative
 - Resilient
 - Patient
 - Independent
 - Inquisitive
 - Committed
 - Competitive



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Exam Board:

- OCR
-

Course Title:

- Design and Technology: Product Design (H406)
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Assessed Content:

- **NEA** **Non Examined Assessment 50%**
- **Exam 1** **Principles exam (Knowledge and Understanding) 26.7%**
- **Exam 2** **Problem Solving in Product Design 23.3%**



NEA – Coursework (50%)

- Learners will identify a design opportunity from a context of their own choice.
 - Create a portfolio of evidence in real time throughout the project.
 - Equates to 50% of final A-Level grade.
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Principals of Product Design examination. (26.5%)

- 4 sets of questions within the exam.
 - Existing product analysis.
 - Applied mathematical skills.
 - Technical knowledge (materials, product functionality & manufacturing processes).
 - Understanding of wider social, moral & environmental issues.
-

Problem solving in Product Design examination. (23.5%)

- Longer answer questions.
- Apply knowledge, understanding and skills of designing and manufacturing prototypes and products.
- Demonstrate higher level thinking skills to solve problems and evaluate situations.



Course Content

There are 9 different sections to the specification that **underpin** all aspects of the course. You will gain knowledge through **6 lessons per week covering both theory and small practical lessons aimed at stretching the students skill set before the NEA**. Much of the content will also be taught within the 'iterative project' which is completed from Easter of Y12 to Easter Y13.

1. Identifying Requirements
2. Learning through existing products and practice.
3. Implications of wider issues
4. Design thinking and communication
5. Material and component considerations
6. Technical understanding
7. Manufacturing processes and techniques
8. Viability of design solutions
9. Health and safety.

At GCSE you will have studied these to a large extent, but at A-Level you will go into them with more detail. This was the advantage of doing OCR at GCSE.



Iterative design Challenge



OTHER STAKEHOLDERS IN MY NEA

Real Time Evidence:
June 2020

Other Stakeholders include other families that are working at home. I spoke to some of these stakeholders on a zoom chat. I also chose these people and families as my stakeholders because they live in different parts of England so I will be able to get an idea of what it's like to work or learn at home all over England not just Staffordshire or the West Midlands. I think this is very important because I can use a range of data from my stakeholders not just area specific. I spoke to Karen Crowhurst, Marina and Emily Harris, Lorraine Gibbons, Teresa Lefort and Alison and Amelia Hall.

Karen Crowhurst from Hastings is working from home during Covid-19. She says that she finds working at home hard because she has a very small house and doesn't have a decent place to work. She would like a product that make use of the space not being used, instead of taking up more space.

Marina Harris from West Drayton has 2 children who are working and learning at home during Covid-19. Emily Harris aged 7 and Cameron Harris aged 18. Cameron Harris is doing an apprenticeship for IT so it at the moment working on his apprenticeship at home. Marina is a teacher so I think it would be really useful to include her in my product as a stakeholder because she will need to work at home and help other children work at home by contacting them over the internet.



Lorraine Gibbons from Uttroxford is currently working at home. She has a lot of space to work but would like something that would keep her on track and remind her to take breaks.

I chose Teresa Lefort from Northwood too because I think it would be helpful to ask people who aren't necessarily working from home but living at home doing arts and crafts. I think my product could also be useful.

Alison and Amelia Hall from Aylesbury. Alison is mum to Amelia Hall. Amelia is 9 and is currently learning at home due to COVID-19. I thought this would be a great opportunity to interview.

Explore

Create

Evaluate

and stakeholders questions to make sure that the product I make is best for the user and is intended to solve real-life, genuine problems for my primary user.

By using a user-centred design in my NEA, I can focus on the user interface (UI) of my product so that it will be user friendly and easy to use, my NEA will result in products that will receive higher grades because by including the user I will make sure the user and consumers will be able to use my product easily. I would do this by making a questioning and conducting focus groups to see how the user and possible stakeholders would interact and use other existing products and consider the user interface of the product and consider how I can make my product as user-friendly or more user-friendly if needs be.

My primary user will look at the prototypes I make to see if they are going in the right direction, they will test them and analyse them. I will use anthropometric data, ergonomics, averages and percentiles with my primary user to continue my user-centred design through out my project.



On this page: I will be completing a primary user interview and designing my product.
Next Steps: I will be completing a survey with companies.

Explore

Create

Evaluate



Feedback can be collected from interviews, collaboration observations and questionnaires.



Explore

Create

Evaluate

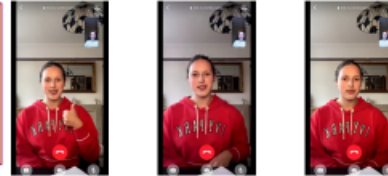
PRIMARY USER INTERVIEW

Real Time Evidence:
June 2020

far in my NEA, I have picked a design context and brief and my primary user and I have acknowledged stakeholders. Now I am completing and doing interviews with my primary user and stakeholders.

Now I have an interview with my Primary User, Jessica. I have a video called Jessica, my Primary User because at the moment I am not able to meet her because of COVID-19 restrictions, but as soon as I am able to, I will. I first we completed the interview by using a video call, but when we finished we realised by recording it, the sound doesn't record too. Therefore we have completed the interview written down too and attached it below.

The right shows a video call that I completed with Jess as my primary user to gain an insight into what she understands about the project so far. I think video calling her was more helpful because it was easier to talk to her rather than write. In the video interview, Jessica had many ideas of a product that she imagines and what she thinks is important that I should include in the NEA.



My design brief is:
98.5% of the worlds student population are unable to go to school colleges (primarily at this time due to COVID-19). They need design and create a product to help all people learn/work easily or raise distractions when they are learning at home.
As my primary user in my product, you will influence the products design as well as what my product needs to have and what you want it to have.
Therefore I am having this interview with you so I can gain an insight into what you would focus on in this product and what you think is for.
I'm going to start the interview now?

1. From my design brief, what type of product do you imagine?
I imagine a product that has a timer for 45 and then a block of 15, reminds to study, a bright light to keep a person awake when studying and also able to produce quiet background noise to aid concentration of the person at home.
2. What would you like to use in a product like this?
I would like it to be sustainable and as environmentally friendly as possible as well as pretty as I want to use it and have a wide range of designs for a range of people.
3. What materials would you like to see in this product?
I would like to see woods and plastics for different designs to suit a range of people.
4. Do you think designs would be good in a product like this?
Yes it will make it more pleasing to more people who use the product once a range of people will buy the product.

5. How often would you use this product?
Every day as I am a sixth form student and get lots of home work and studying to complete even when not in school.
6. What would be the best place to use this product in your house?
I would use it in my room as that is where I like to do my work.
7. How do you think it would be useful for a range of people and ages and culture?
Yes it should be suitable for a range of people and ages and culture.
8. Would you prefer better colours or bright?
Bright as it helps keep you alert when studying.

This interview with Jess is very important because as she is my primary user, she has a lot of influence over my product and NEA. This interview enabled me to understand what Jess is thinking about my design brief and context so far, as well as the needs and wants she has to go into my product.

Needs and wants:

- "a light to keep a person awake when studying and alert"
- "aid concentration"
- "sustainable and as environmentally friendly as possible"
- "pretty"
- "wide range of designs"
- "for a wide range of people"

Explore

Create

Evaluate

On this page: I will be starting strand 1.2: I will do this by investigating what a user-centred design is and how I will be using it through-out NEA.


Next Steps: On the Next Page I will be choosing a design brief and laying out the information for my NEA chosen context.

On this page: I will be meeting my stakeholders that will have less influence over my product but will be very useful.


Next Steps: I will be investigating wider issues such as social, cultural, ethical, moral and environmental issues.

Iterative design Challenge


CIRCUIT BOARDS INVESTIGATION



VIDEO

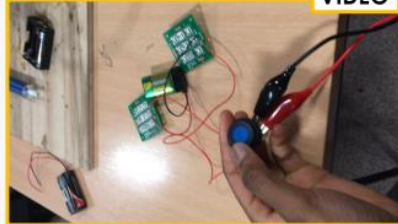


VIDEO



ARTIFICIAL OUTDOOR LIGHTING

VIDEO



Second circuit
The LED on the switch turns on this time when I increase the voltage source.
Negatives
This may mean I will require a greater voltage source than a 9 volt battery.

First circuit
I started by making a simple circuit that turned on and off at the push of a button. This was achieved using three wires, a 9volt battery and the two LED boards.
Positives
I was able to see the efficiency of the LED's, they are very bright.
Negatives
The switch did not switch on and so I am going to increase the voltage by introducing another power source.

Development →

Next steps: Use live wire to design a PCB


Commercial benefits of soldering

- This is to ensure that they are firmly secured to the board and increase their reliability.
- Soldering was a relatively inexpensive process as it was using the metal solder which is also readily accessible

Environmental benefits

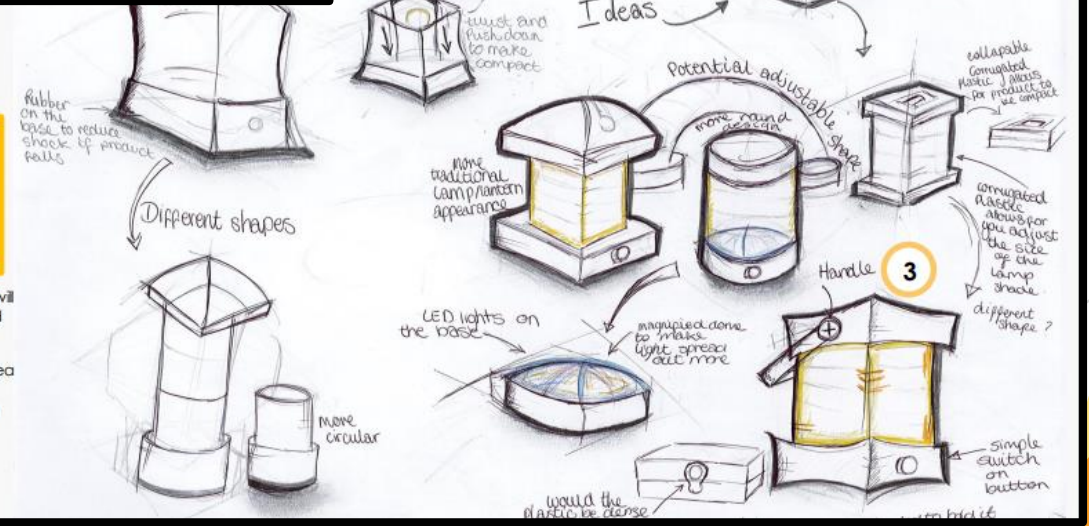
- Soldering is a reversible process and so if there are any faults, components that require replacement or repair it can be easily done by applying the soldering iron to the soldered component and using a de-soldering tool.





On following slide I will explore, explain and evaluate each of these designs, to decide on which idea I will focus on developing to then decide on a final design.

Initial Ideas



Annotations include: "Rubber on the base to reduce shock if product falls", "Different shapes", "more traditional lamp/lantern appearance", "LED lights on the base", "more circular", "would the plastic be dense", "Potential adjustable shade", "Handle 3", "collapsible corrugated plastic pieces for products to be compact", "arranged plastic allows for you adjust the size of the lamp shade", "different shape?", "simple switch on button", "enlarged dome to make light spread out more", "clear the cap part that holds the bulb", "collap".

EVALUATE CREATE EXPLORE
 24 / 10 / 18
 30mins

EVALUATE CREATE EXPLORE
 24 / 10 / 18
 25mins

Wider Curriculum Opportunities

Mechanical Engineering

Electrical Engineering

The list is endless !!!!

