

## Year 12 Design & Technology Product Design (Project)

### Learning Programme 4

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| <p>The LORIC skill focus for his LP is: INITIATIVE.</p> <p>The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles.</p> <p>Gratitude - Feeling and expressing thanks.</p> <p><b>What will I be learning about in this Learning Programme?</b><br/>How designers use digital technologies such as CAD/CAM to design and model ideas. How to use a variety of processes, including soldering, to produce a working desk lamp. How to test and evaluate a desk lamp against user requirements. How to initiate my Iterative Design Project by exploring the feasibility of potential design contexts.</p> <p><b>Where have I seen this learning before?</b><br/>At GCSE level you will have used CAD 2D design to plan out the design of your prototypes; you will also have used the laser cutter to manufacture prototypes. You will have explored given contexts when completing your GCSE NEA in year 11.</p> <p><b>What could I use it for?</b><br/>You will utilise your knowledge and understanding of CAD/CAM when designing and manufacturing prototypes for your A Level NEA, the Iterative Design Project. You will also apply your knowledge of manufacturing when completing the A Level examination papers.</p> | <p><b>Literacy:</b></p> <ul style="list-style-type: none"> <li>• Capital letters must be used at the start of sentences and for the first letter of proper nouns</li> <li>• Full stops must be used at the end of a sentence</li> <li>• Question marks must be used at the end of a question</li> <li>• Apostrophes should only be used for possession or omission</li> <li>• Days of the week and months must be spelled correctly</li> <li>• Key words must be spelled correctly</li> </ul> |
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| <p><b>In LP4.1, I will know:</b> 04/03/24 - (WK 1)</p> <p>how to use the laser cutter to produce an initial sketch model of the desk lamp (7.2c);<br/>how to use my initiative when working on the manufacture of my lamp prototype.</p> | <p><b>Key Vocabulary</b></p> <p>Extractor</p> | <p><b>Homework</b></p> <p>CAD Techsoft 2D Design task.</p> |
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| <p><b>In LP4.2, I will know:</b> 11/03/24 - (WK 2)</p> <p>how to manufacture the desk lamp using workshop tools, processes and CAD/CAM;<br/>how to use a range of manufacturing tools and equipment safely, whilst showing gratitude for the resources provided;<br/>my strengths and areas for development for my learning so far.</p> | <p><b>Key Vocabulary</b></p> <p>Quality control</p> | <p><b>Homework</b></p> <p>CAD / CAM laser cutter task.</p> |
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| <p><b>In LP4.3, I will know:</b> 18/03/24 - (WK 1)</p> <p>how to identify next steps in my final desk lamp manufacture;<br/>how to use the soldering process to attach electronic components to a printed circuit board (PCB).</p> <p>Extended Task.</p> | <p><b>Key Vocabulary</b></p> <p>Printed circuit board (PCB)</p> | <p><b>Homework</b></p> <p>Soldering process.</p> |
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| <p><b>In LP4.4, I will know:</b> 25/03/24 - (WK 2)</p> <p>how to apply finish and assemble my desk lamp component parts;<br/>how to test and evaluate my desk lamp against user requirements.</p> | <p><b>Key Vocabulary</b></p> <p>User requirements</p> | <p><b>Homework</b></p> <p>Explore three potential NEA design contexts.</p> |
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| <p><b>In LP4.5, I will know:</b> 15/04/24 - (WK 1)</p> <p>how to explore three potential design contexts, using the 5W mind mapping strategy;<br/>how to present real time evidence of each potential design context.</p> | <p><b>Key Vocabulary</b></p> <p>Design context</p> | <p><b>Homework</b></p> <p>Mind mapping - 5Ws strategy.</p> |
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| <p><b>In LP4.6, I will know:</b> 22/04/24 - (WK 2)</p> <p>how to present feasibility studies for each design context;<br/>how to present a marketability survey using charts and graphs.</p> <p>Extended Task.</p> | <p><b>Key Vocabulary</b></p> <p>Feasibility study</p> | <p><b>Homework</b></p> <p>Feasibility study - marketability surveys.</p> |
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| <p><b>In LP4.7, I will know:</b> 29/04/24 - (WK 1)</p> <p>how to present a design brief for my selected design context and identify stakeholders;<br/>how to plan for the project management of my iterative design research.</p> | <p><b>Key Vocabulary</b></p> <p>Project management</p> | <p><b>Homework</b></p> <p>Project management plan for research.</p> |
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| <p><b>In LP4.8, I will know:</b> 06/05/24 - (WK 2)</p> <p>which areas of primary and secondary research I will require for my individual NEA;<br/>how to compile a primary user interview to collect and present user requirements, using my integrity.</p> | <p><b>Key Vocabulary</b></p> <p>Market research</p> | <p><b>Homework</b></p> <p>Interview primary user.</p> |
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| <p><b>Resources to support learning:</b></p> <p>The following websites contain extensive revision material and information to increase design &amp; technology subject knowledge: <a href="http://www.technologystudent.com">www.technologystudent.com</a>; Product design maker YouTube tutorials <a href="http://www.productdesignermaker.com">www.productdesignermaker.com</a>; Jude Pullen's Lockdown Lectures from Bangor University - YouTube.</p> |
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| <p><b>FFET Award Challenge for this Learning Programme:</b></p> <p>Complete a computer aided design challenge.</p> |
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## Year 12 Design & Technology Product Design (Theory) Learning Programme 4

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| <p>The LORIC skill focus for this LP is: INITIATIVE.</p> <p>The Moral Virtues focus for this LP are: INTEGRITY and GRATITUDE.</p> <p>Integrity - Having strong moral principles.</p> <p>Gratitude - Feeling and expressing thanks.</p> <p><b>What will I be learning about in this Learning Programme?</b><br/>To know the characteristics of different scales of production. To know types of the automated handling systems in manufacturing and distribution. To understand quality control, quality assurance, Total Quality Management (TQM), British and European Standards. Intellectual property, ethics, economy and globalisation. To know the methods of testing design solutions and how designers test the feasibility of getting products to market. To know the standards met in design solutions (ISO, BSI). To know physical testing is required to meet technical specifications.</p> <p><b>Where have I seen this learning before?</b><br/>At GCSE level in Design &amp; Technology you will have learnt about a range of manufacturing processes as well as how products are manufactured to different scales of production according to demand.</p> <p><b>What could I use it for?</b><br/>You will apply your knowledge to different manufacturing processes to produce prototypes for your A level exam and non-examined assessment. You will be able to identify how a range of everyday products are manufactured.</p> | <p><b>Literacy:</b></p> <ul style="list-style-type: none"> <li>• Capital letters must be used at the start of sentences and for the first letter of proper nouns</li> <li>• Full stops must be used at the end of a sentence</li> <li>• Question marks must be used at the end of a question</li> <li>• Apostrophes should only be used for possession or omission</li> <li>• Days of the week and months must be spelled correctly</li> <li>• Key words must be spelled correctly</li> </ul> |
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| <b>In LP4.1, I will know:</b>   | <b>04/03/24 - (WK 1)</b> | <b>Key Vocabulary</b> | <b>Homework</b>            |
| how materials are joined together through temporary and permanent processes (7.2a). |                          | Standard components   | Materials joining methods. |

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| <b>In LP4.2, I will know:</b>   | <b>11/03/24 - (WK 2)</b> | <b>Key Vocabulary</b> | <b>Homework</b>       |
| the different scales of production and how these are influenced by consumer demand (7.4a);<br>how automated handling systems are used in commercial manufacturing (7.3a);<br>my strengths and areas for development for my learning so far. |                          | Scales of production  | Scales of production. |

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| <b>In LP4.3, I will know:</b>   | <b>18/03/24 - (WK 1)</b> | <b>Key Vocabulary</b> | <b>Homework</b>            |
| how manufacturers ensure consistent accuracy and quality during manufacture (7.3b);<br>why manufacturers need to optimise the use of materials and production processes (7.3c). |                          | Optimise              | Accuracy in manufacturing. |
| Extended Task.  |                          |                       |                            |

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| <b>In LP4.4, I will know:</b>   | <b>25/03/24 - (WK 2)</b> | <b>Key Vocabulary</b> | <b>Homework</b>                              |
| how ICT and digital technologies are changing modern manufacturing (7.4b);<br>how the quality of products is controlled through manufacture, by utilising a range of quality assuring processes (7.5a). |                          | Additive manufacture  | ICT and digital technology in manufacturing. |

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| <b>In LP4.5, I will know:</b>   | <b>15/04/24 - (WK 1)</b> | <b>Key Vocabulary</b> | <b>Homework</b>   |
| how designers assess whether a design solution meets its stakeholder requirements (8.1a,b,c). |                          | Feasibility           | Assessing if user requirements are met in design solutions. |

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| <b>In LP4.6, I will know:</b>   | <b>22/04/24 - (WK 2)</b> | <b>Key Vocabulary</b> | <b>Homework</b>     |
| which standards need to be met when getting products to market (BSI, ISO) (8.1d);<br>how designers and manufacturers assess whether a design solution meets the technical specification (8.2a). |                          | Standards             | BSI, ISO Standards. |
| Extended Task.  |                          |                       |                     |

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| <b>In LP4.7, I will know:</b>  | <b>29/04/24 - (WK 1)</b> | <b>Key Vocabulary</b> | <b>Homework</b>             |
| how physical testing systems are integrated into the manufacturing process in the design industry to test functional feasibility (8.2b). |                          | Physical testing      | Testing design feasibility. |

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| <b>In LP4.8, I will know:</b>  | <b>06/05/24 - (WK 2)</b> | <b>Key Vocabulary</b> | <b>Homework</b>       |
| how designers and manufacturers determine whether design solutions are commercially viable (8.3a). |                          | Commercial viability  | Commercial viability. |

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| Complete a computer aided design challenge.              |