**Curriculum – Design technology Faculty**

 **(2024 – 2025)**

**Key stages 3 to 5**



**Intent**

Our focus is on delivering a broad and engaging curriculum that allows students to develop their creative, technical, and problem-solving skills. We want students to experience and learn new skills across a range of design and technology disciplines, ensuring they have a strong foundation in practical and theoretical knowledge.

We aim to:

**Challenge** all students to be the best they can be.
Provide students with the **knowledge** required to be successful in design, engineering, and manufacturing.
Develop **Character, Organisation, Resilience, and Excellence (C.O.R.E. values)** to create confident and capable problem solvers.
Provide students with **ambition and aspirations** to pursue careers in design, engineering, and manufacturing

Our faculty’s mission is to **equip students with a robust understanding of design technology principles, practical making skills, and the ability to apply creative thinking to solve real-world problems.** We aim to develop students who are not only proficient in using design tools but also innovative thinkers and responsible designers.

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| Design Technology / Engineering​ | NCFE ENGINEERING ​ |
| ​ | Y7​ | Y8​ | Y9​ | Y10​- NCFE ENGINEERING  | Y11​- NCFE ENGINEERING |
| Autumn A​ | **Desk Tidy​**Introduction to workshop safety and exploration of basic hand tools.​ | **Bit Stop Desk Organiser**​Use of machines and hand tools to produce a range of wood joints. Use of CAM (Laser cutter) ​ | **Passive Amplifier​**use of workshop tools to independently follow a SOP (Sequence of production) to produce a final product.​ | Content area 1 Engineering disciplines 15 Hours​ | Content area 8 Production planning techniques 10 Hours​ |
| Autumn B​ | Content area 2 Applied science and mathematics in engineering 15 Hours ​ | Content area 9 Applied processing skills and techniques 16 Hours ​ |
| Spring A​ | Content area 3 Reading engineering drawings 10 Hours​​**Mock NEA**​ | NEA DELIVERY​ |
| Spring B​ | **Down Hill Race Car​**Exploration of workshop machines- Vacuum Former-Pillar Drill ​ | **Wooden Robot​**Use of hand tools, measuring and marking skills. Produce a Production plan and follow a production plan when making.​ | **CAD**​Introduction into using the laser cutter works and have access to making a variety of different products including: ​* Rulers
* Phone Holder
* Keyring

​ | Content area 4 Properties, characteristics and selection of engineering materials 15 Hours​​**Mock NEA**​ | NEA DELIVERY​ |
| Summer A​ | Content area 5 Engineering tools, equipment and machines 15 Hours Content area 6 Hand-drawn engineering drawings 12 Hours​ | NEA DELIVERY/ EXAM / Content Boost!​ |
| Summer B​ | Content area 7 Computer-aided design (CAD) engineering drawings 12 Hours​ | ​ |

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|  | AQA A level Product design  | AQA A level Product design ​ |
| ​ | Y12 | Y13 |
| Autumn A​ | 3.1.1 – Materials and their applications 3.1.2- Performance characteristics of materials3.1.3 – Enhancement of materials  | NEA3.2.7 – Accuracy in design and manufacture 3.2.8 – Responsible Design 3.2.9- Design for manufacture and project management  |
| Autumn B​ | 3.1.4 – Forming, redistribution and addition processes3.1.5 – The use of finishes 3.1.6 – Modern industrial and commercial practice  | NEA3.2.10 – National and international standards in product design.Exam boost/ NEA  |
| Spring A​ | NEA3.1.7 – Digital Design and manufacture 3.1.8 – The requirements for product design and development 3.1.9 – Health and safety 3.1.10 – Protecting designs and intellectual property | Exam Boost /NEA  |
| Spring B​ | NEA3.1.11- Design for manufacturing, maintenance, repair and disposal3.1.12 – Feasibility studies 3.1.13 – Enterprise and marketing in the development of products3.1.14- Design Communication | Exam Prep/ NEA  |
| Summer A​ | NEA3.2.1- Design methods and processes 3.2.2 – Design Theory 3.2.3 – How technology and cultural changes can impact on the work of designers | Exam Prep/ NEA  |
| Summer B​ | ​NEA3.2.4 – Design Processes 3.2.5 – Critical analysis and evaluation 3.2.6 – Selecting appropriate tools, equipment and processes  |  ​ |

**Our contribution to CORE and personal development:**

Our contribution to personal development at OSWB, is that our subject believes academic success is important, but so is developing well-rounded individuals that are able to take concepts from the classroom and apply it to real life situations. Our C.O.R.E values help students grow into confident and capable designers, and for some this allows them to pursue a career in design technology.

Character – taking responsibility for their design choices and the impact of their work.

Organisation – managing projects from concept to completion, meeting deadlines, and producing detailed documentation.

Resilience – learning from failure, iterating designs, and refining ideas based on feedback.

Excellence – striving for high-quality work that meets industry standards and showcases creativity.

**Our Contribution to Numeracy**:

Strong numeracy skills are essential for students when studying design technology. Understanding measurements, scaling, and proportions is crucial in designing and creating functional products. Students apply mathematical concepts such as geometry and trigonometry to calculate dimensions, angles, and areas when designing structures or components. Numeracy is also necessary for material calculations, such as determining weight, strength, and cost, ensuring designs are both practical and feasible.

**Our Contribution to Literacy:**

 Pupils develop critical reading skills by interpreting and understanding complex design briefs, technical specifications, and product documentation. They learn to extract relevant information, understand industry terminology, and follow detailed instructions to create functional designs. Design technology emphasizes the importance of clear and precise communication. Pupils engage in writing design reports, project proposals, and evaluation summaries, requiring them to explain their design process, decisions, and solutions in a consistent manner. This practice enhances their ability to articulate complex ideas effectively.

**Conscious curriculum links:**

At KS3 many links can be found with other subjects. Here is an example of a few:

* **Maths:** DT involves measuring, scaling, and geometric concepts in design and engineering calculations.
* **Science:** Understanding material properties, forces, and mechanisms links directly to physics and chemistry.
* **Art:** Design principles, sketching, and rendering techniques share links with arts.
* **Computing:** digital manufacturing, and automation connect with computing and programming.