



## Curriculum Overview: Engineering Manufacture

Exam Board OCR

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
7						
8						
9						
10	<ul style="list-style-type: none"> <li>Intro to GCSE Engineering</li> <li>Intro to specification</li> <li>Reading engineering drawings</li> <li>Risk assessment in the workshop</li> <li>Practical engineering drawing</li> <li>Intro to coursework R015</li> </ul>	<ul style="list-style-type: none"> <li>Intro to GCSE Engineering</li> <li>Label engineering drawing (categories, properties &amp; testing)</li> <li>Marking out on materials</li> <li>Plan of making</li> </ul>	<ul style="list-style-type: none"> <li>Materials &amp; Properties</li> <li>Manufacturing processes (wasting)</li> <li>Turning &amp; milling</li> <li>Marking out</li> <li>Photography</li> <li>Developing CWR015</li> </ul>	<ul style="list-style-type: none"> <li>Materials &amp; Properties (finishing, joining)</li> <li>Drilling, bending &amp; threading</li> <li>Assembly</li> <li>Photographs</li> <li>Hand in R015</li> </ul>	<ul style="list-style-type: none"> <li>Processes</li> <li>Manufacturing processes (shaping, injection moulding, casting)</li> <li>3 x skills tests</li> <li>Final touches and rework off R015 if required</li> </ul>	<ul style="list-style-type: none"> <li>Processes</li> <li>Manufacturing processes (forming, pressing, forging)</li> <li>3 x skills tests</li> <li>Mock exam revision</li> <li>Mock exam</li> </ul>
11	<ul style="list-style-type: none"> <li>Manufacturing</li> <li>Scale of manufacture</li> <li>Robotic, automation, CNC</li> <li>CAD software</li> <li>2D Design on shape</li> <li>Introduction to R016</li> <li>Making templates</li> </ul>	<ul style="list-style-type: none"> <li>Programming</li> <li>Quality control</li> <li>CAD &amp; Programming</li> <li>Post processing</li> <li>G Code</li> <li>Standard Operating Procedures</li> </ul>	<ul style="list-style-type: none"> <li>Globalisation</li> <li>Inventory management</li> <li>Lean manufacturing</li> <li>Operating laser cutter using CNC</li> <li>Evidence of CAD photos</li> <li>Evidence of making photos</li> </ul>	<ul style="list-style-type: none"> <li>Globalisation</li> <li>Globalising</li> <li>Digital technology</li> <li>Using templates (accuracy &amp; tolerance)</li> <li>Quality control photos</li> <li>R016 - hand in coursework</li> </ul>	<ul style="list-style-type: none"> <li>Exam Prep &amp; Exam</li> <li>Final exam revision</li> <li>Final touches and rework of R016 if required</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>NA</li> </ul>

## Curriculum Intent

- We believe that all learners deserve a **broad and balanced curriculum** that involves learners developing their **practical skills** and **substantive knowledge** through Key stage 3 and into their options at Key stage 4.
- The Technology curriculum has been developed to give learners access to a series of Design and Technology based subjects, providing meaningful links with **career pathways, further education, and enrichment opportunities**.
- From year 7 to 9, learners are exposed to a series of practical activities that focus on the key areas of Design and Technology, 3d Design and Engineering – These projects are mapped to introduce **traditional hand making skills, digital technology, model making and design iteration**. Importantly it also supports learners to nurture an innovative approach to the world around them.
- The full design cycle is explored ensuring that our learners can research, generate ideas, and communicate these effectively. From here clear planning can be demonstrated and finally practical skills are taught to bring ideas to reality.
- A full range of materials are taught, and the practical skills encompass a range of **hand tools and machines** that bring together the skills and knowledge required to be successful in DT, Engineering and 3D Design. From **laser cut wooden artefacts**, through to **metal lathe and milling work**, the curriculum is designed to bring a broad range of skills and knowledge to our learners.
- The curriculum map is both **progressive** and **flexible** to allow the inclusion of developing technologies and ideas. It is underpinned with the need to provide **engaging projects**, links to external vocational based concepts and the need to provide our young people with the necessary skills to equip them for the current employment opportunities locally and nationally.
- The Technology curriculum has areas for **progress, stretch and challenge, resilience** tasks as well as a strong link towards learners with SEND
- Learners will leave with an outstanding knowledge and understanding of their chosen vocational discipline. They will also have a clear understanding of the limitless possibilities a qualification in a Technology based subject would lead to.

## Curriculum Implementation

- Learners will enjoy a wide range of activities that require learners to utilise their practical ability as well as their ability to retain required knowledge and understanding of each subject. Learners will work and collaborate on extra-curricular activities with industry professionals, to not only develop expert knowledge and understanding but to gain an insight into how skills learners develop can transfer over to a professional setting. They will also develop cultural capital that will help remove barriers to achievement in school, future learning, and the world of work.
- Produce work which can act as a live portfolio to advertise their developing skills to prospective employers in the future. They will also allow learners to articulate and express their ideas, views, and opinions about a wide range of topics clearly, confidently, and respectfully
- Teachers will help develop character, including resilience, confidence, and independence, so that they contribute positively to the life of the school, their local community, and the wider environment.
- Design and Technology staff use explicit and implicit vocabulary instruction, such as using the Frayer model and Glossaries for learners to develop their understanding of words.
- Teachers will use 20% adaptation of the SMART curriculum developed by the CTL, to differentiate and personalise the lessons for learner progression.
- All schemes of work regardless of level or specialism will show clear and transparent progression, be purposefully sequenced and regularly revisit skills to promote a persistent change in long term memory.
- Throughout lessons, teachers use cold-calling strategies to assess the learning and to stretch learners understanding. Through intellectual preparatory work, teachers may pre-plan the questions to probe responses to texts.
- Following the Design and Technology department feedback policy, teachers give regular feedback to learners against key assessment objectives through strategies such as 'demonstrate and connect', WWW and EBI and verbal feedback during the lesson. Learners respond to this feedback to make incremental improvements to their work, identified in green pen (Green for Growth).
- Through regular tracking and monitoring, teachers can identify learners who may need intervention through assessments such as NGRT in KS3 and mock exams in KS4. Through monitoring and follow ups, we make sure that learners have the appropriate amount of support, which requires a regular liaison with class teachers, SENCO, parents/guardians and learning managers to identify what might help each pupil make the next steps in their learning