


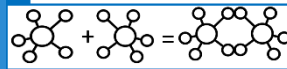



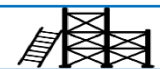




**1a) Intent:** The NCFE qualification provides a broad introduction to Engineering and different disciplines within Engineering in order to inform students on where their career may take them and which parts of Engineering are of interest to them. Engineering firms in the local area and nationally are desperately in need of young people wanting to come and work in the industry. The OCR Engineering Manufacture course further develops their knowledge and practical abilities so that they are at an employable standard and have also further refined their career choices. Coupled together this combination of courses provides both the individual student and the employer base with better prospects in the future

**1b) Careers and further study:** Any field of Engineering such as mechanical, civil, biomedical, electronics and electrical are options for students who have taken these qualifications. This may be as an apprentice at 16 or after further study of either vocational courses such as the BTEC Level 3 Engineering or A-Levels. After this routes into Engineering range from employment, University or Degree level apprenticeships both in the UK and abroad.

**2) Implementation:** What do we do in lessons? The courses are built around five lessons a week which are split into 2 workshop, 2 classroom and 1 computer room. This variety gives students a chance to study in a range of environments and put into practice what they have learned. They will all complete 3 pieces of coursework over the two years and have the opportunity to come out with two Level 2 Engineering qualifications alongside their other GCSEs.

### Implementation – Pedagogical approaches including Rosenshine principles of instruction

Daily Review	New Material in Small Steps	Ask Questions	Provide Models	Guide Student Practice	Check Student Understanding	Obtain High Success Rate	Scaffolds for Difficult Tasks	Independent Practice	Weekly and Monthly Review
 <p>Daily review is an important component of instruction. It helps strengthen the connections of the material learned. Automatic recall frees working memory for problem solving and creativity.</p>	 <p>Our working memory is small, only handling a few bits of information at once. Avoid its overload—present new material in small steps and proceed only when first steps are mastered.</p>	 <p>The most successful teachers spend more than half the class time lecturing, demonstrating and asking questions. Questions allow the teacher to determine how well the material is learned.</p>	 <p>Students need cognitive support to help them learn how to solve problems. Modelling, worked examples and teacher thinking out loud, help to clarify the specific steps involved.</p>	 <p>Students need additional time to rephrase, elaborate and summarise new material in order to store it in their long-term memory. More successful teachers build in more time for this.</p>	 <p>Less successful teachers merely ask "Are there any questions?" no questions are taken to mean no problems. False. By contrast, more successful teachers check on all students.</p>	 <p>A success rate of around 80% has been found to be optimal, showing students are learning and also being challenged. Better teachers taught in small steps followed by practice.</p>	 <p>Scaffolds are temporary supports to assist learning. They can include modelling, teacher thinking aloud, cue cards and checklists. Scaffolds are part of cognitive apprenticeship.</p>	 <p>Independent practice produces "overlearning" - a necessary process for new material to be recalled automatically. This ensures no overloading of students' working memory.</p>	 <p>The effort involved in recalling recently-learned material embeds it in long-term memory. And the more this happens, the easier it is to connect new material to such prior knowledge.</p>
<ul style="list-style-type: none"> <li>Every unit of work has a series of quiz questions to help students recall key knowledge. These are used in lessons and for prep work.</li> </ul>	<ul style="list-style-type: none"> <li>Teachers define and chunk the steps for students to follow when learning new material. These steps are agreed across the department.</li> </ul>	<ul style="list-style-type: none"> <li>Teachers use cold calling, pair share and stretch it TLAC strategies to check for mastery. Questions are pre-planned.</li> </ul>	<ul style="list-style-type: none"> <li>The visualiser is used across the department. Teachers will 'live' model to demonstrate how to construct analytical and creative texts.</li> </ul>	<ul style="list-style-type: none"> <li>Tasks and activities have been designed so that automaticity can be achieved. Repetition and revision is built into tasks.</li> </ul>	<ul style="list-style-type: none"> <li>Specific mastery checks are embedded into SOLS so that teachers can check for mastery.</li> </ul>	<ul style="list-style-type: none"> <li>We use I do, We do, You do to build students retention of key procedural knowledge and support automaticity.</li> </ul>	<ul style="list-style-type: none"> <li>Scaffolds are pre-planned so that there is consistency across the department. Testing includes memorisation of scaffolds.</li> </ul>	<ul style="list-style-type: none"> <li>Students repeat activities and tasks at spaced intervals to support learning of key procedural knowledge as well as knowledge.</li> </ul>	<ul style="list-style-type: none"> <li>We map our quiz questions so that we can test core learning throughout the year. All SOLS have defined 'retention' knowledge.</li> </ul>

KS4	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 10 NCFE Level 1/2 Engineering	CA1 – Engineering Disciplines and H&S CA2 – Applied Science and Maths in Engineering CA3 – Reading Engineering Drawings	CA4 – Materials CA7 - CAD	CA6 – Drawing Engineering Drawings	CA8 – Production Planning Techniques CA9 – Applied Processing Skills and Techniques	Revision	Yr10/12 PPES
	Assess DT skills and teach safe working, basic hand skills and bench work	CA5 – Tools, Equipment and Machines Introduction to the Pillar Drill	NCFE NEA	NCFE NEA	NCFE NEA Introduction to the Lathe and Milling Machine	
Year 11 OCR Level 1/2 Engineering Manufacture	TA1 – Manufacturing Processes	TA2 – Engineering Materials	TA3 – Manufacturing Requirements	TA4 – Developments in Engineering	Revision	Exams and revision
	OCR Manufacture R015 – Manufacture a One-off Product		R016 – Manufacturing in Quantity	R016 – Manufacturing in Quantity	R016 – Manufacturing in Quantity	Exams and revision

3)Impact:

Data analysis of Summer exam series 2023

Y11 Grades	All students in subject %	SEN %	Disadvantaged (PP) %	Males %	Females %	Students to target	Action	Outcomes
L2D* - L2D	8							
Mar Mock L2D* - L2D								
L2D* - L2M	24							
Mar Mock L2D* - L2M								
L2D* - L2P	44							
Mar Mock L2D* - L2P								
L2D* - L1P	84							
Mar Mock L2D* - L1P								

Destinations:

UTC – 14 Students chose to stay at UTC Swindon to study STEM subjects

Apprenticeships- 7 obtained Engineering based apprenticeships

Work placements-