

Year 10 NCFE LEVEL 1/2 TECHNICAL AWARD IN ENGINEERING.

This qualification is designed for learners who want an introduction to engineering that includes a vocational and project-based element. The course is designed to provide learners with the skills, knowledge and understanding of the applied study of good engineering practices and an understanding of working in the sector. The qualification will appeal to learners who wish to pursue a career in the engineering sector or progress onto further study.

Methods of deepening and securing knowledge:

Retrieval practice	Theory and practical sessions are used as opportunities to revisit prior learning. Before students embark on any new project, they are reminded of the links to the key theory covered in the course. Students will frequently revisit theory and skills they have used in previous tasks, building knowledge through questioning and further application of tasks. The practical work itself allows students to apply their prior learning in real-life contexts, which helps to secure students' understanding.
Elaboration	Through exciting new projects students are able to elaborate on new making methods and techniques to extend skills further.
Concrete examples	Demonstrations are used to consolidate understanding of processes and techniques.
Knowledge organisers	Knowledge organisers are used to inform students of the skills and techniques used throughout the project and develop research skills needed in the tasks.

	Autumn term 1	Autumn term 2	Spring term 1
Topic(s)	Understanding the engineering world/ Sheet metal tray Engineering Disciplines 1.1 Mechanical, electrical and electronic, Aerospace, Communications, Chemical, Civil, Automotive, Biomedical, Software Health and safety 1.2 Health and safety legislation: HASAWA, PPE Regulations, MHOR, COSHH, RIDDOR Maths in Engineering 2.1 Application of basic SI units in projects and	Understanding the engineering world/ Sheet metal tray Engineering Drawings 3.1 Reading Engineering Drawings 3.1.1 Drawing conventions 3.1.2 British Standards Properties and Characteristics of Materials 4.1 Properties and Characteristics of Materials 4.1.1 Properties	Understanding the engineering world (exam) Tools and Equipment 5.1 Tools, Equipment and Machines 5.1.1 Marking-out 5.1.2 Modification 5.1.3 Joining 5.1.4 Finishing 5.2 Safe and Correct Use 5.2.1 Control measures

	products 2.2 Equations used to Describe and Calculate Energy, Forces and Motion, Electrical, Geometry 2.2.1 Equations for properties 2.2.2 Application of equations in projects and products	4.1.2 Characteristics 4.1.3 Materials Pupils will also generate an orthographic engineering drawing and isometric Engineering drawing of their sheet metal tray.	
Assessment	Assessment by end of unit test and ongoing assessment.	Assessment by end of unit test and ongoing assessment.	Assessment by end of unit test and ongoing assessment.
CEIAG <i>(Careers that are linked to that topic)</i>	Looking at all engineering sectors and job roles within them.	Designers and world-wide recognised technical language of drawing, BS8888.	

	Spring term 2	Summer term 1	Summer term 2
Topic(s)	Exam Unit 1 Exam Revision for Unit 1 First exam attempt March	Unit 02 Skills and techniques in engineering Outcome: CNC Coaster Synoptic Project Mock (Unit 2 Preparation) LO1 Produce hand drawn engineering drawings 1.1 Engineering drawings 1.1.1 A freehand sketch 1.1.2 An A3 hand drafted isometric drawing sheet 1.1.3 An A3 hand drafted orthographic drawing sheet LO2 Produce Computer Aided Design (CAD) engineering drawings 2.1 Engineering drawings 2.1.1 An A3 CAD isometric drawing sheet 2.1 Engineering drawings 2.1.2 An A3 CAD orthographic drawing sheet	Unit 02 Skills and techniques in engineering Outcome: CNC Coaster Synoptic Project Mock (Unit 2 Preparation) LO3 Demonstrate production planning techniques 3.1 Production planning 3.1.1 Risk Assessment 3.1.2 Production plan <ul style="list-style-type: none"> • Tools and equipment • Health and safety • Quality control • Flow chart symbols • Time plan 4.1 Skills and techniques 4.1.1 Prepare materials Cleaning, marking out Modify shape and size of Materials-Cutting,

			drilling, bending, casting, CAM 4.1.2 Join materials- Riveting, gluing, bolting, soldering 4.1.3 Finish materials Filing, sanding, polishing, applying a surface finish 4.2 Safe and Correct use of Tools, Equipment and Machines 4.2.1 Preparation and use 4.2.2 Control measures
Assessment	Assessment - Exam in March.	Assessment by end of unit test and ongoing assessment.	Assessment by end of unit test and ongoing assessment.
CEIAG <i>(Careers that are linked to that topic)</i>		CAD/CAM and CNC within industry.	Production planning in industry.

Independent Study

Students in Year 10 have access to the course materials through Google Classroom. Independent study is accessible through this platform and is given either each week or once a fortnight. Independent study is generally used to secure prior learning through practice to develop confidence and memory.