

KS4 ENGINEERING CURRICULUM PLANNING MAP

What is Engineering at KS4?

The Level 1/2 Technical Award in Engineering offers students an introduction to engineering with a strong focus on practical, project-based learning. It is ideal for those interested in a future career in engineering or planning to continue their studies in the field. To earn this qualification, students must show they have gained the necessary knowledge and skills across all 9 required content areas. Assessment is carried out through two tasks set by NCFE: one written exam and one non-exam project assessment.



Qualification and Requirements for Achievement

To earn the Level 1/2 Technical Award in Engineering, students must successfully complete two mandatory units.

External Assessment:

Written engineering exam (90 minutes)
Worth 40% of the final grade
Taken at the end of Year 11

Internal Assessment:

Non-exam assessment (NEA project, 18 hours)
Worth 60% of the final grade
Begins in October of Year 11

Grades available:

Level 1: Pass, Merit, Distinction
Level 2: Pass, Merit, Distinction, Distinction*

Content Areas

- Content area 1: Engineering disciplines
- Content area 2: Applied science and mathematics in engineering
- Content area 3: Reading engineering drawings
- Content area 4: Properties, characteristics and selection of engineering materials
- Content area 5: Engineering tools, equipment and machines
- Content area 6: Hand drawn engineering drawings
- Content area 7: Computer aided design (CAD) engineering drawings
- Content area 8: Production planning techniques
- Content area 9: Applied processing skills and techniques

Home Learning

Home learning is planned for each year group and issued in advance as a structured sequence of tasks. Activities are directly linked to current topics and NCFE assessment objectives, reinforcing and extending learning from lessons while supporting knowledge retention and independent study. Tasks are designed to develop understanding required for both examined content and NEA preparation, including research, technical knowledge, and application of engineering principles. As Hattie (2009) states, "the effects of homework are enhanced when it is purposeful and aligned to learning."

YEAR 11:

Students begin Year 11 by preparing for their mock exam at the end of October. This includes revising all nine content areas and practicing exam-style questions. They will then receive their NEA (non-exam assessment) project brief, set by the exam board. Learners are allocated 18 hours to complete the six required tasks. After completing the NEA, the remaining time in the year is dedicated to preparing for the final written exam

YEAR 10:

As learners progress, they will be encouraged to work more independently, with reduced teacher support to help build confidence and readiness for Year 11. They will study content areas 2, 4 and 5 in greater depth. Learners will complete a mock exam with teacher guidance to help prepare for the final assessments. They will also work through all six NEA (non-exam assessment) tasks, receiving feedback to help them improve. The NEA project will be based on a previous brief: designing and creating an upcycled lamp. This project involves using a range of materials, tools, and equipment—such as polymers, metals, and timber—while applying various engineering processes.

YEAR 9:

Learners begin the course by exploring what engineering is and learning about ten different engineering disciplines. There is a strong emphasis on content areas 3, 4, and 7. Learners will be introduced to the BS8888 standard for technical drawings. They will develop skills in creating both isometric and orthographic drawings by hand using traditional drawing tools, as well as digitally through 2D and 3D CAD software.

Summer homework
Iterative Design of lamp



POST 16
DESTINATION

YEAR 11
INDEPENDENT LEARNING

EXAM & HAND TECHNICAL
DRAWING PREPARATION NEA
(1 – 9)

MOCK
EXAM

NEA
(3,4,5,6,7,8,9)

EXAM
PREPARATION
(1 - 9)

The learner will prepare for their mock exam through revision of the 9 content areas

Past written examined assessment

The learner will complete the non examined assessment from October over 18 hours.

The learner will prepare for their mock exam through revision of the 9 content areas

END OF YEAR EXAM
STEM



MATHS AND SCIENCE
IN ENGINEERING (2)

The learner will understand how 5 units of measurement are used in engineering products and projects.

MOCK NEA PROJECT
(3,4,5,6,7,8,9)

The learner will complete a mock non examined assessment with guidance from the teacher. Build in more knowledge on circuits with the soldering of the L.E.D light.

LAMP CAD &
TECHNICAL DRAWING

The learner will build upon prior knowledge from year 11 and follow the teacher's video tutorials to create the lamp CAD model and BS8888 drawings.

TOOLS AND
EQUIPMENT (5)

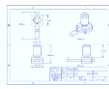
The learner will understand health and safety, control measures, and safe and correct use of common tools, equipment and machines used in the engineering industry for manufacturing.

MATERIAL AND
PROCESSES (4)

The learner will understand how materials exhibit properties and characteristics in engineering products and projects.

YEAR 10
TEACHER & STUDENT LED
LEARNING

Use online programs such as Kahoot or Quizizz to formatively assess topics regularly



YEAR 9
TEACHER LED LEARNING

ENGINEERING
DISCIPLINES (1)

The learner will understand different engineering disciplines and how their application has solved problems and shaped the modern world

ISOMETRIC DRAWING
(3, 4, 7)

The learner will understand how to produce hand-drawn and CAD isometric drawings, apply specific drawing conventions and use layouts recognised within the engineering industry, following British Standard (BS) 8888

ORTHOGRAPHIC
DRAWING (3, 4, 7)

The learner will understand how to produce hand-drawn and CAD orthographic drawings, apply specific drawing conventions and use layouts recognised within the engineering industry, following British Standard (BS) 8888

SWEET DISPENSER (4, 5, 8, 9)

The learner will gain knowledge of tools, equipment, materials and processes to make a Sweet Dispenser with guidance

END OF YEAR
EXAM