

SUBJECT: Engineering

KS4 CURRICULUM PLAN 2021-22

KS3 Knowledge and key skills

YEAR 10	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC	<i>Component One</i>	<i>Component One</i>	<i>Component One</i>	<i>Component One</i>	<i>Component Two</i>	<i>Component Two</i>
Knowledge	Learners will explore the links between the various engineering sectors and the role of design in the production of engineered products. Understand engineering sectors, products and organisations, and how they interrelate.	Learners will explore the links between the various engineering sectors and the role of design in the production of engineered products. Understand engineering sectors, products and organisations, and how they interrelate.	Explore engineering skills through the design process.	Explore engineering skills through the design process.	Understand materials, components and processes for a given engineered product.	Investigate a given engineered product using disassembly techniques.
Skills	Appropriately able to compare, contrast, evaluate, analyse existing engineering products, processes and sectors.	Appropriately able to compare, contrast, evaluate, analyse existing engineering products, processes and sectors.	Interpreting a design Brief, Producing initial sketches through 2D drawing, CAD/CAM digital drawing skills, Evaluating and Analysing Designs.	Interpreting a design Brief, Producing initial sketches through 2D drawing, CAD/CAM digital drawing skills, Evaluating and Analysing Designs.	Observing and recording skills, such as an examination of: Visual features, surface features, mass, colour, degradation and identification marks. • Measurement skills, such as: Measuring diameter, measuring linear dimensions, use of comparative techniques and knowledge of component values e.g. resistors. • Appraisal/interpretation skills, such as justifications and reasoning.	Safe use of disassembly techniques, to include: removal of semi-permanent fixings, parts removal and layout, replacement of non-reusable consumables or fixings. • Safe use of tools and equipment disassembly/reassembly tools with settings.
Key Vocab	Compare, contrast, evaluate, analyse	Compare, contrast, evaluate, analyse	Design process, CAD/CAM, two-dimensional and three-dimensional	Design process, CAD/CAM, two-dimensional and three-dimensional	Observing, recording, measuring, component, interpretation	Disassembly, consumable, handling, data, analyse, engineering design

YEAR 11	SUMMER 2	SUMMER 1	SPRING 2	SPRING 1	AUTUMN 2	AUTUMN 1
TOPIC	<i>Component Three</i>	<i>Component Three</i>	<i>Component Three</i>	<i>Component Three</i>	<i>Component Two</i>	<i>Component Two</i>
Knowledge	Exam	Exam prep Develop CAD/CAM skills	Learners will investigate and create solutions to problems in response to given engineering briefs.	Learners will investigate and create solutions to problems in response to given engineering briefs.	Investigate a given engineered product using disassembly techniques.	Investigate a given engineered product using disassembly techniques.
Skills	Exam	Exam prep Develop CAD/CAM skills	Understand how to respond to an engineering brief. Select skills and techniques in response to an engineering brief. Apply skills and techniques in response to an engineering brief. Evaluate and review the outcomes of the application of skills and techniques in response to an engineering brief.	Understand how to respond to an engineering brief. Select skills and techniques in response to an engineering brief. Apply skills and techniques in response to an engineering brief. Evaluate and review the outcomes of the application of skills and techniques in response to an engineering brief.	Requirements in terms of: size and mass, product life and reliability, performance/function/service requirements, economic and making considerations, implications of standards and legislation.	Safe use of disassembly techniques, to include: removal of semi-permanent fixings, parts removal and layout, replacement of non-reusable consumables or fixings. Safe use of tools and equipment, disassembly/reassembly tools with settings.
Key Vocab	Analyse, evaluate, outcome and summarise	Fusion 360, specific technical language	Analyse, evaluate, outcome and summarise	Engineering brief, 2D and 3D drawing, orthographic, exploded drawing	Disassembly, consumable, handling, data, economics, environmental, legislation	Disassembly, consumable, handling, data, analyse, engineering design

Key Knowledge Transfer