

SUBJECT: Engineering



KS5 CURRICULUM PLAN 2021-20

KS3
Knowledge
and key skills

YEAR 12	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
TOPIC	<i>Unit 2/ Unit 4/ Unit 10</i>	<i>Unit 2/ Unit 4/ Unit 10</i>	<i>Unit 2/ Unit 4/ Unit 10</i>	<i>Unit 2/ Unit 4/ Unit 10</i>	<i>Unit 2/ Unit 4/ Unit 10</i>	<i>Unit 2/ Unit 4/ EXAM</i>
Knowledge	Unit 2 knowledge and understanding of principles of engineering science and consider how these can be applied to a range of engineering situations. Unit 4 knowledge and understanding of the fundamental principles that underpin electrical and electronic engineering. Unit 10 develop the ability to be able to produce 3D models using CAD, and to go onto create 3D assemblies of components within a CAD system.	Unit 2 knowledge and understanding of principles of engineering science and consider how these can be applied to a range of engineering situations. Unit 4 knowledge and understanding of the fundamental principles that underpin electrical and electronic engineering. Unit 10 develop the ability to be able to produce 3D models using CAD, and to go onto create 3D assemblies of components within a CAD system.	Unit 2 knowledge and understanding of principles of engineering science and consider how these can be applied to a range of engineering situations. Unit 4 knowledge and understanding of the fundamental principles that underpin electrical and electronic engineering. Unit 10 develop the ability to be able to produce 3D models using CAD, and to go onto create 3D assemblies of components within a CAD system.	Unit 2 knowledge and understanding of principles of engineering science and consider how these can be applied to a range of engineering situations. Unit 4 knowledge and understanding of the fundamental principles that underpin electrical and electronic engineering. Unit 10 develop the ability to be able to produce 3D models using CAD, and to go onto create 3D assemblies of components within a CAD system.	Unit 2 knowledge and understanding of principles of engineering science and consider how these can be applied to a range of engineering situations. Unit 4 knowledge and understanding of the fundamental principles that underpin electrical and electronic engineering. Unit 10 develop the ability to be able to produce 3D models using CAD, and to go onto create 3D assemblies of components within a CAD system.	Exam
Skills	Unit 2 Understand applications fundamental scientific of SI units and measurement, scientific principles of mechanical engineering, principles of electrical and electronic engineering, properties of materials, principles of fluid mechanics and thermal physics. Unit 4 Develop an understanding of fundamental electrical principles, alternating voltage and current, electric motors and generators, power supplies and power system protection, analogue electronics, digital electronics. Unit 10 e skill of producing 2D CAD engineering drawings to appropriate standards, and will develop knowledge and understanding of the use of simulation tools within commercial CAD systems.	Unit 2 Understand applications fundamental scientific of SI units and measurement, scientific principles of mechanical engineering, principles of electrical and electronic engineering, properties of materials, principles of fluid mechanics and thermal physics. Unit 4 Develop an understanding of fundamental electrical principles, alternating voltage and current, electric motors and generators, power supplies and power system protection, analogue electronics, digital electronics. Unit 10 e skill of producing 2D CAD engineering drawings to appropriate standards, and will develop knowledge and understanding of the use of simulation tools within commercial CAD systems.	Unit 2 Understand applications fundamental scientific of SI units and measurement, scientific principles of mechanical engineering, principles of electrical and electronic engineering, properties of materials, principles of fluid mechanics and thermal physics. Unit 4 Develop an understanding of fundamental electrical principles, alternating voltage and current, electric motors and generators, power supplies and power system protection, analogue electronics, digital electronics. Unit 10 e skill of producing 2D CAD engineering drawings to appropriate standards, and will develop knowledge and understanding of the use of simulation tools within commercial CAD systems.	Unit 2 Understand applications fundamental scientific of SI units and measurement, scientific principles of mechanical engineering, principles of electrical and electronic engineering, properties of materials, principles of fluid mechanics and thermal physics. Unit 4 Develop an understanding of fundamental electrical principles, alternating voltage and current, electric motors and generators, power supplies and power system protection, analogue electronics, digital electronics. Unit 10 e skill of producing 2D CAD engineering drawings to appropriate standards, and will develop knowledge and understanding of the use of simulation tools within commercial CAD systems.	Unit 2 Understand applications fundamental scientific of SI units and measurement, scientific principles of mechanical engineering, principles of electrical and electronic engineering, properties of materials, principles of fluid mechanics and thermal physics. Unit 4 Develop an understanding of fundamental electrical principles, alternating voltage and current, electric motors and generators, power supplies and power system protection, analogue electronics, digital electronics. Unit 10 e skill of producing 2D CAD engineering drawings to appropriate standards, and will develop knowledge and understanding of the use of simulation tools within commercial CAD systems.	Exam
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YEAR 13	SUMMER 2	SUMMER 1	SPRING 2	SPRING 1	AUTUMN 2	AUTUMN 1
TOPIC	<i>Unit 1/Unit 3 /EXAM</i>	<i>Unit 1/ Unit 3/ Unit 17</i>	<i>Unit 1/ Unit 3/ Unit 17</i>	<i>Unit 1/ Unit 3/ Unit 17</i>	<i>Unit 1/ Unit 3/ Unit 17</i>	<i>Unit 1/ Unit 3/ Unit 17</i>
Knowledge	Exam	Unit 1 Knowledge and understanding of the mathematical techniques commonly used to solve a range of engineering problems. Unit 3 Understand the mechanical principles that govern the behaviour of components and mechanisms. Unit 17 Understand how CAM systems are used within manufacturing and be able to program and use Computer Numerical Control (CNC) machines to produce components	Unit 1 Knowledge and understanding of the mathematical techniques commonly used to solve a range of engineering problems. Unit 3 Understand the mechanical principles that govern the behaviour of components and mechanisms. Unit 17 Understand how CAM systems are used within manufacturing and be able to program and use Computer Numerical Control (CNC) machines to produce components	Unit 1 Knowledge and understanding of the mathematical techniques commonly used to solve a range of engineering problems. Unit 3 Understand the mechanical principles that govern the behaviour of components and mechanisms. Unit 17 Understand how CAM systems are used within manufacturing and be able to program and use Computer Numerical Control (CNC) machines to produce components	Unit 1 Knowledge and understanding of the mathematical techniques commonly used to solve a range of engineering problems. Unit 3 Understand the mechanical principles that govern the behaviour of components and mechanisms. Unit 17 Understand how CAM systems are used within manufacturing and be able to program and use Computer Numerical Control (CNC) machines to produce components	Unit 1 Knowledge and understanding of the mathematical techniques commonly used to solve a range of engineering problems. Unit 3 Understand the mechanical principles that govern the behaviour of components and mechanisms. Unit 17 Understand how CAM systems are used within manufacturing and be able to program and use Computer Numerical Control (CNC) machines to produce components
Skills	Exam	Unit 1 Develop an understanding of algebra, use of geometry and graphs, exponentials and logarithms, trigonometry, calculus and statistics and probability. Unit 3 Develop an understanding of systems of forces and types of loading on mechanical components, the fundamental geometric properties relevant to mechanical engineering, levers, pulleys and gearing, the properties of beams, the principles of dynamic systems. Unit 17 learn to produce components using additive manufacturing techniques.	Unit 1 Develop an understanding of algebra, use of geometry and graphs, exponentials and logarithms, trigonometry, calculus and statistics and probability. Unit 3 Develop an understanding of systems of forces and types of loading on mechanical components, the fundamental geometric properties relevant to mechanical engineering, levers, pulleys and gearing, the properties of beams, the principles of dynamic systems. Unit 17 learn to produce components using additive manufacturing techniques.	Unit 1 Develop an understanding of algebra, use of geometry and graphs, exponentials and logarithms, trigonometry, calculus and statistics and probability. Unit 3 Develop an understanding of systems of forces and types of loading on mechanical components, the fundamental geometric properties relevant to mechanical engineering, levers, pulleys and gearing, the properties of beams, the principles of dynamic systems. Unit 17 learn to produce components using additive manufacturing techniques.	Unit 1 Develop an understanding of algebra, use of geometry and graphs, exponentials and logarithms, trigonometry, calculus and statistics and probability. Unit 3 Develop an understanding of systems of forces and types of loading on mechanical components, the fundamental geometric properties relevant to mechanical engineering, levers, pulleys and gearing, the properties of beams, the principles of dynamic systems. Unit 17 learn to produce components using additive manufacturing techniques.	Unit 1 Develop an understanding of algebra, use of geometry and graphs, exponentials and logarithms, trigonometry, calculus and statistics and probability. Unit 3 Develop an understanding of systems of forces and types of loading on mechanical components, the fundamental geometric properties relevant to mechanical engineering, levers, pulleys and gearing, the properties of beams, the principles of dynamic systems. Unit 17 learn to produce components using additive manufacturing techniques.
Key Vocab						

Key
Knowledge
Transfer