

# Chapelton Academy **Y12** Curriculum Intent Plan

## Subject: **Engineering**

**Procedural knowledge** (exam technique, skills etc):

- a. Answering extended exam questions (6 & 9 markers)
- b. Analysing client briefs, designs & scenarios
- c. Written communication and presentation skills
- d. Design communication and presentation skills
- e. Practical manufacturing skills
- f. Research and referencing skills
- g. Understanding the key command words.
- h. Report writing
- i. Summary note-taking skills
- j. Organisation and time-management
- k. Self-evaluation skills
- l. Revision techniques
- m. University and employment pathways
- n. Literacy, numeracy & IT skills

Week & Date	No of lessons	Disciplinary Knowledge sequence	Disciplinary knowledge, that this interleaves with	Procedural knowledge progression	RS revision knowledge topic	HW focus and actions	Assessment (topic and skills assessed)
1 4 <sup>th</sup> September 2023 <b>4<sup>th</sup> Sept</b> <b>Staff Inset</b>	0						

5 <sup>th</sup> Sept Y12 Start 6 <sup>th</sup> Sept Y13 Start							
2 11 <sup>th</sup> September 2023	3	Induction into Year 12: Course overview, expectations, TEAMS  Unit 3: Learning Aim A A1 – Design triggers	Past knowledge from KS4 Engineering/ Technology How redesigns and new products are required	b,g,l,j,n	Booklet 1 – Design triggers	Booklet 1 – Market pull & technology push	
3 18 <sup>th</sup> September 2023	3	Unit 3: Learning Aim A A2 – Design Challenges	Past knowledge from KS4 Engineering/ Technology How redesigns and new products are required	b,g,l,j,n	Booklet 1 - Demand & profitability	Booklet 1 – Innovation & market research & Carbon footprint	<i>DATA – 22<sup>nd</sup> September</i>
4 25 <sup>th</sup> September 2023 27 <sup>th</sup> Sept Y12 Awards	3	Unit 3: Learning Aim A A3 – Equipment level and systems level constraints and opportunities	Introduction into research methods. How decisions are made regarding products and designs.	B, f, g, l, j, n	Booklet 1 - Designing out risk to customers	Booklet 1 – Designing out risk to employees/customers	
5 2 <sup>nd</sup> October 2023	3	Unit 3: Learning Aim A A4 – Material properties	Past knowledge from KS4 Engineering/ Technology Introduction into research methods.	C,f,g,h,l,j,n	Booklet 1 – Reduction	Booklet 1 – Intergrated vehicle power sources	
6 9 <sup>th</sup> October 2023 10 <sup>th</sup> Oct Staff Inset	0				Booklet 1 – Life cycle analysis	Booklet 1 – Life cycle analysis	

12 <sup>th</sup> Oct Progress Day 31 <sup>st</sup> Oct Y12 Parents Eve (tutor)							
7 16 <sup>th</sup> October 2023 17 <sup>th</sup> Oct Twilight CPD	3	Unit 3: Learning Aim A A5 - Mechanical power transmission	Past knowledge from KS4 Engineering/ Technology Introduction into research methods.	A,c,f,g,h,l,j,n	Booklet 1 – Equipment interfaces	Booklet 1 – Equipment interfaces	
23 <sup>rd</sup> October 2023		Holiday					
9 30 <sup>th</sup> October 2023	3	Unit 3: Learning Aim A A6 – Manufacturing processes	Past knowledge from KS4 Engineering/ Technology Introduction into research methods.	A,c,f,g,h,l,j,n	Booklet 1 - system integration compromises	Booklet 1 – system integration compromises	
10 6 <sup>th</sup> November 2023 8 <sup>th</sup> Nov Open Evening	3	Unit 3 Learning Aim A assessment	All unit 3 learning Aim A content.	A,c,f,g,h,l,j,n	Booklet 1 - Equipment PDS	Booklet 1 – Cost effective manufacture	<b>UNIT 3: END OF OUTCOME ASSESSMENT</b> (Assessing Learning Aim A)
11 13 <sup>th</sup> November 2023	3	Unit 3: Learning Aim B B1 – Design for a customer	Introduction into research methods. Design in industry	A,b,c,d,f,g,l,j,k,n	Design & communications practice	Design & communications practice	

12 20 <sup>th</sup> November 2023 24 <sup>th</sup> Nov Staff Inset	3	Unit 3: Learning Aim B B2 – Regulatory constraints and opportunities	Introduction into research methods. Design in industry	A,b,c,d,f,g,l,j,k,n	Design & communications practice	Design & communications practice	
13 27 <sup>th</sup> November 2023	3	Unit 3: Learning Aim B B3 – Market analysis	Introduction into research methods. Design in industry	A,b,c,d,f,g,l,j,k,n	Design & communications practice	Design & communications practice	
14 4 <sup>th</sup> December 2023 7 <sup>th</sup> Dec Twilight CPD	3	Unit 3: Learning Aim B B4 – Performance analysis	Introduction into research methods. Design in industry	B,f,g,l,j,n	Design & communications practice	Design & communications practice	
15 11 <sup>th</sup> December 2023	3	Unit 3: Learning Aim B B5 – Manufacturing analysis	Introduction into research methods. Design in industry	B,f,g,l,j,n	Design & communications practice	Design & communications practice	
16 18 <sup>th</sup> December 2023	3	AP	All unit 3 content covered	A,c,f,g,h,l,j,n	AP revision	AP revision	<b>UNIT 3: END OF OUTCOME ASSESSMENT</b> (Assessing Learning Aim B)
25 <sup>th</sup> December 2023		Holiday					
1 <sup>st</sup> January 2024		Holiday					

19 8 <sup>th</sup> January 2024 11 <sup>th</sup> Jan Alumni Awards Evening	3	Unit 3 Learning Aim C C1 - Design proposals	Past knowledge from KS4 Engineering/ Technology Design in industry	A,b,c,d,g,l,j,k,n	Booklet 2 - Material properties, mechanical properties	Booklet 2 - Physical properties, thermal properties	DATA – 11 <sup>th</sup> January
20 15 <sup>th</sup> January 2024 16 <sup>th</sup> Jan Progress Day	0				Booklet 2 - surface coatings, heat treatments, alloying	Booklet 2 - mechanical power transmission	
21 22 <sup>nd</sup> January 2024 22 <sup>nd</sup> Jan Twilight CPD	3	Unit 3 Learning Aim C C1 – Design proposals	Past knowledge from KS4 Engineering/ Technology Design in industry	A,b,c,d,g,l,j,k,n	Booklet 2 – casting	Booklet 2 – machining, joining – mechanical	
22 29 <sup>th</sup> January 2024	3	Unit 3 Learning Aim C C2 – Communicating designs	Past knowledge from KS4 Engineering/ Technology Design in industry	A,b,c,d,g,l,j,k,n	Booklet 2 – Welding	Booklet 2 – impact extrusion, pressing & stamping, dropforging, compression moulding, injection moulding	
23 5 <sup>th</sup> February 2024	3	Unit 3 Learning Aim C C2 – Communicating designs	Past knowledge from KS4 Engineering/ Technology Design in industry	A,b,c,d,g,l,j,k,n	Booklet 2 – Moulding recap	Booklet 2 –Blow moulding, vacuum forming & rotational moulding	

6 <sup>th</sup> Feb Open Evening 8 <sup>th</sup> Feb Staff Inset							
12 <sup>th</sup> February 2024		Holiday					
25 19 <sup>th</sup> February 2024	3	Unit 3 Learning Aim C C3 – Iterative development process	Past knowledge from KS4 Engineering/ Technology Desing process	A,b,c,d,g,l,j,k,n	Booklet 2 – Slip casting, Tape casting & press forming ceramics	Booklet 2 – Types of tools	
26 26 <sup>th</sup> February 2024 28 <sup>th</sup> Feb Twilight CPD	3	Unit 3 – Learning Aim C C3 – Iterative development process	Past knowledge from KS4 Engineering/ Technology Desing process	A,b,c,d,g,l,j,k,n	Booklet 2 – Compression moulding & Fibre replacement	Booklet 2 - 3D printing & layering composites	
27 4 <sup>th</sup> March 2024	3	Unit 3 – Learning Aim D D1 – Statistical methods	Past knowledge from KS4 maths & science Unit 7 - A2	B,c,g,h,l,j,k,n	Booklet 2 – Effects of processes	Booklet 2 – Effects of processes	
28 11 <sup>th</sup> March 2024	3	Unit 3 – Learning Aim D D2 – Validating designs	Past knowledge from KS4 maths & science Unit 7 - A2	B,c,g,h,l,j,k,n	Booklet 2 - Material combinations	Booklet 2 - Process parameters	
29 18 <sup>th</sup> March 2024	3	AP	All unit 3 contnet	A,c,f,g,h,l,j,n	AP revision	AP revision	<b>UNIT 3: END OF OUTCOME ASSESSMENT</b> (Assessing Learning Aim C&D)
30 25 <sup>th</sup> March 2024	3	Unit 3 – Exam practice/prep  Reviewing AP	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Past paper questions	Exam practice – researching and making notes	DATA – 28 <sup>th</sup> March

29 <sup>th</sup> March Bank Holiday							
1 <sup>st</sup> April 2024		Holiday					
8 <sup>th</sup> April 2024		Holiday					
33  15 <sup>th</sup> April 2024 18 <sup>th</sup> Apr Progress Day 18 <sup>th</sup> April Y12 Parents Eve	3	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Past paper questions	Exam practice – reviewing further information	
34  22 <sup>nd</sup> April 2024	3	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Past paper questions	Exam practice – interpreting the brief	
35  29 <sup>th</sup> April 2024 30 <sup>th</sup> Apr Summer Exams Start 2 <sup>nd</sup> May Twilight CPD	3	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	past paper questions	Exam practice – produce a range of initial design ideas	
36	3	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	past paper questions	Exam practice – develop a modified product proposal	

6 <sup>th</sup> May 2024 <b>6<sup>th</sup> May Bank Holiday</b>							
37 13 <sup>th</sup> May 2024	3	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Past paper questions	Exam practice – validate the design proposal	
38 20 <sup>th</sup> May 2024		Unit 3 exam window Unit 1 exam 23 <sup>rd</sup>					
27 <sup>th</sup> May 2024		Holiday					
40 3 <sup>rd</sup> June 2024	3	Unit 2 – Learning Aim A A1 – Common engineering processes	Unit 3	B,c,f,g,l,j,n			
41 10 <sup>th</sup> June 2024	3	Unit 2 – Learning Aim A A2 – Health and safety requirements A3 – Human factors affecting the performance of engineering processes	Unit 3	B,c,f,g,l,j,n			
42 17 <sup>th</sup> June 2024 <b>21<sup>st</sup> – 24<sup>th</sup> June Y12 Study Leave</b>	3	Unit 2 Learning Aim A assignment	Unit 3 Unit 2A	B,c,f,g,h,l,j,k,n	Unit 2 learning Aim A assignment	Unit 2 learning Aim A assignment	<b>UNIT 2: END OF OUTCOME ASSESSMENT</b> (Assessing Learning Aim A)



21 <sup>st</sup> June UCAS Convention							
43 24 <sup>th</sup> June 2024 21 <sup>st</sup> – 24 <sup>th</sup> June Y12 Study Leave 24 <sup>th</sup> Jun Induction Day 25 <sup>th</sup> Jun – 2 <sup>nd</sup> July Y12 Mocks 2	0	Y12 Exam Leave Y12 Exams					
44 1 <sup>st</sup> July 2024 25 <sup>th</sup> Jun – 2 <sup>nd</sup> July Y12 Mocks 2 2 <sup>nd</sup> July Twilight CPD 3 <sup>rd</sup> – 5 <sup>th</sup> July Post-18 Talks and Events 3 <sup>rd</sup> July Y12 Parents Eve (UCAS)	0	Y12 Exams Post-18 Sessions					

45 8 <sup>th</sup> July 2024	3	Unit 2 Learning Aim A assignment	Unit 3 Unit 2A	B,c,f,g,h,l,j,k,n	Unit 2 learning Aim A assignment	Unit 2 learning Aim A assignment	<i>DATA – 12<sup>th</sup> July</i> <b>UNIT 2: END OF OUTCOME ASSESSMENT</b> (Assessing Learning Aim A)
46 15 <sup>th</sup> July 2024	0	Work Experience Week					