

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 th September 2023 4th Sept Staff Inset	3	Induction into Year 12: Course overview, expectations, TEAMS UNIT 3: Learning Aim A: A1 – Design triggers A2 – Design Challenges	Past knowledge from KS4 Engineering/ Technology How redesigns and new products are required	b,g,l,j,n	Booklet 1 - innovation & market research & carbon footprint	Booklet 1 - glossary, market pull, technology push, demand & profitability	

5 th Sept Y12 Start							
6 th Sept Y13 Start							
2 11 th September 2023	11	Unit 3 Learning Aim A: A3 – Equipment level and system level constraints and opportunities	Introduction into research methods. How decisions are made regarding products and designs.	B, f, g, l, j, n	Booklet 1 - Reduction, integrated vehicle power sources, life cycle analysis	Booklet 1 - Designing out risk to customers & designing out risk to employees	
3 18 th September 2023	11	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 - Equipment interfaces	Booklet 1 - cost effective manufacture	DATA – 22 nd September
4 25 th September 2023 27 th Sept Y12 Awards	11	Unit 3 Learning Aim A: A5 – Mechanical power transmission A6 – Manufacturing processes	Past knowledge from KS4 Engineering/ Technology Introduction into research methods.	A,c,f,g,h,l,j,n	Booklet 1 - Equipment PDS	Booklet 1 - system integration compromises	UNIT 3: END OF OUTCOME ASSESSMENT (Assessing Learning Aim A)
5 2 nd October 2023	11	Unit 3 Learning Aim B: B1 – Design for a customer B2 – Regulatory constraints and opportunities B3 – Market analysis	Introduction into research methods. Design in industry	A,b,c,d,f,g,l,j,k,n	Booklet 2 - Advanced materials, modes of failure, Selecting appropriate materials	Booklet 2 - Material properties, mechanical properties, physical properties, thermal properties	
6 9 th October 2023 10 th Oct Staff Inset 12 th Oct Progress Day	8	Unit 3 Learning Aim B: B4 – Performance analysis B5 – Manufacturing analysis	Introduction into research methods. Design in industry	B,f,g,l,j,n	Booklet 2 - surface coatings, heat treatments, alloying	Booklet 2 - mechanical power transmission	

31st Oct Y12 Parents Eve (tutor)							
7 16 th October 2023 17 th Oct Twilight CPD	11	Unit 3 learning Aim C C1 – Design proposals C2 – Communicating designs	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	
23 rd October 2023		Holiday					
9 30 th October 2023	11	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 - welding	Drawing practice	UNIT 3: END OF OUTCOME ASSESSMENT (Assessing Learning Aim B&C)
10 6 th November 2023 8 th Nov Open Evening	11	Unit 3 – Learning Aim D D1 – Statistical methods D2 – Validating designs	Past knowledge from KS4 maths & science Unit 7 - A2	B,c,g,h,l,j,k,n	Booklet 2 – impact extrusion, pressing & stamping, dropforging, compression moulding, injection moulding	Exam practice – researching and making notes	
11 13 th November 2023	11	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Booklet 2 – blow moulding, vacuum forming, rotational moulding, moulding recap	Exam practice – reviewing further information	
12 20 th November 2023 24 th Nov Staff Inset	8	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Booklet 2 – casting, press forming, tools,	Exam practice – interpreting the brief	
13 27 th November 2023	11	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Booklet 2 – 3D printing, layering composites, compression moulding	Exam practice – produce a range of initial design ideas	

14 4 th December 2023 7 th Dec Twilight CPD	11	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Booklet 2 – automated fibre replacement, effects of processes,	Exam practice – develop a modified product proposal	UNIT 3: Practice exam paper
15 11 th December 2023	11	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Booklet 2 – Process parameters, material combinations	Exam practice – validate the design proposal	14
16 18 th December 2023	11	Unit 3 Exam pre-release	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Exam revision	Exam revision	
25 th December 2023		Holiday					
1 st January 2024		Holiday					
19 8 th January 2024 11 th Jan Alumni Awards Evening	11	Unit 3 – Exam practice/prep	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Exam revision	Exam revision	DATA – 11 th January
20 15 th January 2024 16 th Jan Progress Day	8	UNIT 3 exam	Past knowledge from KS4 Engineering/ Technology Whole of unit 3	A,b,c,d,g,j,k,l,n	Exam revision	Exam revision	Exam
21 22 nd January 2024	11	UNIT 41: Manufacturing Secondary machining processes	Introduction into research methods Manufacturing processes	b,e,f,g,h,l,m			

22 nd Jan Twilight CPD		A1: Traditional secondary machining processes A2: Specialist secondary machining processes A3: Sustainability characteristics of secondary machining processes					
22 29 th January 2024	11	UNIT 41: Manufacturing Secondary machining processes Learning Aim, A assignment	All unit 41A content	a,b,e,f,g,l,j,m	Unit 41 Learning Aim A assignment	Unit 41 Learning Aim A assignment	UNIT 41: END OF OUTCOME ASSESSMENT (Assessing Learning Aim A)
23 5 th February 2024 6 th Feb Open Evening 8 th Feb Staff Inset	11	UNIT 41: Manufacturing Secondary machining processes B1: H&S requirements when setting up secondary process machines B2: Risk assessment B3: Setting up secondary process machines	Introduction into research methods H&S, manufacturing process, safe working	A,b,d,e,f,h,l,m			
12 th February 2024		Holiday					
25 19 th February 2024	11	UNIT 41: Manufacturing Secondary machining processes Learning Aim B&C assignment	All unit 42 A, B&C content	a,b,d,e,f,g,l,j,m	Unit 41 Learning Aim B&C assignment	Unit 41 Learning Aim B&C assignment	UNIT 41: END OF OUTCOME ASSESSMENT (Assessing Learning Aim B&C)
26 26 th February 2024 28 th Feb Twilight CPD	11	UNIT 41: Manufacturing Secondary machining processes Learning Aim B&C assignment	All unit 42 A, B&C content	a,b,d,e,f,g,l,j,m	Unit 41 Learning Aim B&C assignment	Unit 41 Learning Aim B&C assignment	UNIT 41: END OF OUTCOME ASSESSMENT (Assessing Learning Aim B&C)
27 4 th March 2024	11	UNIT 41: Manufacturing Secondary machining processes	All unit 42 A, B&C content	a,b,d,e,f,g,l,j,m	Unit 41 Learning Aim B&C assignment	Unit 41 Learning Aim B&C assignment	UNIT 41: END OF OUTCOME ASSESSMENT (Assessing Learning Aim B&C)

		Learning Aim B&C assignment					
28 11 th March 2024	11	UNIT 41: Manufacturing Secondary machining processes D1: Lessons learned from machining a component D2: Personal performance while machining a component Learning Aim D assignment	Introduction into research methods Reflection skills All unit 42 B, C & D content	a,b,e,f,g,h,i,j,m	Unit 41 Learning Aim D assignment	Unit 41 Learning Aim D assignment	UNIT 41: END OF OUTCOME ASSESSMENT (Assessing Learning Aim D)
29 18 th March 2024	11	Unit 42 – Manufacturing Primary Forming Processes A1 – Metal moulding processes A2 – Ceramic moulding processes A3 - Polymer moulding processes	Unit 2 Unit 3 Unit 45	B,c,e,f,g,l,j,n			
30 25 th March 2024 29 th March Bank Holiday	8	Unit 42 - Manufacturing Primary Forming Processes Learning Aim A assignment	Unit 2 Unit 3 Unit 45 Unit 42 Learning Aim A	B,c,e,f,g,h,j,k,n	Unit 42 Learning Aim A assignment	Unit 42 Learning Aim A assignment	UNIT 42: END OF OUTCOME ASSESSMENT (Assessing Learning Aim A) DATA – 28 th March
1 st April 2024		Holiday					
8 th April 2024		Holiday					
33 15 th April 2024 18 th Apr Progress Day	11	Unit 42 - Manufacturing Primary Forming Processes B1 – Metal deformation processes	Unit 2 Unit 3 Unit 45 Unit 42 Learning Aim A&B	B,c,e,f,g,h,i,j,k,n	Unit 42 Learning Aim B assignment	Unit 42 Learning Aim B assignment	UNIT 42: END OF OUTCOME ASSESSMENT (Assessing Learning Aim B)

18 th April Y12 Parents Eve		B2 – Polymer deformation processes Learning Aim B assignment					
34 22 nd April 2024	11	Unit 42 - Manufacturing Primary Forming Processes C1 - Safe working processes for primary forming processes C2 – Forming process selection Learning Aim C assignment	Unit 2 Unit 3 Unit 45 Unit 42 Learning Aim A&B	B,c,e,f,g,h,i,j,k,n	Unit 42 Learning Aim A assignment resubmission	Unit 42 Learning Aim C assignment	Data UNIT 42: END OF OUTCOME ASSESSMENT (Assessing Learning Aim C)
35 29 th April 2024 30 th Apr Summer Exams Start 2 nd May Twilight CPD	11	Unit 13: Welding technology A1 – Welding terminology for processes and equipment A2 – Gas-shielded arc welding – shielding gases A3 – Common welding processes A4 – Welding electrotechnics	Unit 2 Unit 45	b,e,f,g,h,i,l,m	Unit 42 Learning Aim B assignment resubmission	Unit 42 Learning Aim B assignment resubmission	
36 6 th May 2024 6 th May Bank Holiday	8	Unit 13 – Welding technology Learning Aim, A assignment	Unit 2 Unit 45 Unit 13 Learning Aim A	b,e,f,g,l,m	Unit 13 Learning Aim A assignment	Unit 13 Learning Aim A assignment	UNIT 13: END OF OUTCOME ASSESSMENT (Assessing Learning Aim A)
37 13 th May 2024	11	Unit 13 – Welding technology B1 – The properties and behaviours of materials	Unit 2 Unit 45 Unit 13 Learning aim A	b,e,f,g,h,i,m	Unit 42 Learning Aim C assignment resubmission	Unit 42 Learning Aim C assignment resubmission	

		B2 – Unalloyed steel materials B3 – Alloyed steel and non-ferrous materials B4 – Defects and irregularities in welded joints					
38 20 th May 2024	11	Unit 13 – Welding technology Learning Aim B assignment	Unit 2 Unit 45 Unit 13 Learning Aim A&B	b,e,f,g,l,m	Unit 13 Learning Aim B assignment	Unit 13 Learning Aim B assignment	UNIT 13: END OF OUTCOME ASSESSMENT (Assessing Learning Aim B)
27 th May 2024		Holiday					
40 3 rd June 2024	11	Unit 13 – Welding technology C1 – Prepare for welding operations C2 – Welding parameters and settings C3 – Welding of joints safely	Unit 2 Unit 45 Unit 13 Learning Aim A&B	b,d,f,h,l,j,l,m	Unit 13 Learning Aim A assignment resubmission	Unit 13 Learning Aim A assignment resubmission	
41 10 th June 2024	11	Unit 13 – Welding technology Learning aim C assignment	Unit 2 Unit 45 Unit 13	b,d,f,h,l,j,l,m	Unit 13 Learning Aim C assignment	Unit 13 Learning Aim C assignment	UNIT 13: END OF OUTCOME ASSESSMENT (Assessing Learning Aim C)
42 17 th June 2024 21 st – 24 th June Y12 Study Leave	8	Unit 13 - Welding technology Learning Aim C assignment	Unit 2 Unit 45 Unit 13	b,d,f,h,l,j,l,m	Unit 13 Learning Aim C assignment	Unit 13 Learning Aim C assignment	UNIT 13: END OF OUTCOME ASSESSMENT (Assessing Learning Aim C)

21 st June UCAS Convention							
43 24 th June 2024 21 st – 24 th June Y12 Study Leave 24 th Jun Induction Day 25 th Jun – 2 nd July Y12 Mocks 2	8	Y12 Exam Leave Y12 Exams					
44 1 st July 2024 25 th Jun – 2 nd July Y12 Mocks 2 2 nd July Twilight CPD 3 rd – 5 th July Post-18 Talks and Events 3 rd July Y12 Parents Eve (UCAS)	6	Y12 Exams Post-18 Sessions					
45 8 th July 2024	11	Unit 13 - Welding technology Learning Aim C assignment	Unit 2 Unit 45 Unit 13	b,d,f,h,i,j,l,m	Unit 13 Learning Aim C assignment	Unit 13 Learning Aim C assignment	DATA – 12 th July UNIT 13: END OF OUTCOME ASSESSMENT (Assessing Learning Aim C)
46 15 th July 2024		Work Experience Week					