Autum	n Term	Spring	Term	Summer	r Term
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Key Themes	Key Themes	Key Themes	Key Themes	Key Themes	Key Themes
NEA 1.1 Investigation of needs and research. 1.2 Product specification. 2.1 Design ideas.	2.2 Review of initial ideas. 2.3 Development of design ideas into a chosen design. 2.5 Review of chosen Design.	3.1 Manufacture. 3.2 Quality and Accuracy.	4.1 – Testing & evaluation.	Exam preparation.	Exam preparation.
Assessment /	Assessment /	Assessment /	Assessment /	Assessment /	Assessment /
Composite Tasks	Composite Tasks	Composite Tasks	Composite Tasks	Composite Tasks	Composite Tasks
NEA assessment. Interim grading.	Trial exam 1.  NEA assessment. Interim grading.	NEA assessment. Interim grading.	Trial exam 2.  NEA assessment. Interim grading.	Final NEA assessment. Interim grading.	Terminal exam.



## **SCHEME OF WORK**

Intent	Implementation	Impact	Powerful Knowledge	Personal Development
	(T and L Pedagogy/components used)	,	(terminology)	'
NEA	1.1a Identify the <b>needs</b> of the end user.		Form - Why is the product shaped or styled as it is?	We develop transferable skills
	1.1b Outline a <b>design problem</b> from the		Function - What does it do?	to enable D&T students to face
1.1	context provided and identify a need for a		Client and user - How does it meet the needs?	the demands of further and
Investigation	product.		Performance - How does it work? How does it do the job it was	higher education, as well as the demands of the
of needs and	1.1c Investigate existing products to inform		designed to do?	workplace.
research	the product specification for the prototype,		Materials and Components - What materials/components / parts	workplace.
. cocaron	from past and present designers.		have they used and why	Cognitive skills
	1.1d Carry out a range of research		Scale of Production and Cost - What scale of production has been	Non-routine problem solving
	strategies to gather relevant information,		used? How does this affect the overall cost?	– expert thinking,
	including:		Sustainability - Has sustainability been taken into consideration?	metacognition, creativity.
	a. market research		Aesthetics - How is it made to be aesthetically pleasing?	<ul> <li>Systems thinking – decision</li> </ul>
	b. research into the context in which the		Marketability - What makes this product different from anything	making and reasoning.
	prototype will be used		else on the market?	Critical thinking –such as
	c. research into other possible materials		Consideration of Innovation - What elements of the product are	analysing, synthesising and reasoning skills.
	d. any sustainability issues that will be		innovative or move the product forward compared to the market?	• ICT literacy – access, manage,
	considered relevant.			integrate, evaluate, construct
1.2 Product			Statements that are <b>technical</b> and <b>measurable</b> and points should be	and communicate.[3]
	1.2b Production of a product specification		fully justified wherever possible.	Interpersonal skills
specification	that includes statements that are technical,			• Communication – active
	measurable and justified, and include		When proposing and considering design ideas, consider the following	listening, oral communication,
	consideration of:		issues:	written communication,
	a. form		Budget	assertive
	b. function		Aesthetics	communication and non-verbal communication.
	c. user requirements		Cultural issues and	Relationship-building skills —
	d. performance requirements		Sustainability issues	teamwork, trust, intercultural
	e. material and component requirements			sensitivity, service orientation,
	f. scale of production		They also need to explore different materials, components,	self-presentation, social
	g. cost		processes and techniques. All of the above can be displayed through	influence, conflict resolution
	h. sustainability		the use of detailed annotation to communicate knowledge and	and negotiation.
			understanding relevant to the proposed design ideas.	Collaborative problem solving
	1.2c Identification of criteria, which will be		Reference the product specification in relation to how the proposed	– establishing and maintaining
2.1 Design	used to evaluate the success of the		ideas address the individual points.	shared understanding, taking appropriate action,
ideas	prototype.			establishing and maintaining
			Design strategies could include the use of images and simple blue	team organisation.
	2.1a Production of a range of design ideas		foam 3D block modelling. Some digital manipulation of images in	



that address the criteria in the design brief	photoshop could be carried out. A range of communication	Intrapersonal skills
and product specification.	techniques could include dimensions, nets and developments and	<ul> <li>Adaptability – ability and</li> </ul>
	simple use of colour and thick and thin lines.	willingness to cope with the
2.1b Consideration of a range of issues		uncertain, handling work stress,
when producing the design ideas, including:	Communication techniques and media to present the design ideas,	adapting to different personalities, communication
a. budget	including:	styles and cultures, and physical
b. aesthetics	a. freehand sketching (2D and/or 3D)	adaptability to various indoor
c. cultural issues	b. annotated sketches	and outdoor work
d. sustainability issues.	c. cut and paste techniques	environments.
	d. digital photography/media	<ul> <li>Self-management and self-</li> </ul>
2.1c Exploration of different design	e. 3D models	development – ability to work
approaches, including:	f. isometric and oblique projection	remotely on NEA, work
a. materials	g. perspective drawing	autonomously, be self- motivating and self-monitoring,
b. components	h. orthographic and exploded views & assembly drawings	willing and able to acquire
c. processes	i. system and schematic diagrams	new information and skills
d. techniques.	j. computer-aided design (2D and/or 3D)	related to work.
	1	1

Autumn Half Term Two: Key Theme -

Intent	Implementation	Impact	Powerful Knowledge	Personal
	(T and L Pedagogy/components used)		(terminology)	Development
2.2 Review of initial ideas  2.3 Development of design ideas into a chosen design	<ul> <li>2.2a Analysis and evaluation of how each design idea meets the design brief and product specification.</li> <li>2.2b Determine which designs follow the design brief and product specification and should be taken forward for development.</li> <li>2.2c Modification of design ideas to fit the design brief and product specification.</li> <li>2.3a Consideration of user group needs and preferences, of design ideas, conducting further research where necessary.</li> <li>2.3b Consideration of the design as a whole, rather than focusing on component parts in isolation.</li> <li>2.3c Modelling/simulation used to test the features of the design ideas.</li> <li>2.3d Analysis and evaluation of the design ideas, to</li> </ul>	Impact	Undertake an analysis and evaluation of how each of their proposed design ideas meets or fails to meet the design brief and product specification. This should be an objective assessment taking in to account potential user views and feedback. When evaluating each idea, explain how and why each idea addressed the specification.  Summarise the overall review before deciding which idea or combination of ideas should be carried forward for development. It is essential that the initial specification and design brief is used to lead the review process.  Move the proposal forward through a process of iteration, continuing to consider the needs of the users, with additional research if necessary, to present a chosen design which meets the design brief and specification. Consider and develop the whole concept rather than focusing on component parts in isolation purely from a manufacturing perspective. Excellent opportunities for modelling and simulating ideas to test features of the developing solution. Iterative design should model and test ideas until they reach a final design proposal meeting the specification.	Calculation of quantities, measurement of materials and selection of components  Classification of the types and properties of a range of materials Selection of materials and components based on ethical factors, taking
ues.g.:	features of the design ideas.		of the developing solution. Iterative design should <b>model and test</b> ideas	based on ethical

	chosen design, which meets the design brief and		and social
ŀ	product specification.	Review the chosen idea against the specification. There should be clear	footprint of
		reference to feedback made by others and consideration of materials,	materials
2.5 Review of	2.5a Produce a chosen design solution for the	components and manufacturing processes in evidence. Dimensioned	
_	product that meets the design brief and product	drawings, patterns, templates and cutting lists are all methods that can be	
chosen	specification.	used to communicate much of the above.	
design	2.5b Consideration given to the materials,	The chosen idea should be clearly shown and identified as such and should	
	techniques and processes required to produce the	reference appropriate materials and quantities, technical details of	
	chosen design solution.	materials and the processes and components involved during the	
	2.5c Incorporation of feedback from research into	manufacture. This should be in sufficient detail and depth that can be	
	the chosen design.	interpreted by a <u>third party</u> .	

Intent	Implementation	Impact	Powerful Knowledge	Personal
	(T and L Pedagogy/components used)		(terminology)	Development
3.1	3.1a Production of a prototype that meets		Produce a <b>prototype</b> that <b>fully meets</b> the requirements of the design	
3.2 Quality and accuracy	the requirements of the design brief and product specification, showing a wide range of making skills with precision and accuracy.  3.1b Selection and application of: a. material b. range of tools, including marking-out tools, hand tools and machinery c. range of techniques d. fixtures, templates, jigs and/or patterns e. components f. surface treatments and finishes used in the manufacture of the prototype. 3.1c Demonstration of safe working practice. 3.2a Measuring the degree to which the prototype performs as intended. 3.2b The prototype is accurately assembled and finished to a high quality.		brief and product specification. The prototype should display a wide range of making skills with precision and accuracy. Select the materials, tools and finishes when manufacturing of the prototype. All fixtures, components and fittings, should be fully considered and selection of these should be appropriate for the chosen prototype. Show competent use of all tools, equipment and techniques used during the manufacture of their prototype and demonstrate safe working practice. This is ideally demonstrated through photographic evidence of the key stages and processes. Specific annotation to explain and justify the selection of tools, equipment and techniques should be included.  Ensure the manufacture of a fully functioning prototype that meets the specification. The prototype should be accurately assembled and finished. Photographic evidence should be used to demonstrate quality and accuracy. Close up shots should be used to exemplify quality. Photographs should also be used to show how the prototype functions.	

Intent	Implementation	Impact			Powerful Know	ledge	Personal
	(T & L pedagogy used)				(terminolog	у)	Development
4.1 – Testing & evaluation	4.1a Analyse the prototype against the product specification by conducting a variety of tests under realistic conditions, to ensure fitness for purpose. 4.1b Analyse the results of the prototype testing. 4.1c Evaluate whether the prototype meets the product specification. 4.1d Evaluate the sustainability of the final prototype by carrying out a life cycle assessment (LCA), in order to assess its impact on the environment.		unde use a especieffect Evalu cycle Raw Mate Manu enviro Produ Repa enviro Dispo dispo	dest and evaluate the prototype against the specification by conducting a variety of tests and evaluate the prototype against the specification by conducting a variety of tests and evaluate the it is fit for purpose. Testing technical and measurable specification points aspecially needs to be objective to draw appropriate conclusions such as the overall affectiveness of the prototype.  Valuate the sustainability of the prototype by carrying out a life ycle assessment (LCA). This will consider.  It was materials - What affect does the use of raw materials have on the environment?  Material processing - What affect does materials processing have on the environment?  Manufacture - What affect does the manufacturing of the prototype have on the environment?  Postribution - What affect does the distribution of the prototype have on the environment?  Product in use - What affect does the prototype have on the environment when inuse?  Repair and maintenance - What affect does the repair and maintenance have on the environment once it has been manufactured?  Disposal - What affect does the prototype have on the environment once it has been lisposed of?  Much of the testing should be evidenced through photographs, trials and user feedback.			
	erm One: Key Theme –	ation.		lucuses	D-		Damasual
Intent	Implement		۹)	Impact	PO	werful Knowledge	Personal
Exam	(T and L Pedagogy/components used) Revisit syllabus plan from Yr 10 and		u)		( terminology)  Use of past papers and examiners reports and mark schemes.		Development
preparation	complete any topics iden		ew of		Use of Seneca. Use of Focus		

Intent	Implementation (T and L Pedagogy/components used)	Impact	Powerful Knowledge ( terminology)	Personal Development
Summer exam	Study leave. Attend revision sessions and exam preparation events.			