

Year 12	T1	T2	T3	T4	T5	T6
Content / Topic for Term	Paper, card board and films Packaging materials Polymer sheet and film Processes Properties Characteristics Design movements and possibilities	Metals: <ul style="list-style-type: none"> • pewter casting and enamelling • processes • properties • characteristics • design movements and possibilities. 	Wood: <ul style="list-style-type: none"> • processes • properties • characteristics. 	Plastics: <ul style="list-style-type: none"> • processes • properties • characteristics. 	Designing for scales of production.	Start of non-exam assessment worth 50% of the total grade.
Key Knowledge for acquisition, recall and application in assessment or exam	All the types of paper and board and their properties and characteristics (papers, boards and polymer films and sheets). Forming redistribution and addition processes (die cutting and creasing, bending, laser cutting)	All the types of metal their properties and characteristics (non-ferrous, ferrous, ferrous alloys and non-ferrous alloys). Forming redistribution and addition processes (press forming, spinning, cupping and drawing, drop forging, bending.	All the types of wood their properties and characteristics (soft woods, hard woods and manufactured boards). Identify and recycling Forming redistribution and addition processes. (joints – dowel,	All the types of polymers their properties and characteristics (thermoplastics, thermoset, elastomers, biodegradable). Forming redistribution and addition processes (vacuum forming, thermoforming, calendaring, line	Scales of Production Digital design and manufacture Product development Consumer protection Feasibility studies International standards Environmental issues and responsible design.	Design Brief Types of research that can be undertaken related to their chosen project. This will be individual to the student and will include questionnaire, existing products, and manufacturing techniques. Will also include design communication

	<p>Finishes (embossing, debossing, foil blocking, varnish and spot varnish, screen printing, flexography, offset lithography and digital printing).</p> <p>Look at all industrial process linked to these above.</p> <p>Look at different types of modelling and why they are needed (concept, initial concept generation, block modelling and visual appearance modelling.</p> <p>Look at customer identification, corporate identity,</p>	<p>rolling). (Casting – sand, die, investment and low temperature pewter casting) (Mig welding, tig welding, oxy-acetylene welding, brazing and soldering) riveting and pop riveting (milling, plasma cutting, laser cutting, punching and stamping.)</p> <p>Finishing (cellulose and acrylic paint, electroplating, dip coating, powder coating, Anodising, varnishing and cathodic protection.</p>	<p>mitre, comb, dovetail, mortise and tenon, housing, half lap, knock down fittings) (turning, milling, routing, lamination, sanding, and jigs).</p> <p>Finishing (paints, stains, colour wash, wax, pressure treatment, yacht varnish, oil).</p>	<p>bending, lamination, injection moulding, blow moulding, rotational moulding, extrusion, compression).</p> <p>Finishing acrylic spray paints, over mouldings.</p>		<p>Design specification</p> <p>Initial design ideas related to the intended project.</p>
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	labelling and advertising and promotion.					
Key skills to apply in assessment or exam	<p>How to use different prototyping materials.</p> <p>Use of CAD and CAM to make packaging.</p>	<p>Designing skills and using the designer and design movements related to the specification.</p> <p>Learning to use the different machines and equipment related to metals:</p> <ul style="list-style-type: none"> • casting • cutting • shaping • enameling. 	<p>Accuracy and use of the different machines within our workshop including router, sander, circular saw, wood turning lathe. Also learn basic cutting skills to recap from GCSE.</p>	<p>3D drawing skills.</p> <p>Use of CAD and CAM including fusion and 2D design skills. Use of laser cutter and 3D printer.</p> <p>Look at parts of the controlled assessment looking at a products time line, ergonomics and anthropometric data that would link to a tool like this.</p>		Design communication
Title of Knowledge Organiser	None created yet will be completed during the first year of the course.	None created yet will be completed during the first year of the course.	None created yet will be completed during the first year of the course.	None created yet will be completed during the first year of the course.	None created yet will be completed during the first year of the course.	