

Subject Name Design Engineering

		Year 12	Year 13	
A u t u m n 1	Iterative Design Project	<p>Theory content delivery</p> <p>Identifying requirements</p> <ul style="list-style-type: none"> ● exploring contexts that design solutions are intended for ● stakeholder analysis ● usability <p>Learning from existing products and practice</p> <ul style="list-style-type: none"> ● analyse and evaluate products ● past and present developments in design ● lifecycles of products <p>Implications of wider issues</p> <ul style="list-style-type: none"> ● moral and commercial factors ● developing design solutions for manufacture ● distributing products to markets ● energy factors <p>Design thinking and communication</p> <ul style="list-style-type: none"> ● annotated 2D and 3D sketching and digital tools to graphically communicate ideas ● different approaches to design thinking <p>Material and component considerations</p> <ul style="list-style-type: none"> ● factors influence the selection of materials ● materials for prototypes ● properties/characteristics <p>Technical Understanding</p> <ul style="list-style-type: none"> ● structural integrity ● reinforcement ● mechanisms provide functionality 	<p>Iterative Design Project</p> <p>Investigations of the context and feasibility study of potential products</p> <p>Developing a brief</p> <p>Investigations of user and stakeholder needs and wants and the outlining of stakeholder requirements (nontechnical specification)</p> <p>Investigations of existing products and design practices</p> <p>Exploration of materials and possible technical requirements</p> <p>Technical specification</p> <p>Generation of initial ideas</p> <p>Design developments</p> <p>Development of final design solution</p> <p>Critical thinking</p>	<p>Theory content delivery</p> <p>Further investigation of the follow;</p> <p>Identifying requirements</p> <ul style="list-style-type: none"> ● exploring contexts that design solutions are intended for ● stakeholder analysis ● usability <p>Learning from existing products and practice</p> <ul style="list-style-type: none"> ● analyse and evaluate products ● past and present developments in design ● lifecycles of products <p>Implications of wider issues</p> <ul style="list-style-type: none"> ● moral and commercial factors ● developing design solutions for manufacture ● distributing products to markets ● energy factors <p>Design thinking and communication</p> <ul style="list-style-type: none"> ● annotated 2D and 3D sketching and digital tools to graphically communicate ideas ● different approaches to design thinking <p>Material and component considerations</p> <ul style="list-style-type: none"> ● factors influence the selection of materials ● materials for prototypes ● properties/characteristics <p>Technical Understanding</p> <ul style="list-style-type: none"> ● structural integrity ● reinforcement ● mechanisms provide functionality
	A u t u m n 2	Investigations of existing products and design practices		
		Exploration of materials and possible technical requirements		
S p r i n g 1	Technical specification			
	Generation of initial ideas			
S p r i n g 2	Design developments			
	Development of final design solution			
S p r i n g 2	Critical thinking			
	Planning for making the final prototype			
S p r i n g 2	Final prototype			
	Use of specialist techniques and processes			
S p r i n g 2	Ongoing evaluation to manage design progression			
	Risk Assessments			
S u m m e	Feasibility of the design solution			
	Evaluation of the final prototype			

r 1		<ul style="list-style-type: none"> ● change the magnitude and direction of forces and torques ● structural and mechanical efficiency ● electronic systems 		<ul style="list-style-type: none"> ● change the magnitude and direction of forces and torques ● structural and mechanical efficiency ● electronic systems
S u m m e r 2		<p>Manufacturing processes and techniques</p> <ul style="list-style-type: none"> ● materials and processes be used to make iterative models ● How can materials and processes be used to make commercial products ● How is manufacturing organised ● How is the quality of products controlled <p>Viability of design solutions</p> <ul style="list-style-type: none"> ● assess whether a design solution meets its stakeholder requirements ● assess whether a design solution meets the criteria of technical specifications <p>Health and safety</p> <ul style="list-style-type: none"> ● How can safety be ensured when working with materials in a workshop environment 		<p>Manufacturing processes and techniques</p> <ul style="list-style-type: none"> ● materials and processes be used to make iterative models ● How can materials and processes be used to make commercial products ● How is manufacturing organised ● How is the quality of products controlled <p>Viability of design solutions</p> <ul style="list-style-type: none"> ● assess whether a design solution meets its stakeholder requirements ● assess whether a design solution meets the criteria of technical specifications <p>Health and safety</p> <ul style="list-style-type: none"> ● How can safety be ensured when working with materials in a workshop environment