GCSE CURRICULUM and ASSESSMENT OVERVIEW SUBJECT A-Level Design and Technology : Product Design Responsibility: HLS

Year 12	Term1 – Technical Principles : Metals	Term 2 – Technical Principles : Timbers	Term 3 – Technical Principles : Paper and Board/ composites/ Smart and Modern materials	Term 4 – Technical Principles : Polymers	Term 5 – NEA	Term 6 - NEA
Focused Practical Tasks	**Aluminium** [HC1] **Spinner** **Name plate casting** **Welded / dipcoated flowers** **Riveted keyrings**	**A children's mechanical toy**	**Smart pop up books**	**Summer Fayre product**	**Identifying and investigating design possibilities - 20**	**Producing a design brief and specification - 10**
	3.1.1 Materials and their applications / 3.1.2 Performance characteristics of materials / 3.1.3 Enhancement of materials / 3.1.4 Forming, redistribution and addition processes / 3.1.4.5 The use of adhesives and fixings / 3.1.5 The use of finishes / 3.2.6 Selecting appropriate tools, equipment and processes / 3.2.7 Accuracy in design and manufacture	**3.1.10 Protecting designs and intellectual property** **3.1.13 Enterprise and marketing in the development of products** *3.1.1/ 3.1.2 / 3.1.3 / 3.1.4 3.1.4.5 / 3.1.5 / 3.2.6 / 3.2.7*	**3.1.6 Modern Industrial and commercial practice** *3.1.1/ 3.1.2 / 3.1.3 / 3.1.4 3.1.4.5 / 3.1.5 / 3.2.6 / 3.2.7*	**3.2.8 Responsible Design** **3.2.3.4 Product Lifecycle** **3.1.11 Design for manufacturing, maintenance, repair and disposal** *3.1.1/ 3.1.2 / 3.1.3 / 3.1.4 3.1.4.5 / 3.1.5 / 3.2.6 / 3.2.7*	**3.2.1 Design methods and processes** **3.2.4 Design Processes** **3.1.14 Design communication**	**3.1.8 The requirements for product design and development** **3.1.12 Feasibility studies**
	3.1.7 Digital design and manufacture					
Literacy/ numeracy	Dimensions and angles in the design of jigs, fixtures and templates. Determining quantities of materials Use of datum points and geometry when setting out design drawings. The use of tolerances in dimensioning Calculating speeds and times for machining. Interpretation of data from CFD or FEA testing Calculating volumes of 3D printed products, calculating time/speed for 3D printing Interpret statistical analyses to determine user needs and preferences. Use data related to human scale and proportion to determine product scale and dimensions					
Assessments	Metals Assessment based on NEA Practical skill criteria Metals and Materials Properties test	Timber Assessment based on NEA Practical skill criteria Timber / Intellectual property / design Enterprise test	Paper/ Smart/ Modern and Composite Materials Assessment based on NEA Practical skill criteria Paper/ Smart/ Modern and Composite Materials/ Industrial practice test	Plastic Assessment based on NEA Practical skill criteria Plastic / responsible design/ Product Lifestyle test	Design methods and processes/ Design communication Test MOCK EXAM	The requirements for development / Feasibility studies test

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Year 13	Term1 – NEA	Term 2 – NEA	Term 3 – NEA	Term 4 – Revision	Term 5 – Revision
Focused Practical Tasks	**Development of design proposal(s) - 25**	**Development of design prototype(s) - 25**	**Analysing and evaluating**	**Final NEA completion**	**Revision FPT**
	3.1.6.2 Efficient use of materials **3.2.9 Design for manufacture and project management**	**3.2.2 Design Theory** **3.2.3 How technology and cultural changes can impact on the work of designers**	**3.2.5 Critical analysis and evaluation** **3.1.9 Health and Safety**	**3.2.10 National and international standards in product design**	**Exam practice** **Focused Tasks linked to Exam questions**
Literacy/ numeracy	**Scaling drawings.** **Use of datum points and geometry when setting out design drawings.** **Representation of data used to inform design decisions and evaluation of outcomes.** **Presentation of market data, user preferences and outcomes of market research** **Interpretation of market research data, calculating costs and profit.** **Representation of data used to inform design decisions and evaluation of outcomes.** **The use of ergonomic and anthropometric data when designing products for humans and specific applications** **Determining quantities of materials. Calculation of sides and angles of products.** **Use of datum points and geometry when setting out design drawings.** **Use of geometry to create templates for designs**				
Assessments	**Efficient use of materials / Design for manufacture and project management test**	**Design Theory / How technology and cultural changes can impact on the work of designers test** **MOCK EXAM**	**Critical analysis and evaluation / Health and Safety test**	**National and international standards in product design test**	**MOCK EXAM**