

High Tunstall College of Science Curriculum Intent

Subject: Engineering Design R105 Year: 11 Term 1

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|  | **Engineering Design** | **Progress** | | |
| **Topic** | **Key ideas** | **R** | **A** | **G** |
| Learning Outcome 1: Understand the design cycle and the relationship between design briefs and design specifications | I will be able to understand the design cycle and what the identify phase is. —LO1 |  |  |  |
| I will be able to use the design phase to design a product —LO1 |  |  |  |
| I will be able to use the optimise phase to create a product to fit a brief. —LO1 |  |  |  |
| I will be able validate my product by testing and evaluating.—LO1 |  |  |  |

**Topic: R105 -** Learning Outcome 1: Understand the design cycle and the relationship between design briefs and design specifications

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| **Lesson** | Learning Focus | Assessment | Key Words |
| **1 – 2**  **3-4**  **4-6**  **7 -8**  **9**  **10 -12**  **13-14**  **15 - 16**  **17 - 20**  **21**  **22**  **23**  **24**  **25 - 26**  **27**  **28**  **29**  **30** | To analyse a set Brief and understand the identify phase.  To produce research into a client and their needs and wants.  To research existing products and using ACCESSFM analyse the products. (1 hour per product)  To understand the Design Phase and write a design specification based upon their research.  Produce some initial design sketches of a product based upon their specification.  Develop the ideas into a final solution using drawing and modelling.  Create a production plan to show how the product would be made.  Create an engineering drawing of the final product such as a 3rd Angle Orthographic.  **To create a final solution of the final design in CAD or with materials.**  **To test all parts of the prototype.**  **To test the prototype against the design specification.**  **To produce a client interview asking what they think of the final prototype.**  **To evaluate the overall prototype.**  **To review they whole project with teacher feedback.**  **To answer examination questions based upon the design cycle.**  **To answer examination questions based upon identification of designer needs.**  **To answer examination questions based upon the relationship between the design brief and a design specification.**  **To Review all of LO1.** | R105 Mocks and  Externally assessed Examination | The design cycle  Identify phase brief  Research  Process planning  Design phase  Specification  Design Manufacturing plans  Optimise phase Model  Prototype  Error proofing Validate phase (e.g. Virtual, physical) Test  Evaluate  Identification of design needs,  initial design brief from the client, i.e. - situation and context that has led to the brief - needs of the client (e.g. corporate branding, target audience)  purpose of the product functions of the product information which may inform the design brief, i.e. - market research (e.g. focus groups, surveys, needs of target market, changing consumer trends) - strengths and weaknesses of competitors’ products - improvements in materials new production processes budget  the relationship between a design brief and a design specification, i.e. o client provides initial brief o discussion between client and designer (e.g. what is possible, what can be done within budget, essential and desirable aspects, timeframes) further research (if required) ‘final’ brief from which design specification will be developed |