Design & Technology

Product Design

Case Study - The Bloodhound SSC

The British 1000mph Eurofighter-jet-powered land speed record challenger – They aim is top break the world land speed record using the most advanced straight-line racing car ever built.

You are to create either a PowerPoint presentation or a written assignment based on the Bloodhound car record attempt.

Success Criteria

Mention the following factors involved in the designing and making of the vehicle.

- jet propulsion,
- drag, thrust /braking system – parachute,
- wheel braking
- Body shell - aerodynamic design.

Also include the restrictions and challenges the designers have encountered, and their plans for the future.

Deadline: The first lesson in September.

Product Design

Subject content – What you will be taught over the 2 years

I will break these topics up into more understandable explanations when we start the course!

Topic 1: Materials

- To apply a knowledge and understanding of working properties, characteristics,
- applications, advantages and disadvantages of the following types of materials in order to discriminate between them and select appropriately

Topic 2: Performance characteristics of materials

- smart and modern materials, papers, boards, textiles and composites in order to discriminate between materials and select appropriately:

Topic 3: Processes and techniques

- Processes, applications, characteristics, advantages and disadvantages of the following,
- in order to discriminate between them and select appropriately including the selection of
- specific and relevant tools to be used for domestic, commercial and industrial products and
- systems, and use safely when experimenting, improving and refining in order to realise a design:

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4 Digital technologies

- Set up, safe and accurate operation, advantages and disadvantages of the following digital technologies:

5 Factors influencing the development of products

- The importance and influence of user centred design in ensuring products are fit-for-purpose and meet the criteria of specifications when designing, making and evaluating
- Principles, applications and the influence on design of anthropometrics and ergonomics
- The influence of aesthetics, ergonomics and anthropometrics on the design, development and manufacture of products:
- Design theory through the influences and methods of the following key historical movements and figures

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6 Effects of technological developments

- Current and historical technological developments that have had an effect on the work of designers and technologists and their social, moral and ethical impacts

7 Safe working practices, potential hazards and risk assessmentAdopting safe working practices, recognise and react to potential hazards

8 Features of manufacturing industries

- Characteristics and stages of the following methods of production when applied to products and materials

- Characteristics, application, advantages and disadvantages of the following types of quality monitoring systems.

- Characteristics, processes, application, advantages and disadvantages and the importance of considering accuracy of production and efficiency of modern manufacturing methods and systems when designing for manufacture for small, medium and large scale production:

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At the end of year 12, you will begin your Non-examination assessment (NEA)

This is a design and make assignment, where you will create a portfolio of work along with a practical outcome (prototype). You will be working on this assignment for the majority of year 13.

Don’t worry, its not all theory!

During year 12, you will also have the opportunity to get in the workshop and experience using different machinery and tools to produce two products.

- A Caddy (Wooden tool box)
- Placemat (Metal work)