DESIGN + MANUFACTURE

DET STUDIO
www.DETstudio.com

DESIGN FACTORS

Design Factors are specific points that a designer or engineer must consider when tasked with creating or improving a product.

You **must** consider each of the design factors during your course work.

You must **remember** and **understand** each of the indicated design factors for your **course exam**. You will be asked questions about design factors.

MATERIAL

N5 MUST KNOW!

Materials are used to physically create a design and the selection of the most appropriate material is critical. This will often involve extensive research into which material will perform the best. Some important questions:

- Is the material easy to cut, shape and finish?
- Are there any environmental impacts of using the material?
- Is it sustainable or easy to recycle?
- Will the material perform as expected?
- Is it a good choice aesthetically?

SAFETY

Products must be safe to use - that is probably very obvious. However, products must also be safe to manufacture, assemble, transport, store and dispose of. There are a whole range of laws and regulations that must be followed in the design and manufacture of many products.

FUNCTION

N5 MUST KNOW!

Function is the term used to describe the purpose of the product. What problem does the design solve?

Ensuring that design works and is functional is very important. However, there are many different ways to solve a problem and this needs to be balanced with other design factors, such as 'Aesthetics'.

Some products can have more than one function, or have alternate functions than those intended.

ECONOMICS

N5 MUST KNOW!

Economics describe the costs involved in all aspects of the product. They can be broken down into specific sections, including:

- Manufacture
- Transport
- Storage
- Promotion
- Selling
- Recycling

MARKET

N5 MUST KNOW!

Market describes who the product may be sold to or who may use it. There are many small influences that may determine a market and the success of a product. These include:

- Consumer demands & social expectations.
- Niche markets and target markets.
- The branding and advertising of a product.
- Technology 'pushing' a new design.
- The consumer market 'pull' for a new product.
- The *needs* of people...
- The *wants* of people...

AESTHETICS

N5 MUST KNOW!

Aesthetics concerns the look and feel of a product. Simply, does the product look good... (and how do you really know?!? (hint, market research...))

Things to consider include:

Shape
Form
Proportion

Size
Colour
Contrast and harmony

Texture
Materials
Fashion & Trends

ERGONOMICS

N5 MUST KNOW!

Ergonomics is the name given to describe how humans interact with products. It is one of the most crucial areas of design and a lot of time and thought is applied by designers and engineers to ensure their products are suitable and safe for people to use.

There are three main aspects to ergonomics that you must be familiar with:

- **Anthropometrics**
  Anthropometrics considers a range of human sizes and which sizes are important when designing a product, ranging from the average to extremes.
- **Physiology**
  Physiology involves how far a human can move and how strong they are to move, use or lift products.
- **Psychology**
  How does a user perceive a product. Does it appear easy to use? Safe? Does the product create an emotional response?

PERFORMANCE

Performance is best described as how well a product performs. There are a number of points you should always consider - and annotate during the design process. These include:

- **Ease of maintenance**
  How easy is it to maintain or fix the product if it breaks? Are there any parts that will need be replaced occasionally. Is it clear how to fix or replace parts?
- **Strength and durability**
  How strong is a material and is able withstand ware and tear. Is the material so strong it can be made thinner and lighter? Will it survive in its' intended environment, such as outside in the rain?
- **Ease of use**
  Is it easy to use and can somebody figure out how to work it without reading the instructions...
- **Construction & Size**
  Has the product been constructed in such a way that it will work as intended and is it the correct size.