

Design and Manufacture

Throughout the design process you need to think about many issues with your design to ensure that you have designed the product as well as possible. Many students just think solely about function (what the product is to do) and the aesthetics (what the product looks like). For you to achieve the best results in the design process it is recommended that you learn seven design issues and should think about these in all aspects of designing. These can be easily remembered in the acronym MESCAFE and are:

Materials Materials refers to the materials that the product is to be made from. The material is decided by selecting desired properties (what you would like the material to do) and then choosing from the materials that can do those properties. The material choice will also be affected by the raw material cost as this will affect the overall profit. It will also be affected by the desired aesthetics and performance of the product.

Ergonomics Ergonomics is a science of how well a human fits a product and is split into three separate parts, anthropometrics, physiology and psychology.

Anthropometrics - this is the study of human sizes. It is usually displayed in anthropometric tables of male and female sizes. The tables show the sizes of each part of the human body in three columns of percentiles. The three percentile columns are displayed in 5thile, 50thile and 95thile columns which is the smallest, average and largest sizes that are measured.

Physiology - this aims to reduce the possibilities of consumers hurting themselves using the product during its day to day use. It doesn't mean serious injuries like fractures but more to do with sprains and strains.

Psychology – this refers to the thoughts and feelings that the user gets from the product. These feelings could be from looking at or using the product and should always be positive as the products reputation is on the line (and the brand as well).

Safety This refers to how safe the product. Things to consider are, what British Standard should your product conform to? In craft work you should think about stability, safe edges, the intended target market and general function (mechanisms).



Cost For craft and design you need to know three cost issues; the raw material cost, the resale cost and the intended profit. The raw material cost is the cost of the material as you purchase it from the producers. The resale cost is the cost of the product in the retailers and the profit is the difference between the initial outlay costs (raw materials, machinery, labour, rent, bills, etc) and the selling price. The selling price needs to generate a profit to be economic viable.

Aesthetics Aesthetics describes the looks of the product. It refers to the colour, texture, pattern, material, form, contrast, etc.

Function Function has two areas; primary function and secondary functions. The primary function is the main thing that the product is meant to do whilst the secondary functions are the other things the product can do. E.g. the primary function of a chair is to sit on; however its secondary functions could be to stand on (instead of a ladder) or put things on (like clothes in your bedroom).

Environment This is where the product will be kept mostly and will have a major impact of the aesthetics of the product. It also refers to environmental concerns like the 3 re's - **reduce** (material), **reuse** (materials or parts) and **recycle**.

