

Design and Technology

By studying design and technology, you learn how to:

- design products to meet *specifications*
- use tools, materials and other equipment.

The practical and problem-solving skills developed when studying design and technology are useful in a wide range of jobs, and at home.

In this article, we look briefly at a number of jobs where design and technology skills are useful.

Design	<p>Product Designer - Product designers create designs for three-dimensional products. They consider how the product looks, its purpose, materials, costs, technical specifications and methods of production. The type of products they design can range from domestic appliances such as radios, television sets and food processors, to large industrial machine tools. The product designer is given information about the product that the manufacturer has in mind. They then carry out detailed research before producing a series of drawings and sketches that can be developed into a prototype. Most product designers begin their careers as design assistants or junior designers.</p> <p>Visual Merchandiser - Visual merchandisers design and create window and floor displays for shops. Their displays are used to encourage sales and make the shop a more attractive place. Some large retail chains have a central design team who co-ordinate displays for all their employer's retail outlets. Central design teams spend most of their time at their company's headquarters, producing plans, drawings, photos and instructions that are then sent out to individual shops. In other organisations, in-store visual merchandisers may have the responsibility to design a display. Firstly, they choose a theme (often a seasonal event such as Christmas). They then measure the area to be used and make scale drawings. The overall colour scheme is chosen and props selected. Finally, they set up the display.</p> <p>Jewellery/silver Designer - Jewellery/silver designers create designs for a wide variety of jewellery, silverware and cutlery products. Most designers begin their careers in industry, designing products for the mass market. They may improve or update existing designs or they may design and develop new products. This usually involves carrying out detailed research, investigating existing products, new methods of production, materials, and the types of people who are likely to buy the products. Designers may do this research themselves or with the help of marketing managers. Detailed drawings are then prepared so that craftworkers can make the final product. Production methods vary from traditional to 'high-tech'.</p>
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Handcrafts

Model Maker - Model makers build models or mock-ups to help designers get a better idea of what their design looks like, how it fits into its surroundings, and how practical the design is. After talking to the designer, model makers work from design drawings, plans, photos or computer graphics. They use a variety of materials such as wood, plastic, metal, plaster, paper or card to produce models, and machine and hand tools to shape the materials. Full use is made of the latest computer technology. Models can be scaled up if they are representing something very small - such as a molecule - or scaled down if they are representing something very large - such as a motorway flyover system. Model making is sometimes called design representation.

Watch and Clock Repairer - Watch and clock repairers service, repair and restore watches and clocks. They do this by close examination, sitting at a bench and using tools such as eyeglasses and tweezers. Their work involves inspecting, dismantling, cleaning and replacing worn or damaged parts and making new high precision parts to restore the clock or watch to full working order. Watch repairers are able to repair all types of watches but may decide to specialise in mechanical or electrical work. Clock repairers may also specialise, for example, in the repair of public clocks. Other areas of specialisation include restoration of antique clocks and watches.

Metal Engraver - Metal engravers inscribe designs and/or letters into metals including aluminium, stainless steel, brass, copper, bronze and precious metals, such as gold and silver. They decorate objects such as plaques, bowls, pieces of jewellery and clock faces. They also mark inscriptions or lettering for nameplates, trophies, cups, gifts and so on. Engraving for industry includes all types of signs and machine labels, control panels, dials and measuring scales for equipment. Engravers may copy existing designs or create their own.

Ceramic Pottery Maker - Ceramic pottery makers are involved in a combination of traditional craft skills and mechanised processes. Traditional hand tools are still used, as this continues to be the most effective method of manufacture. The most common traditional manufacturing process is throwing a pot.

Locksmith - Locksmiths supply, fit and repair locks for homes, businesses and cars. They make keys to fit locks, using a wide range of tools. Locksmiths also fit sophisticated security systems such as closed-circuit television. Some provide a 24-hour emergency service, for example, helping customers who are locked out, or whose locks have been damaged in break-ins.

Glassmaker - Glassmakers work in two main areas: industry and craft. In industrial glassmaking, technological techniques and equipment are used for mass production. However, in the craft area, a lot of the work is done by hand. Examples of industrial glass manufacture include flat glass such as windows, doors and mirrors, glass fibre (which is used in telecommunications and insulation), containers such as bottles, and automotive glass such as windscreens. Crystalware, such as wine glasses and gifts, and optical work for laboratory equipment and spectacle makers, can be mass-produced or manufactured by craftspeople. On the craft side, there are also specialisms in creating stained glass and coloured glass.

Building	<p>Carpenter/Joiner - Carpenters and joiners use wood to make structures and fittings such as windows, doors, stairs and furniture. They may work in a workshop or on-site. There are many different types of carpenter and joiner. Here are a couple of examples:</p> <ul style="list-style-type: none"> • Bench joiner - usually based in a workshop making things like doors, window frames and roof beams. • Site carpenter - based on-site doing things like fitting door handles and locks, or repairing broken furniture. <p>Building Technician - Building technicians give technical support and assistance to professionals and managers involved in construction projects. They may work on a wide range of projects, from large-scale new building works such as office blocks and housing estates, to small-scale extensions, alterations and improvements to part of a building. Their time is split between on-site and office work. They draw up plans and specifications for use by senior staff, such as building surveyors. From these plans, they calculate the basic costs of the project.</p> <p>Plumber - Plumbers install and repair hot and cold water systems, heating systems and pipework, and controls for gas supply. Installation work includes central heating systems, drainage systems, guttering and rainwater systems, and large refrigeration systems for industry. When the equipment has been installed, the plumber tests it to make sure that it is working properly. They also do routine servicing and emergency repairs.</p> <p>Shop fitter - Shop fitters install fixtures in commercial premises such as shops, offices and restaurants. The work is mainly interior, but can also involve some exterior fittings and improvements. A large part of their time is spent on-site, but at the beginning of a job, they may be based in a workshop or factory, planning and making up the fixtures. The fixture to be made might be a counter, partition, worktop, cupboard, shelving or seating. The right materials for the job have to be selected - these could include wood, glass, Perspex, plastic or metal.</p>
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Engineering	<p>Sheet Metal Worker - Sheet metal workers work with thin metal sheets (up to 3mm thick) which they bend, cut and shape using hammers, small presses, roller machines and guillotines.</p> <p>Automobile Engineering Technician - Automobile engineering technicians support the work of automobile engineers. They may be responsible for highly skilled tasks such as engineering design and draughting, and vehicle development and testing.</p> <p>Engineering Draughtsperson - Engineering draughts people produce detailed drawings and instructions for making products and equipment. They use either computer-aided design (CAD) technology or a drawing board.</p>
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Food technology

Food technology meets the challenge of giving us tasty, safe and nutritious food. People working in this area develop and improve food products, making sure they are safe and high quality.

Food Scientist - Food scientists are experts on the biological, chemical and physical make-up of food, and how food can be processed, stored and preserved. Food technologists use this knowledge to make new food products and ensure that they are safe and of good quality. Although food scientists are more likely to go into research, and food technologists into production, the division between them is not clear-cut. Both may work in research and development, production, and quality assurance management.

Food Technician - Food technicians help scientists/technologists to develop food products. Technicians test the safety and quality of raw materials and finished products, as well as testing packaging, processing and storage techniques. They look after the day-to-day running of the laboratory, and may also help in the research and development of new products.