



Abrasive - a material which can wear others away

Actuator - a device which operates something

Aesthetics - the artistic, tastefulness and beauty of the product

Airborne - floating around in the air

Alloys - a mixture of two or more metals

Amplifier - a circuit which makes small signals larger

Amplitude - height of a signal

Analogue signal - a signal which is changing in amplitude

Analysis - finding out

Annealing - making metal softer and easier to work

Annual ring – growth ring produced each year as a tree grows

Anthropometric data - data about the sizes of measurement of people, what they can reach and hold etc.

Artefact - a manufactured object

Automata - model of figures which move when handles are turned.

Automation - use of control systems for operating equipment such as machinery and processes in factories; this reduces human input.

Axis - the centre of rotation

Batch production – making a small number of a product

Bellcrank – a lever with an angle at the fulcrum

Bespoke – a product that has been made to order

Bevel – a sloping surface or edge

Bibliography – a list of sources of information

Billet – small bar of metal that needs further processing

Biofuel – a fuel derived from living organic matter

Biomass – organic matter that can be used for fuel

Bluetooth – concerning the use of short range wireless communications for mobile phones, computers etc

Bond – joining together using glue

Bowing – becoming bent along the length of the piece of wood

Brainstorming – a technique used for writing down linked ideas quickly

Brazing – a high temperature join using spelter

Breadboard – a board for building circuits on

Brief – a short statement about what you intend to do

Browser – a program which allows you to access the internet

Bubble diagram – a diagram of your ideas

Buffer box – helps you to connect inputs and outputs to a computer easily

Built in obsolescence – where products are designed to stop working or become redundant after a set period

Bulking – providing mass or volume

CAD – computer aided design

CAM – computer-aided manufacture

Cam – a shaped disc or eccentric wheel

Cantilever – a beam supported only at one end

Capacitor – a device which stores charge

Carbon fibre – a resin with carbon threads in it

Carbon steel – steel with carbon added which can be tempered

Cascamite – a type of adhesive supplied as a powder

Case hardening – to create a hard surface on the outside of a metal surface by carburising

Characteristics – the qualities of a material or ingredient

Circuit symbol – the drawing which represents the component in a circuit diagram

Clamping – forcing two materials together using a G-clamp or vice.

Client- the person/people /audience being designed for and whose needs are being met

Closed loop – a system with feedback

CMOS – complementary metal oxide semiconductor

CNC – Computer numerically controlled; used of a range of machinery controlled by computers

Compliant materials – textiles, paper

Components – parts of a project

Composite – mixture of two or more metals

Compressive strength – the ability of a material to withstand being squashed

Concept map – a map of understanding and learning

Coniferous – tree which has cones; usually an evergreen

Context – where the design need occur.

Continuous improvement - the identification of improvements and subsequent evolution of products

Co- operative - a group of people united to meet common social, economic or cultural needs through a jointly owned business

Crowdfunding - a large number of people who raise money for a project or venture

Data – any information which is in a spreadsheet or database

Database – a program which links together information which can then be searched

Datum – a flat face or straight edge from which all measurements are taken

Deciduous – tree which loses its leaves in winter; broad leafed

Deforming – a process that allows materials to change shape without changing state eg. Vacuum forming

Design brief – a short statement about what is needed, who it is for, and any constraints

Design processes – stages in putting your thoughts in to a structure

Designer – the person who devises what the product will be like

Designing – thinking of and developing ideas

Die stock – a tool used to hold a split die

Digital camera – a camera which takes pictures which are stored in digital form

Digital signal – a signal which has two states on or off

Dimension – a add measurements to drawings

Diode – a device which passes current in one direction

Disassembly – taking things to pieces

Dovetail – a type of woodworking joint

Download – to send information to your computer from the internet or cameras etc

Draft angle – an angle which helps the pattern to release from the vacuum form

Drive belts – soft rubber or plastic materials used with pulleys

Ductile – of a material, capable of being drawn or stretched into thinner, smaller sections

Durability – The ability of a material to withstand wear, pressure or damage

Dye – a chemical colour

Dynamic – a changing load

Eccentric cam – a circular cam with offset axis

Effort – the force put into a system

Elastic limit – when materials are stretched they return to their original length, unless they have been stretched beyond their elastic limit

Electrical insulators – a group of materials that will not allow a current to pass through them

Elevation – a view

Engineer's blue – a liquid to coat metals before marking out

Environmental impact – how much effect something has on the world

EPOS – electronic point of sale

Ergonome – a scale model of the human body with flexible joints,

Ethics - moral decisions when designing and manufacturing

Evaluate – to compare with the specification

Exploded diagrams – showing how all the parts fit together

Extruded – squeezed through; the process is used extensively for plastics and metals as it forms uniform cross-sections

Fabrication – making up something from materials, using processes such as cutting, bending, joining an assembly to produce products.

Face edge – The surface at right angles to the face side

Face side – The side chosen to take measurements from

Faceplate – An attachment that fixes onto the outside of a lathe so that products such as fruit bowls can be turned

Feedback – taking some of the output back to the input

Felled – of a tree, cut down in order to produce timber for use

Ferrous – containing iron

Fixed scale – where things are made to certain scales, such as model trains

Flame retardant – fabric is chemically protected against the risk of fire

Flow diagrams – shows the organisation of projects

Flux – a paste which stops oxygen from affecting metals when heated

Focused – task which has a clearly defined result

Follower – a slider which rubs on the outside edge of a cam

Form – why a product is shaped or styled as it is

Former – a base on which to build up thin layers of a material

Function – what the purpose of a product is.

Functionality - how well a product carries out its purpose

Galvanising – Applying a protective layer of zinc to an iron or steel surface

Garnish – to decorate food using colours, textures etc

Gate – a device which switches depending on its inputs

Gear ratio – a comparison of the number of teeth on the output and input gears

Green timber – newly felled timber containing a lot of moisture

GRP – glass reinforced plastics sometimes called fibre glass

Hardwood – wood from a tree that loses its leaves in winter

Hardening – The heat treatment process of making a metal harder by applying heat and cooling rapidly

Hardness – The ability to withstand abrasive wear and indentation

Hazard – a danger

Heat bending – using heat to bend thermoplastics

Heatsink – a metal plate used to remove heat from semiconductors

High tensile steel – a very strong type of steel

Hydraulics – using compressed fluid, usually a special oil to move things

Idler gear – a small gear fitted in between two gears so that they turn in the same direction

Implication – what is going to happen as a result of a decision taken

Inputs – sensors, ie, switches which produce an electrical output

Integrated circuits – small integrated electronic circuits, ICs

Irreversible – once something has been done, it cannot be changed

Isometric grid – grid with vertical lines and at 30 degrees to horizontal ( 3D Drawing)

Iterative process – process of constant assessment and improvement



Jig – a device to hold odd shaped work

Kilohm – one thousand ohms

Knot – a round dark part of timber, where a branch starts in the tree

Kyoto Protocol – an international agreement that set out to reduce greenhouse gas emissions globally

Lag – the time it takes a system to respond to change

Laminating – gluing together thin strips of material to make a thicker one

Laser cutting – using high powered lasers to cut materials

LDR – light dependent resistor

LED – light emitting diode.

Lean manufacturing - reducing and eliminating waste in a manufacturing process

Lever – a rod pivoted along its length.

Life cycle assessment - a technique used to assess the environmental impact of a product at all stages of its manufacture, use and disposal.

Linear – a straight line

Load – the forces acting on a structure

Logic – representing signals at 0 or 1 states

Low – a 0 logic state, no voltage present  
Machine – a device which does work using moving and fixed components

Malleable – of a material, capable of being deformed by compression without tearing or

cracking

Mass production – making very large quantities of products

Mass structure – a structure which resists forces with its own weight

MDF – medium density fibre board, a man made board

Mechanical advantage – how much the effort is amplified

Mechanisms – a system of gears, cams and pulleys working together

Megohm – one million ohms

Mesh – to link or fit together

Microcontroller – a small programmable computer on a single chip

Microfibers – closely woven materials

Milling machine – a machine which can cut and shape metals, or thick plastics

Mock up – a model

Modelling – making small scale replicas or using a computer program to test ideas

Monomers – the smallest part of a plastic material

Mould – molten metal is poured into this to make a shape

Multimedia – sound, pictures, text, video in digital form  
N type – negative type semiconductor

Natural – from sources in nature, plants and animals

Non-ferrous – containing no iron

Offshore manufacturing - the practice of large manufacturing companies and industries relocating their businesses to take advantage of lower costs

On/off switch – switch with only two states called on or off, sometimes shown as 1 or 0

One-off production – making a product as a single item, such as a bridge or a football stadium

Opaque – Not able to be seen through

Open loop – a system without feedback

Open task – task which can have varied or unknown end results

Operator – the method in which the valve is operated, eg push button, lever etc

Orthographic drawing – a style of drawing with measurements and construction details

Outcome – the result of a design activity

Outputs – devices which light up, sound or move when a voltage is applied

Oxidising – oxides forming when a metal is heated

P type – positive type semiconductor

Packaging – the containers in which products are sold

PCB – a printed circuit board

Performance requirements – The technical considerations that must be achieved within the product

Perspective – giving the impression of depth

PIC – peripheral interface controller, the microcontroller

Pictograms – drawings of certain actions like ironing, washing etc

Pictorial drawings – a realistic, rendered drawing of the project

Piezoelectric – a material which can change shape when a voltage is applied, and vice versa

Pilot hole – a small hole used to stop materials splitting when using nails or screws

Pinion – a smaller gear

Pivot point – a point of rotation

Planishing – hammering the surface of sheet metals

Plastic memory – when reheated thermoplastics try to return to their previous shape

Pneumatics – using compressed air to move things

Polymer – a molecule formed when monomers are joined together

Polystyrene foam – a thermoplastic material used for modelling

Port – where air enters and leaves a pneumatic component

Potentiometer – a variable resistor

Precious metals – rare metals such as gold, silver and platinum

Presentation drawings – coloured drawings which show the product as if in 3D

Preset resistor – a screwdriver operated variable resistor

Primary research – research which you collect

Prioritise – the order in which things need to be done

Product - the finished article

Programmable – a chip that can be loaded with a program and run

Programmer – a device which programs computer chips

Properties – the characteristics of a material or ingredient

Proposals – the things you intend to do

Prototype – a model to test an idea before production

Pulley – a wheel with a groove in its rim for a belt to run in

Pulse width – the time a digital signal is on or off

PVA – poly vinyl acetate

Quality assurance – making sure products are up to standard

Questionnaire – a list of questions with spaces for written answers

Rapid prototyping – a process that automatically creates physical objects, by building up thin layers or using processes such as stereolithography

Reconciliation – deciding to do things in a way that may not be your first choice

Recover – get energy from waste materials

Recycling – reusing waste or unwanted materials

Reduce – Lower the amount of energy or material used in the manufacture of products

Reforming – a process that involves a change in state of the material being processed eg Casting

Regulator – controls the maximum pressure to part of a system

Relay – a solenoid operated switch

Research – finding out information

Resistant materials – wood, metal and plastics

Reuse – Use a product or material more than once

Router – a hand held tool capable of holding different sized and shaped bits to cut different slots or profiles

Scale – the size of the model compared to the real thing.

Schematic diagram-graphic symbols or simplistic diagrams used to convey a system e.g. the underground map.

Seasoning – reducing the moisture content of timber

Secondary research – research collected and published by others

Semiconductor – a silicon based material or electronic component

Sensors – devices that can sense temperature, heat, light and moisture

Shear – a force which acts across a material

Shell structure – a structure made of sheet materials

Simulate – use the computer to try out something before actually making it

Single acting – in a pneumatic circuit air pressure pushes piston out, a spring returns it

Sketching – drawing freehand

SMA – shape metal alloy

Smart materials – new materials with unusual characteristics

Snail cam – a snail shaped cam.

Social footprint-the impact a product or individual has on society

Social responsibility-the idea that a designer needs to evaluate the impact their product could have on society and take action to make this better.

Softwood – wood from a tree which keeps its leaves in winter

Solvents – chemical which dissolves others

Sources – where you find information

SPDT – single pole double throw

Specification – what the product has to do and look like, a list of design requirements

Split die – a tool used to cut an external screw thread

Splitting – when the end of a wooden plank splits as it dries out

Spreadsheet program – a computer program such as Excel which stores data and allows it to be

manipulated

Sprue – a channel through which metal or plastic can be poured or injected

SPST – Single pole single throw

Stability – the resistance to change in a system

Static – a constant load

Stencil cutter – a plotter which can cut card or thin plastic sheet

Stiffness – the ability to resist bending

Stock sizes – the standard sizes of material that suppliers have in stock

Stroke – the movement of the piston in a pneumatic cylinder

Structure – a body which recognises forces without changing shape too much

Struts – rigid members used in compression

Summative evaluation – the final evaluation

Sustainable – capable of being maintained at a certain level

Swarf – small bits of waste material produced while cutting screw threads or when cutting on a centre lathe

Sweated – when two pieces of finned metal are joined together

Switch – breaks an electrical circuit when a button, lever or toggle is operated

Symbols – drawing which represent things

Synthetic – a material that does not come from a natural source

System – a collection of linked things

Tap – a tool used for cutting an internal screw thread

Tap wrench – a tool used for holding a tap

Tarnish – a film or stain that forms on an exposed surface, often leading to a change in colour or loss of lustre

Tease apart – to gently pull apart

Technical notebook – written comments about technical aspects of your project.

Technology push-technological discoveries used to drive the development of a product.

Template – a pattern, used to draw around

Tempering – the heat treatment process of removing excess brittleness once a component has been hardened

Tensile strength – the load which a material can withstand

Tension force – a pulling force

Testing – trying out things

Thermistors – temperature dependant resistors

Thermoplastic – plastics that soften when heated, harden when cooled, and then can be heated and softened many times

Thermosets – plastics that, after being heated and softened during manufacture, cannot be changed or softened by heating again

Ties – flexible members used in tension

Timber – wood prepared for use in construction

Time constraint – time taken to charge a capacitor

Timer – a circuit which stays on or off for a time for receiving an input signal

Timetable – a chart showing when you hope to complete parts of the project or topic

Tinning – applying a thin layer of solder to two surfaces to be joined by soldering



Tolerance-the minimum and maximum measurements that can be accepted when manufacturing.

Torque – the force of twisting

User- the person/people who make use of a product that has been developed by a designer.

User centred design- design development with the user at the centre of the focus. The designer tries to invigorate how the product will actually be used, as opposed to focusing on other areas such as cost.

Valve – controls the distribution of air in a system

Velocity ratio – a comparison of the distances moved by the effort and the load

Veneer – a very thin sheet of wood shaved from large pieces of wood

Versatile – capable of being used for or adapted to many different applications

Videoconference – a virtual meeting between people in different locations using television, video or computer

Virtual modelling – creating models on a computer

Warp – twist or distort

Wastage – shaping by removing

Work hardening – when hammered or bent, metals get harder to work

Working properties- How a material reacts to an external force.

Working voltage – the maximum voltage that can be applied to a capacitor

Abrasive - a material which can wear others away