

Skills Area

Welding

Welders are craftsmen and women who need hands-on skills to do a professional job. Different welding processes are required with different materials.

In order to meet the quality requirements, welders must be able to understand welding drawings, standards and markings, apply the required welding processes and understand the characteristics of the materials. Knowledge of welding work safety is also required.

IT/ Software Applications

This skill category covers various uses of Microsoft Office software (or similar) and graph programmes. Practical, mathematical and theoretical knowledge is required to use the software (such as the ERD model).

The major areas covered in this skillcategory are Word Processing, Databases, Spreadsheets and Presentation Graphics. Word Processing covers planning, creating and editing documents according to an agreed standard, linking data from spreadsheets and databases and editing graphics to fit the documents. Word Processing also includes creating web pages. The use of macros will help with various tasks.

Database skills include designing and creating databases. Linking queries, reports and data imported from other programmes provides a powerful data management and reporting tool for industry and commerce. Macros are created to enable repetitive tasks. Spreadsheet skills include designing and creating complex spreadsheets that can be used to create graphs and Pivot tables. Data can be imported from databases, word processing, presentation graphics and web pages. Presentation graphics tasks involve drawing and editing images, graphics, voice, animation and video files. These will include scanning images and text and designing and creating slide shows.

Wall and Floor Tiling

Tiling is a profession that is used in all types of construction in all parts of the world. The finish product can enhance, protect and form the structure.

Competencies covered may include the use of wall and floor tiling tools and equipment, fix floor tiles, fix wall tiles, carry out decorative tiling, tile domestic pools and spas, and carry out concreting to simple forms.

The professional tiler is required to work safely on a General Construction site, plan and organise work to maximise personal productivity, carry out measurements and calculations, read and interpret plans and specifications, apply basic levelling procedures, handle wall and floor tiling materials, use wall and floor tiling tools and equipment, prepare surfaces for tiling application, repair and fix floor and wall tiles to different substrates, carry out mosaic tiling, tile on curved surfaces, apply waterproofing process to internal wet areas.

Plumbing and Heating

Plumbers install water, drainage and heating pipes for houses and industrial sites. The tasks can include gas and compressed air pipe installations. Pipes are welded, soft-soldered, hard-soldered, threaded and joined with different fixings. Machine crimping is also used. Pipe bending also requires several techniques. Hand tools, hydraulic tools and sand bending are used. The bending radius and angle are measured.

Fixing pipes to the wall is an essential part of pipe installation.

Another important skill is installing visible fittings such as showers, basins and other plumbing installations.

Industrial Electronics

This skill involves manufacturing, testing and troubleshooting electronic equipment. Skilled technicians are able to build equipment and systems for electronics and other special applications. They use the required hand tools, solders and measuring devices and computers. Since the manufacturing processes of modern mass-produced electronics are highly automated, technicians build prototypes before production, and maintain and repair systems.

Computers and embedded systems (computers for which a fixed programming environment is embedded in the processor) play a central role in this skill area since electronic devices are mainly built with the aid of programmed systems.

Web Design

Web Design is a fairly new profession incorporating building and maintaining web pages. Web Designers use computer programmes to produce pages which include links to other pages, graphical elements, text and photographs. The layout of these elements can be presented as a script or drawings on paper.

Computer software is used for technical implementation. In their work, designers and builders must pay attention to copyright laws and ethical questions.

These days anybody can try their hand at Web Design, putting more pressure on professional designers. In order to awaken interest and make visitors stay at a site designers must learn new techniques and use them to come up with original solutions.

When professional rather than amateur sites pull in visitors, the Internet can become an important platform for corporate communications, marketing and trade.

A web page producer understands the technology and the related artistic values. On websites, technology is used to automate functions and to help content administrators in their work.

Creative skills are needed when designing the colours, fonts and graphics and their layout on a site. User interface planning ensures good usability. A website producer must also understand the basics of

project work, content production and site administration.

Compatibility of the end product with standard browsers and software/hardware combinations is important.

Electrical Installations Technology

Electrical Installers manufacture, maintain and repair electrical equipment for houses, industrial sites and power stations. Their work involves electrical distribution devices such as switchboards, cables and cable routes and different safety devices such as fuses, thermal relays and fault current protection switches. Electrical Installers install electrical equipment and systems. These may include heating, lighting, air conditioning and metering equipment as well as crime and fire alarm systems. Electrical safety is an important area of Electrical Installers' work. They must be able to install, maintain and repair equipment so that they are safe to use. They must adhere to safe working practices without endangering themselves or others.

Bricklaying

Bricklayers work on commercial and residential projects where they lay bricks, block stone, glass block or terra cotta to build interior and exterior walls, partitions, fireplaces, chimneys, smokestacks and other structures.

A bricklayer is trained to do the following jobs:

- select and prepare mortars
- build interior/exterior walls and partitions
- install insulation in masonry walls
- lay radial brick or stone for industrial and residential chimneys
- apply firebrick to chimneys and smokestacks
- apply acid-resistant brick to kilns and tanks
- create garden walls, footpaths, arches, patios and balconies
- precision cut stone, brick, block and other dense masonry materials
- reinforce masonry structures with bolts, tie bars or metal mesh

To become a successful bricklayer requires endurance, concentration, planning and scheduling, varied hands-on skills, competent bricklaying, an eye for detail, and tidiness.

Cabinetmaking

A cabinetmaker produces furniture, cabinetry and architectural millwork from a variety of natural and manufactured materials for both the commercial and residential markets. Cabinetmakers specialise in working with wood and other construction materials to fabricate useful and decorative items. They

must master a combination of traditional and contemporary techniques using hand tools such as chisels and mallets and modern tools such as electronic and even computerized woodworking equipment.

A cabinetmaker can:

- identify various types of wood and composite materials
- safely operate hand and power tools
- use woodworking machines and perform detailed milling • perform material breakouts, case work assembly, gluing and laminating
- construct staircases, sashes, doors, moulding, furniture and cabinets
- execute specialty work involving bends and curves

Joinery

Joinery is the process of connecting or joining two pieces of wood together through the use of various forms of wood joints.

In fine woodworking, common forms of joinery include dovetail joinery, mortise-and-tenon joinery, biscuit joinery, lap joints, spline joints, etc. Joiners construct doors and windows including frames.

Traditional craft methods are used, although there are a variety of woodcutting machines used in joinery.

Fashion Technology

Fashion designers conceptualize and create new clothing and accessory designs. They analyze fashion trends; choose the colors and fabrics; work closely with production, marketing and sales departments to design; produce and promote ready-to-wear products to clients. Fashion designers working in small firms, usually perform most of the technical, patternmaking, and sewing tasks, in addition to designing clothing. They are technically skilled garment producers who are efficient, can handle different garments and are skilled in needlecraft.

Requirements are: knowledge of fashion, creativity and imagination, together with great technical skill, including commercial and artistic applications.

Automobile Technology

There are seven important car systems:

- Diesel engine systems
- Handling systems
- Electrical systems
- Petrol engine systems
- Transmission and gear system
- Mechanical repair of the motor
- Chassis and steering systems

Technicians are able to understand the functioning of these systems, and carry out troubleshooting, maintenance and repair work. They are able to work logically and systematically, adhering to the health and safety regulations.

Restaurant Service

Restaurant service requires excellent skills in areas such as:

- Serving food and drinks
- Mixing international drinks and working behind the bar
- Preparing food in front of customers, e.g. carving or flamb?ing
- Serving wine
- Identifying alcoholic drinks
- Folding napkins

Service skills require competence across these types of restaurants:

1. Bistro - Plated service
2. Cocktail Bar - Gueridon service
3. ? la carte restaurant - Cooking at the table
4. Fine dining - Gueridon service

Cooking

A cook is trained to plan menus, prepare a variety of foods according to health and safety regulations and manage a commercial kitchen. The food service industry encompasses a wide and interesting range of job opportunities for cooks. While specific duties vary depending on the type of establishment, it is the cook's responsibility to prepare meals that are both appealing and nutritious.

They are also responsible for food costing and safety and sanitation.

Depending on the size and type of commercial kitchen and the cook's interest and aptitude, the cook will be expected to:

- prepare, season and cook a variety of foods according to recipes
- create and test new recipes
- operate machinery associated with food preparation
- carve meats, determine portion sizes, arrange foods and add sauces, gravies and garnish to servings
- bake desserts and pastries
- prepare buffets such as platters and showpieces
- oversee menu planning, estimate food requirements and obtain the necessary food from storage or from suppliers to maintain an inventory of kitchen provisions
- prepare and follow budgets
- supervise kitchen staff

Understanding the needs of special diets due to culture, health or religion is becoming a more important part of the job. In health care facilities cooks prepare special meals for patients based on instructions from a dietitian or chef. Cooks also supervise kitchen helpers and may oversee personnel in the preparation, cooking and handling of food.

Mechatronics

Mechatronics technicians build engineering systems for the automation industry. Mechatronics is concerned with mechanics, electronics and computer technology.

The computer technology element covers information technology applications, programmable machine control systems and technology which enables communication between machines, equipment and people.

This category combines skills in mechanics, pneumatics, electronically controlled systems, programming, robotics and system development. Mechatronics technicians design, build, maintain and repair automated equipment and programme equipment control systems.

Mechatronics top performers are able to meet a variety of needs within the industry. They carry out mechanical maintenance, equipment building and component machining. They also cover equipment information gathering, components (sensors) and regulating units. Mechatronics professionals install, set up, repair and adjust machine components and manage equipment control systems, including programming.

Everyday Mechatronics appliances include shop tills (belt + cash register assemblies), automated bottle recycling machines, note and coin change machines and lifts in residential buildings.

Industrial applications include industrial multi-product packing lines, labelling machines for tinned products, lifting and transport machinery (automatic trucks, cranes, loading machinery) and automatic assembly and measuring equipment in the electronics industry.

Mechanical Engineering Design - CAD

It is used to produce design documentation in manufacturing, including product drawings, paperwork and 3D models.

CAD has largely replaced conventional drawing boards.

Computer-driven design enables drafters to modify plans more easily at the design stage and to produce accurate models of the product. Computers also reduce the risk of human error.

CAD designers work in industrial design departments or design agencies. Professional CAD designers have to keep up with their industry's continuous development and new software.

CAD designers are expected to draw up designs accurately and meticulously and to have acquired thorough understanding of their CAD software.

Graphic Design Technology

Graphical Designers typically work in advertising agencies, corporate advertising departments, reproduction plants or printers. Graphical Designers can be called ADs (Art Directors), Production ADs, Assistant ADs, Advertising Assistants and Graphical Designers. In reproduction plants and printers they may be called Printing Surface Producers or Printing Assistants.

Two-dimensional objects may involve any kind of printed material. Planning three-dimensional objects involves technical design and creating a visual image of the object (such as packaging). Skills include producing ideas, creating layouts, digital editing, typography, producing graphics, typesetting, printing and presenting the final product.

Refrigeration

Refrigeration technicians work in workshops, building sites, factories, manufacturing shops, and customers' houses. They often work alone; though larger building projects usually employ a team of 3-5 refrigeration technicians. An independent job entails that the technicians must acquire a broad set of skills. They must be able to understand installation specifications and plans and choose the best implementation method. A good result requires creative thinking.

Refrigeration technicians install several components which form the refrigeration system. This includes soldering pipes and the safe handling of refrigerants without causing danger to the environment. They are skilled in electronics and understand airflow techniques. Interpersonal skills are also needed since the technicians must be able to work with a variety of people.

Information Network Cabling

In this skill contest, participants compete in designing, installing, and testing telecommunications networks. Each competitor receives one broad task, in which he or she should perform the entire data cabling process from the telecommunications operator to the computer at home or in the office. The work involves designing, realising, and testing optical fibre and local area network interfaces, as well as the construction of a cable television network.

A competitor's craftsmanship is measured in particular through the connection of different types of cables to other cables in interfaces, as well as cable termination in interface panels or boxes - for example, connecting two optical fibres to each other through welding or the termination of an optical fibre in an optical fibre panel.

Beauty Therapy

A beauty therapist is a specialist in skincare, skincare advice, massage and makeup. Beauty therapists are able to plan, apply and market face, body, feet and hand treatments and makeup. They can provide advice on how to use colors, find a personal style, look after your skin and body, and how to choose

and use skincare products. Beauty therapists' hands are important tools but they also use technical equipment, continually developed by the industry. Beauty therapists also sell skincare and makeup products.

Providing treatment to clients requires knowledge of hygiene, anatomy and physiology, and skin structure and its functions. In order to provide quality care for their clients, beauty therapists must know about the ingredients used in cosmetics, and about products, skincare methods and beauty equipment and how they affect the skin and body. Giving advice on skincare requires knowledge of nutritional science, the importance of exercise, skin conditions and hygiene. Beauty therapists must also demonstrate understanding of how electrical devices work in order to avoid endangering customers' health and safety when applying treatments.

Beauty therapists often work in close contact with clients from different age groups and backgrounds. Good social and interpersonal skills, discretion and respect for others are important characteristics for those working in customer services and skincare. People working in the beauty industry must also be able to interpret the wishes and needs of those customers who might have difficulty in expressing them.

Beauty care professionals work together with fashion, media, hairdressing and healthcare professionals. Beauty therapists follow the industry's developments in their own country and abroad and continuously update and develop their knowledge and professional skills. Learning to learn and lifelong learning are crucial in order to develop one's career and skills. These days, a positive attitude towards new technology and its applications is important. A beauty therapist must be in good health and able to deal with physical stress, particularly on the body's locomotive system. A balanced lifestyle and regular exercise help beauty care professionals to cope with the stresses of their work.

Ladies/Mans Hairdressing

Important aspects of Hairdressing include correct cutting techniques, curling, colouring and barbering. Hairdressers must demonstrate creativity, imagination and technical ability combined with commercial awareness. Hairdressers need to demonstrate an understanding of fashion trends and new developments in their trade. Professional conduct is also very important.

Professional hairdressers may work as:

- Barbers
- Hairdressers
- Teachers
- Product consultants