

Scientists
for Global
Responsibility

CAREER PATHS

Globally Responsible
Careers in STEM



BIOLOGY

BIOTECHNOLOGIST

Biotechnologists study the genetic, chemical and physical attributes of cells, tissues and organisms in order to develop new technologies, processes and products that will improve the quality of human life.

Types of biotechnology roles include:

- **environmental** – detecting and controlling pollution and contamination in the environment, industrial waste, and agricultural chemicals, creating renewable energy and designing biodegradable materials to reduce humanity's ecological footprint
- **medical and health** – using biomolecular processes to develop and improve treatments, identify inherited diseases, cure certain disorders, and even lead to organ regeneration
- **industrial** – using enzyme production to preserve and enhance the taste in food and drink, and developing enzymes to remove stains from clothing at lower washing temperatures
- **agricultural biotechnology** – improving genetically modifying crops to increase pest resistance and productivity
- **biofuels** – using organic compounds to reduce the cost of bio-refining reagents and put biofuels on an equal footing with fossil fuels, and creating chemicals from renewable biomass to reduce greenhouse gas emissions



CLINICAL SCIENTIST, BIOCHEMISTRY

A clinical scientist working in biochemistry will analyse samples taken from patients' blood, urine or other bodily fluids to help with the diagnosis, management and treatment of diseases. Often based in a hospital laboratory, you will interpret and validate the results of these samples and advise clinicians and GPs on the correct use of tests and any necessary follow up investigations.





CLINICAL SCIENTIST, GENOMICS

Clinical scientists working in genomics analyse and interpret patient samples in order to identify alterations in genes and to help predict whether other family members or future generations are at risk from the abnormality. The results of analyses are used by clinicians to inform diagnosis, to develop treatment programmes and also to work out a prognosis.

There are three main categories:

- **prenatal diagnosis** – examining cells for possible abnormalities in the foetus, usually where single gene disorders have been identified. Examples include cystic fibrosis and Huntington's disease.
- **carrier testing** – to identify patients who may be at risk from single gene disorders
- **confirmation of diagnosis**



EPIDEMIOLOGIST

Epidemiologists study the patterns, causes and effects of diseases in groups of people and work either in a research setting, focusing on populations as a whole, or as a clinical epidemiologist, concentrating on patients. They focus on the patterns and causes of diseases by using statistics and model-building to find out how they occur. They study samples of the population that include healthy and unhealthy individuals using data given to you. You won't normally collect the data directly from affected groups. The work will inform public health policies and global strategies in order to prevent future outbreaks and epidemics of a disease.

By contrast, if you're working in a clinical setting, you'll study the disease in individual patients and focus on how the disease has developed. This area of work is usually carried out by medically-qualified epidemiologists.



MARINE BIOLOGIST

Marine biology is the study of all aspects of life in the sea and the environment on which it depends. This includes marine plants, animals and other organisms, both vertebrate and invertebrate, in deep oceans, shallow seas and the laboratory. The main aims of marine biology are to improve understanding of the marine world and to understand and predict changes in ecosystems affected by human and natural disturbances.





BIOLOGY

Types of roles include

- marine ecologist
- reef restoration
- environmental engineer
- marine ecology
- marine biotechnologist

MICROBIOLOGIST

Microbiologists study microorganisms (microbes) in order to understand how they affect our lives and aim to solve a range of problems affecting our health, the environment, climate and food and agriculture. This can include the prevention, diagnosis and control of infections and disease, as well as ensuring that food is safe, understanding the role that microbes play in climate change, and developing green technologies.

Microbiology is a substantial subject which overlaps with other areas of life sciences, such as molecular biology, immunology and biochemistry. Specialist areas include:

- medicine
- healthcare
- research
- agriculture and food safety
- environment and climate change



NANOTECHNOLOGIST

Nanotechnologists manipulate matter on the nanoscale (one billionth of a metre), developing new materials, equipment and diagnostic tools. Nanotechnology encompasses science, physics, chemistry, biology, engineering and computer science.

Their work involves designing and conducting experiments based around observing nano-scale systems in their given field, often with the help of other researchers across several disciplines, departments or institutions and between academia and industry. The





BIOLOGY

information is then analysed to develop practical applications of the results, for example a new material, device or procedure. Computational research can also be carried out using simulated nano-scale experiments and systems to increase theoretical knowledge and aid in the design and development of practical experiments.

NATURE CONSERVATION OFFICER

[Link to 3, 13, 15](#)

Nature conservation officers manage and protect the environment, promoting sustainability, educating others and providing information and analysis. Working to protect, manage and enhance the local environment can include grassland, woodland, forests, coastal areas, moorland, mountains and rivers, and, depending on the region, might also include work in marine habitats.

Part of the role is to encourage people to use the countryside and promote awareness and understanding of the natural environment, so you might develop policy which with local and national impact.

Other jobs in this area might have titles such as:

- conservation assistant or technician
- project officer or biodiversity officer
- sustainable development officer



PHARMACOLOGIST

Pharmacologists understand how medicines and other drugs work and how they're processed by the body so they can be used effectively and safely.

Currently a significant part of pharmaceutical research involves the use of animals, although this doesn't have to be part of your work – you can choose whether you want to be involved in this. Improved use of *in silico* (computer modelling) and *in vitro* techniques (in a test tube, culture dish, or elsewhere outside a living organism) are alternatives to *in vivo* (tests using whole, living organisms or cells, usually animals, including humans, and plants).

You will conduct research to aid drug discovery and development and the work is used to:

- discover new and better medicines
- improve the effectiveness and safety of current medicines





BIOLOGY

- understand how and why people react differently to different drugs
- find out why some drugs cause addiction or unwanted side-effects.

Specialist areas include:

- cardiovascular pharmacology
- neuropharmacology
- psychopharmacology
- veterinary pharmacology
- clinical pharmacology.

Other pharmacological specialties are often grouped according to body systems, but can also be subdivided based on other aspects of health and disease.

Clinical pharmacologists work on the development and delivery of medicines to patients. This can either be as a clinical pharmacology scientist developing a medicine through clinical trials or as a medical doctor who will prescribe medicines directly to the patient. Clinical pharmacologists can work in academia, the NHS or for drug discovery companies.

SOIL SCIENTIST

Soil scientists help to sustain biological infrastructures across the world through research and using their findings to solve problems. As a soil scientist you'll gather, interpret and evaluate information about the chemistry, biology and physics of soil. Using the information obtained from this analysis, you'll inform and influence on diverse issues such as:

- agricultural production
- biodiversity
- climate change
- environmental quality
- human health
- land remediation.

Soil is vital to sustaining food production, as it is a natural and renewable resource. It supports plant and animal life and has a positive impact on environments globally – an important area of research and development.





CHEMISTRY

ANALYTICAL CHEMIST

Analytical chemists use a range of methods to investigate the chemical composition of substances with the aim to identify and understand the substance and how it behaves in different conditions.

Types of work for an analytical chemist include:

- drug formulation and development
- chemical or forensic analysis
- process development
- product validation
- quality control
- toxicology



CHEMICAL ENGINEER

Chemical engineers design and develop of diverse range of products. Your work will focus on changing the chemical, biochemical and physical state of a substance to turn it into something else.

Work could include the following industries:

- energy
- food and drink
- toiletries
- water treatment

You might want to think carefully about whether you want to work in these industries:

- oil and gas
- pharmaceuticals
- plastics

Modern chemical engineering is also concerned with pioneering valuable new materials and techniques, such as nanotechnology, fuel cells and biomedical engineering.





CHEMISTRY

FORENSIC SCIENTIST

Forensic scientists provide scientific evidence for use in courts of law to support the prosecution or defence in criminal and civil investigations and are primarily concerned with searching for and examining contact trace material associated with crimes. This material can include:

- blood and other body fluids
- hairs
- fibres from clothing
- paint and glass fragments
- tyre marks
- flammable substances used to start fires.

Although evidence is usually presented in writing as a formal statement or report, you may have to attend court to give your evidence in person as an expert witness.

This is a competitive area to get into so laboratory experience and a related scientific degree are essential.



TOXICOLOGIST

Toxicologists investigate any potential adverse impact that materials, chemicals, potential new medicines, natural substances and radiation might have on human and animal health and the environment. As well as laboratory and field studies to assess the possible risks and harmful effects of these substances, you will take into account the potential implications of future technology such as genomics, digital tools, in silico/in vitro developments and the long-term consequences of gene-editing technologies.

Different areas of toxicology include:

- clinical
- consumer
- contract
- forensic
- industrial
- occupational
- pharmaceutical
- regulatory.





MEDICINE

ANAESTHETIST

Anaesthetists are the largest group of specialist doctors in hospitals and provide wide-ranging support to patients who are undergoing surgical, medical or psychiatric procedures. As an anaesthetist, you will assess patients' health and discuss which type of anaesthetic is suitable for them, administer appropriate anaesthetics before surgery, monitor their wellbeing during surgery and provide care after medical procedures, and also deal with emergencies in theatre.

You will treat a wide range of conditions using the appropriate form of anaesthetic including general, regional or local. Patients can include all ages from babies to children and adults, pregnant women, the elderly and those undergoing operations.



CARDIOLOGIST

Cardiologists are doctors who specialise in diagnosing, treating and preventing diseases that mainly affect the heart and blood vessels and work with adult patients to treat ongoing, long-term illnesses or will respond to emergency, potentially life-threatening situations.

Conditions include:

- angina
- arrhythmias
- cardiomyopathy
- congenital heart disease
- disease of the arteries
- heart attacks
- heart murmurs
- oedema.

General cardiologists diagnose and treat diseases of the blood vessels and heart, work to improve survival rates and quality of life, and also have an interest in the prevention of disease. Speciality interests include:

- adult congenital heart disease – a heart condition or defect you're born with
- cardiac electronic device therapy – uses devices such as implantable cardioverter-defibrillators to treat patients with heart failure or arrhythmias
- cardiac imaging – reads and interprets a range of tests and images that can be run on the heart, including echocardiograms, MRI scans and cardiac CT scans





MEDICINE

- electrophysiology – works with the bio-electric impulses of the heart to help identify and treat problems, such as irregular heartbeats, through medication and invasive procedures
- heart failure – supports and treats patients with heart failure, including cardiac transplants
- interventional – performs advanced cardiac procedures such as stent placements in closed or diseased arteries, atherectomy and balloon angioplasty.
- New areas of sub-specialisation include inherited cardiac conditions

CLINICAL RADIOLOGIST

Clinical radiologists are medically qualified doctors specialising in the investigation and diagnosis of a range of clinical conditions and diseases, using a variety of imaging techniques, such as:

- computed tomography (CT) scans
- fluoroscopy
- magnetic resonance imaging (MRI)
- nuclear imaging
- ultrasound
- X-rays.

Clinical radiologists may focus on either diagnostic radiology or interventional radiology, or on a mixture of the two:

- diagnostic radiology – finding out what is clinically wrong with patients using a range of imaging techniques.
- interventional radiology – using image-guided pin-hole surgery to treat a variety of conditions – from life threatening aneurysms and haemorrhages to joint, tendon and muscle injuries – in the least invasive way.



GENERAL PRACTICE DOCTOR

General practice doctors are the first healthcare professional a patient sees, in the surgery, at their home or within other settings such as care homes. Their work plays an important role in getting them the treatment they need. When diagnosing illness and recommending treatment, you will have to take into account physical, emotional and social factors to provide a holistic approach.





MEDICINE

Part of the role will be to refer patients to hospital clinics for further assessment or treatment and you may also run specialist clinics for patients with specific conditions, such as asthma.

GP partners who are in charge of running their own practices as a business will also need to:

- make decisions on the running, development and future of the practice
- keep financial records and make sure the practice runs within budget
- recruit and arrange training for staff
- carry out audits
- commission hospital services for the community

HOSPITAL DOCTOR

Hospital doctors examine, diagnose and treat patients who've been referred to the hospital by GPs and other health professionals and apply their medical knowledge and skills to the diagnosis, prevention and management of disease.

Work is predominantly found in the public sector (NHS) but also in private hospitals. You will spend time working on wards and in outpatient clinics, treating patients, and referring them to a range of other healthcare professionals including nurses, radiographers, pharmacists and physiotherapists.

Some of the more common areas of specialty include:

- anaesthetics
- cardiology
- emergency medicine
- general medicine
- general surgery
- obstetrics and gynaecology
- paediatrics
- psychiatry
- radiology
- trauma and orthopaedics.





MEDICINE

NEUROLOGIST

A neurologist is a medical doctor involved in the management of conditions affecting both the central nervous system (brain and spinal cord) and the peripheral nervous system. Neurologists diagnose, treat and manage patients with a range of diseases, disorders and conditions affecting neurological function. These include:

- strokes
- multiple sclerosis
- headaches
- Parkinson's disease
- Alzheimer's disease and other forms of dementia
- motor neuron disease
- epilepsy
- spinal cord diseases
- muscle diseases like muscular dystrophy
- infections affecting the nervous system
- brain tumours (where surgery is required, the patient will be referred to a neurosurgeon)



OPHTHALMOLOGIST

Ophthalmologists are medically trained doctors with specialist skills in the diagnosis, treatment, management and prevention of diseases of the eye and visual system. Ophthalmologist deal with a range of conditions, including cataracts, glaucoma, squints, eye injuries, infectious eye diseases and degenerative conditions resulting from ageing. You will manage patients of all ages, from premature babies to the elderly, with acute and long-term eye conditions.

Ophthalmologists work in outpatient clinics, the operating theatre conducting surgery, laser eye surgery clinics and community clinics. There is also a limited amount of ward-based work available.

You can also work as a medical ophthalmologist if you're trained in general medicine as well as ophthalmology. As a medical ophthalmologist, you'll manage eye disorders that are specifically related to whole-body disease, such as diabetes, multiple sclerosis and stroke and will treat the patient as a whole – not just their eye condition.





MEDICINE

PARAMEDIC

Paramedics provide immediate response to emergency calls that can be both traumatic and medical in origin, and also respond to GP referrals and 111 calls. The first senior autonomous independent healthcare professional on the scene, and the level of care provided can range from dealing with life threatening conditions to minor illnesses and injuries.

A full medical and health assessment will need to be undertaken to determine a patient's condition, provide essential treatment and transportation to a designated hospital or care facility.

While paramedics treat up to 50% of medical cases in the patient's home and discuss and negotiate the best optimal outcomes for the patient, sometimes in life threatening situations a variety of interventions might be required such as:

- resuscitating and stabilising patients
- establishing and maintaining an airway in a stepwise approach
- stopping severe haemorrhage
- using high-tech equipment, such as a defibrillator, pulse oximeters and end-tidal oxygen
- applying spinal and traction splints
- administering intravenous drips, drugs and oxygen.
- working with other emergency services such as the police, fire, coast guard and RNLI.



PATHOLOGIST

A pathologist is a doctor who interprets and diagnoses the changes caused by disease in the body's cells and tissues, and diagnose, treat and prevent a range of diseases. There are varying amounts of laboratory work involved in pathology, depending on the specialty and the role itself. Some pathologists don't tend to have any patient contact, whereas others combine lab work with direct, clinical patient care.

The specialties within pathology:

- **Chemical pathology** – combines laboratory and clinical skills, using biochemical tests to diagnose and treat patients. With metabolic medicine, a sub-specialty of chemical pathology, patients are treated whose chemical processes don't function properly
- **Haematology** – diagnose and treat disorders of the blood and bone marrow and provide clinical support for the haematology diagnostic laboratory, which includes the blood bank
- **Histopathology** – diagnose and study disease by medical interpretation of cells and tissue samples, integral to cancer management through the staging and grading of tumours. Autopsies are performed to determine cause of death





MEDICINE

- **Medical microbiology** – diagnose, treat and manage prevention of infection in hospitals and the community, oversee the medical laboratory and provide a bridge between the lab and clinicians
- **Medical virology** – the management of blood-borne infections and other emerging viruses

PSYCHIATRIST

Psychiatrists are medically qualified doctors specialising in the diagnosis and treatment of patients with mental health disorders, such as:

- dementia
- depression
- bipolar disorder
- eating disorders
- schizophrenia

Psychiatric disorders can be caused by physical illnesses, and many patients with mental illness are at greater risk of physical illness. Because of this, psychiatrists are skilled in recognising mind and body symptoms to evaluate and assess risk and draw up treatment plans, which may include prescribing medication.

Types of psychiatry include:

- **general adult** – for patients aged 18 to 65 in inpatient and outpatient settings. Sub-specialties include liaison, substance misuse, rehabilitation psychiatry, eating disorder psychiatry and neuropsychiatry
- **child and adolescent** – working with children and young people up to 18 years of age who have a mental illness
- **old age** – specialising in psychiatric illnesses such as dementia, which are common in the +65 age group
- **forensic** – psychiatric care in prisons and secure hospitals. Forensic psychiatrists can also act as expert witnesses in court trials
- **psychiatry of intellectual disability** – managing patients who have a learning disability.
- **medical psychotherapy** – providing treatment for psychiatric disorders through different forms of psychotherapy





MEDICINE

SURGEON

Surgeons are medically qualified doctors who operate on patients in order to treat disease or injury by cutting open a patient's body to repair, remove or replace the diseased or damaged part. They also carry out ward rounds and outpatients clinics and will take on a range of administrative duties and teaching responsibilities.

Becoming a surgeon can take many years and needs a high level of commitment to succeed. Competition for places can be fierce, particularly in the later stages of training. New surgery techniques are continually evolving so new skills will be learnt throughout a career.

Surgeons usually specialise in one of the following ten main areas:

- **cardiothoracic** – dealing with surgical treatments inside the chest, generally addressing conditions of the heart and lungs
- **general** – a wide range of knowledge and skills is required to deal with all kinds of surgical emergencies, with an emphasis on acute abdominal problems including the stomach, small bowel, colon, liver and pancreas
- **neurosurgery** – performing surgery on elements of the nervous system including the brain, spinal cord and extra-cranial cerebrovascular system
- **oral and maxillofacial** – deals with the diagnosis and surgical treatment of patients with diseases affecting the mouth, jaw, face and neck
- **otorhinolaryngology** – also known as ear, nose and throat (ENT) surgery. ENTs specialise in a wide range of diseases of the head and neck
- **paediatric** – dealing with surgery of premature and unborn babies, children and young adults up to the age of 19
- **plastic** – plastic surgeons deal with surgical restoration, reconstruction or alteration of the human body. This includes cosmetic or aesthetic surgery and the treatment of burns
- **trauma and orthopaedic** – these surgeons use surgical treatments to treat a wide range of conditions of the musculoskeletal system and supporting structures such as ligaments, tendons, muscles and nerves
- **urology** – urologists fix problems of the female urinary system and the male genitourinary tract. They diagnose and treat disorders of the kidneys, ureters and bladder using surgical techniques
- **vascular** – vascular surgeons concentrate on the diagnosis and surgical treatment of conditions affecting the circulation, including disease of the arteries, veins and lymphatic vessels





PHYSICS

CLINICAL SCIENTIST, MEDICAL PHYSICS

As a clinical scientist working in medical physics, you will research, develop, test and maintain specialist equipment used to help prevent, diagnose and treat many kinds of diseases and health conditions.

Working closely with other healthcare professionals, such as doctors and radiotherapists, you will play a significant role in developing, planning and implementing patient treatment programmes. You will also help to protect patients and healthcare staff from hazards such as radiation.



GEOPHYSICIST

Geophysicists study the physical aspects of the earth using a range of methods, including gravity, magnetic, electrical, and seismic. Although many geophysicists work for oil and gas companies, there are other opportunities in more responsible roles such as construction, mining, water companies and environmental agencies

Geophysicists generally work in one of three areas:

- acquisition
- interpretation
- processing

and are generally involved in undertaking seismic exploration and producing controlled source seismic data. Environmental consultancy may involve the investigation of landfill sites using geophysical techniques, or may be work within a research institute to investigate seismological structures and provide seismological information to the public and government.



METALLURGIST

Metallurgists are concerned with the extraction and processing of various metals and alloys. They investigate and examine the performance of metals such as iron, steel, aluminium, nickel and copper and use them to produce a range of useful products and materials with certain properties.





PHYSICS

The work may be in:

- design and manufacture
- production management
- quality assurance
- research and development

and could be at the forefront of new technologies, developing metals for new applications, or involved in the traditional manufacture of anything.

Metallurgists may specialise as a:

- **chemical metallurgist:** also known as extraction metallurgists, chemical metallurgists are involved in the extraction of usable metals from ores and studying metal corrosion and fatigue.
- **physical metallurgist:** monitor the behaviour of metals under stress and studying changes in temperature. You may be involved in inventing new products and improving manufacturing techniques.
- **process metallurgist:** shape and join metals, selecting the best metal for the job

RADIATION PROTECTION PRACTITIONER

Radiation protection practitioners use scientific techniques and equipment to measure and monitor radiation, assess risks, and ensure the safety of the workplace, the general public and the environment, working within both nuclear and non-nuclear industries.

You will give advice and guidance about the possible hazards of ionising radiation, such as x-rays, as well as radioactive materials and waste. This can include advising about legal requirements and making recommendations for design improvements. Some practitioners also advise on non-ionising matters, such as radar, mobile phone mast, laser, and ultraviolet light radiation.

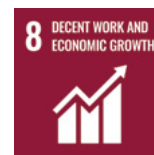
You may work within a particular area, such as:

- industry
- medicine
- regulation
- research





INFORMATION SYSTEMS COMPUTER SCIENCE



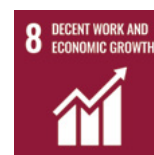
APPLICATION ANALYST

As an application analyst you will maintain IT services and have face-to-face correspondence with users who need your technical support

Application analysts are responsible for the administration, monitoring and maintenance of software infrastructures and applications.

You would oversee practices and processes to ensure integrity, safety and availability of all data and applications as part of an organisation's information systems. You would make sure that the processes needed for a business to function and succeed are running smoothly, acting as a technical point of contact to fix application and systems issues – usually on an immediate basis.

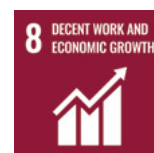
In this role, you would work within IT departments alongside application developers and software engineers.



CYBER SECURITY ANALYST

Cyber security analysts help to protect an organisation by employing a range of technologies and processes to prevent, detect and manage cyber threats.

As a cyber security analyst, you will protect IT infrastructure (including networks, hardware and software) from a range of criminal activity. You will monitor networks and systems, detect security threats ('events'), analyse and assess alarms, and report on threats, intrusion attempts and false alarms, either resolving them or escalating them, depending on the severity.





Broadly, you can work in one of the following areas:

- consulting, offering advisory services to clients
- working to protect the security of the organisation you work for.

DATA ANALYST

A career as a data analyst will suit you if you are highly analytical, have strong mathematical skills and are curious and inquisitive. Data analysts are in high demand across all sectors, such as finance, consulting, manufacturing, pharmaceuticals, government and education.

The ability to pay attention to detail, communicate well and be highly organised are essential skills for data analysts. They not only need to understand the data but be able to provide insight and analysis through clear visual, written and verbal communication.



DATABASE ADMINISTRATOR

Database administrators use specialist software to organise and maintain a secure database. As a database administrator (DBA) you will be responsible for the performance, integrity and security of a database. You will be involved in the planning and development of the database, as well as in troubleshooting any issues on behalf of the users.





You will ensure that:

- data remains consistent across the database
- data is clearly defined
- users access data concurrently, in a form that suits their needs
- there is provision for data security and recovery control (ensuring all data is retrievable in an emergency).

SOFTWARE/SYSTEMS ENGINEER/ DEVELOPER

Software engineers apply scientific and mathematical principles in order to create computer software and solve problems

As a software engineer, you will work in a constantly evolving environment, due to technological advances. You will create, maintain, audit and improve systems to meet particular needs, often as advised by a systems analyst, testing both hard and software systems to diagnose and resolve system faults.

The role also covers writing diagnostic programs and designing and writing code for operating systems and software to ensure efficiency. When required, you will make recommendations for future developments.



SYSTEMS ANALYST

Systems analysts examine a company's IT systems and infrastructure and work out how to improve them

As a system's analyst, you will use computers and related systems to design new IT solutions, modify, enhance or adapt existing systems and integrate new features or improvements in order to improve business efficiency and productivity. You will need a high level of technical expertise and clear insights into current business practices.

You will:

- examine existing IT systems and business models
- analyse systems requirements
- undertake product development
- implement, configure and test feasible solutions.





Your role is to liaise between, and report to, internal and external clients and stakeholders, including programmers and developers, throughout the development process.

You will conduct a cost analysis and agree the time frame to implement the proposed solution. You will specify and shape the system requirements and operations, the user interface and output and present the proposal to the client. You will work closely with the client team, including commercial managers and software developers, during both the report and implementation phase.

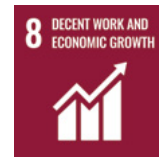
WEB DESIGNER

Web designers combine creativity with technical know-how to produce websites that meet their clients' requirements

As a web designer, you will plan, create and code web pages, using both technical and non-technical skills to produce websites that fit your customers' requirements.

Being involved in the technical and graphical aspects of pages, you will determine not only the look of the website but how it works as well. You may also be responsible for the maintenance of an existing site.

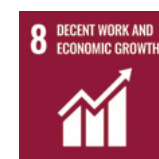
The term web developer is sometimes used interchangeably with web designer, but this is misguided. Web developing is a more specialist role, focusing on the back-end development of a website and will incorporate, among other things, the creation of highly complex search functions.



WEB DEVELOPER

Your primary task as a web developer will be to create reliable and high-performing applications and services, which can be accessed over the internet. Focusing solely on the underlying software and databases (known as the 'back end') is most common, however some web developers work on the interface and visual design (the 'front end'), while others combine both ('full-stack development').

Whether you are in an agency or working as a freelancer, your job will be to create products that meet clients' needs. The work can be particularly varied with many projects to work on simultaneously, and lots of meetings with clients to discuss their requirements and update them on progress.





ENVIRONMENTAL CONSULTANT

Environmental consultants provide detailed technical assessments and advice for their clients. Your role would involve providing expert advisory and assessment services to your clients with the aim of minimising or eliminating environmental damage. You will usually be employed by a consultancy firm and work on a range of commercial or government contracts, addressing a variety of environmental issues. You may be responsible for ensuring that your client complies with environmental regulations.

You may work on a number of environmental issues or specialise in one area, such as:

- air, land and water contamination
- environmental impact assessment and flood risk
- waste management and recycling
- emissions and climate change
- renewable energy opportunities
- environmental management systems.



ENVIRONMENTAL ENGINEER

Environmental engineers are involved in managing and reducing waste and minimising pollution in order to protect, restore and preserve the planet.

As an environmental engineer, you will design technologies and implement processes and systems to prevent and control a range of environmental risks, and also to restore and reverse environmental damage.

You will use your background in science and engineering to provide a healthy environment for the world's population by disposing of waste, providing safe drinking water, controlling environmental hazards, improving recycling and decreasing soil, water and air pollution.





You will be concerned with issues such as climate change, drought, population growth, urbanisation, pollution, deforestation and the energy crisis. Your work may cover specific areas, such as:

- disposal of waste products such as water and plastics, particularly high-volume industrial waste
- environmental compliance – ensuring minimal environmental impact from spills or emissions
- flood risk and drainage
- infrastructure and development
- management of pollutants that can harm the natural environment
- recovery and cleansing of land which has been damaged, for example by mining, landfill or farming (site remediation)
- water supply and sanitation

ENVIRONMENTAL MANAGER

Environmental managers oversee the performance of organisations, making sure environmental standards and legislation are met

As an environmental manager or sustainability manager, you will ensure that an organisation is operating in accordance with environmental guidelines and targets. Your role will involve examining corporate activities to determine where improvements can be made and ensuring compliance with environmental legislation across the organisation.

You will also create, implement and monitor environmental strategies to promote sustainable development. Your wide remit means you will review the whole operation, carrying out environmental audits and assessments, identifying and resolving environmental problems and ensuring necessary changes are implemented.





SUSTAINABILITY CONSULTANT

If you want to combine your interest in the environment with business and leadership, sustainability consulting could be for you. As a sustainability consultant, you will help companies and businesses become more socially and environmentally responsible in how they operate. You will need to create sustainable solutions for the often conflicting needs of people, the environment, development and successful business.

Work will involve evaluating the impact a company is having on the environment (for example, their carbon footprint) and then minimising that impact or planning the use of limited resources. You may be involved in all or some stages of a project from planning and building, through to remediation, restoration and reuse of land and property, for example.



CHEMICAL ENGINEER

Chemical engineers develop raw materials into a range of useful products. As a chemical engineer, you will be involved in the design and development of a diverse range of products. Your work will focus on changing the chemical, biochemical and physical state of a substance to turn it into something else.

You will need to understand how to alter raw materials into required products, while taking into consideration health and safety and cost issues. You can work in a variety of industries including:

- energy
- food and drink
- pharmaceuticals
- plastics
- toiletries
- water treatment.

Modern chemical engineering is also concerned with pioneering valuable new materials and techniques, such as nanotechnology, fuel cells and biomedical engineering.





ENGINEERING

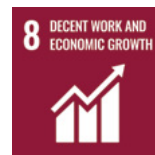
CONSULTING CIVIL ENGINEER

Consulting civil engineers advise on the design, development and construction of a range of projects in the built and natural environment, ensuring the safe, timely and well-resourced completion of projects. You will liaise with clients, and plan, manage, design and supervise the construction. You will work in a number of different settings and, with experience, could run projects as a project manager.

Types of civil engineering

You may choose to specialise in a certain area of civil engineering, such as:

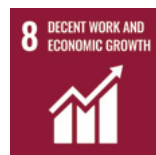
- buildings
- coastal and marine
- construction of dams and canals
- environment
- geotechnical engineering
- highways and transportation
- power
- rail
- structural work
- tunnelling
- waste management
- water and public health



CONTRACTING CIVIL ENGINEER

Contracting civil engineers turn the plans of consulting civil engineers – the designers – into reality.

As a contracting civil engineer, you will oversee the actual construction on the ground and work in conjunction with consulting engineers. All civil engineers need a good understanding of design and construction processes, as well as of health and safety issues.





ENGINEERING

You will use your professional expertise to organise human and material resources on site and ensure that projects run to time and budget and are safe to work on.

Types of civil engineering

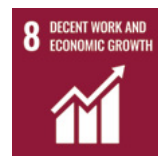
You may choose to specialise in a certain area of civil engineering, such as:

- buildings
- coastal and marine
- construction of dams and canals
- environment
- geotechnical engineering
- highways and transportation
- power
- rail
- structural work
- tunnelling
- waste management
- water and public health.

DESIGN ENGINEER

Design engineers use technical knowledge, mathematical expertise and design skills to create innovative solutions to problems across a range of industries. As a design engineer you are involved in the initial concept, design, development and management of projects in a range of sectors such as construction and the built environment, materials, software, components, machinery and vehicles.

You will need strong technical knowledge, as well as problem solving, communication, leadership and project management skills. Depending on their specialist area, design engineers may also be known as CAD engineers, consulting engineers and product design engineers.





ENGINEERING

You can usually specialise in one area of design engineering, such as:

- chemical engineering
- civil engineering
- electrical engineering
- electronic engineering
- mechanical engineering
- product/industrial design engineering
- software engineering

STRUCTURAL ENGINEER

Structural engineers are creative innovators who use their technical minds to design structures, solve problems and shape the world around them. You will design structures to withstand stresses and pressures imposed through environmental conditions and human use. You will ensure buildings and other structures do not deflect, rotate, vibrate excessively, or collapse and that they remain stable and secure throughout their use. You will also examine existing buildings and structures to test if they are structurally sound and still fit for purpose.

You will also be responsible for choosing the appropriate materials, such as concrete, steel, timber and masonry, to meet design specifications and will often be involved in inspecting the work and advising contractors.



WATER ENGINEER

Water engineers are responsible for the supply of clean water, the disposal of wastewater and sewage and the prevention of flood damage. As a water engineer, the provision of clean water will be your main concern, but you may work with a variety of other liquids as well. Asset management will play a major part in your work and you will be involved in the repair, maintenance and building of structures that control water resources. Examples include sea defence walls, pumping stations and reservoirs.





ENGINEERING

You may become involved in broader water-related issues, such as global warming, ageing infrastructure, population growth and quality of living standards. Water engineer is a generic title given to engineers who specialise in water-based projects. Many have a civil engineering or environmental background.

ELECTRICAL ENGINEER

As an electrical engineer, you will design, develop and maintain electrical control systems and components to required specifications. Your work will focus on:

- economy
- quality
- reliability
- safety
- sustainability

The electrical equipment that you will design and manufacture is used across many sectors, including:

- the building industry and services, including lighting, heating and ventilation
- transportation and transport networks
- manufacturing and construction
- production and distribution of power

You could be involved in projects from the concept and detail of the design, through to implementation, testing and handover. You may also work on maintenance programmes.

It's likely you will work in multidisciplinary project teams, which can include engineers from other specialist areas as well as architects, manufacturers, technicians and customer service personnel.



ELECTRONICS ENGINEER

Electronic engineering is an exciting and fast paced industry. As an electronics engineer you will design, develop and test components, devices, systems or equipment that use electricity as part of their source of power. These components include capacitors, diodes, resistors and transistors.





ENGINEERING

You may be involved at any stage of a project including the initial brief for a concept, the design and development stage, testing of prototypes and the final manufacture and implementation of a new product or system. You will work in project teams with colleagues in other branches of engineering. You can work in a variety of areas, as electronics are used in many things. These areas include:

- acoustics
- medical instruments
- mobile phones
- nanotechnology
- radio and satellite communication

Areas of work to be avoided if you want to pursue a responsible career would include

- defence
- robotics

You could specialise in a particular subfield of electronic engineering, such as:

- control engineering
- instrumentation
- signal processing
- telecommunications engineering

MECHANICAL ENGINEER

Mechanical engineers create solutions and solve problems, playing a central role in the design and implementation of moving parts in a range of industries

As a mechanical engineer you will provide efficient solutions to the development of processes and products, ranging from small component designs to extremely large plants, machinery or vehicles. You will work on all stages of a product, from research and development to design and manufacture, through to installation and final commissioning. Most industries rely on a form of mechanical systems, and mechanical engineering is thought to be one of the most diverse of all engineering disciplines. Due to this, there are employment opportunities across several sectors.





OTHER

MATHS

- Including pure maths, statistics and applied maths, as well as accounting as part of business studies
- Careers include accountancy, actuarial work, investment management, statistician, teaching and banking



GEOLOGY

A geology degree sets you up for a career within the energy, environmental or engineering sectors

- Engineering geologist
- Environmental consultant
- Geochemist
- Geophysicist
- Geoscientist
- Geotechnical engineer
- Hydrographic surveyor
- Hydrogeologist

FOOD TECHNOLOGIST

Food technologists make sure food products are produced safely, legally and to the quality claimed.

As a food technologist, your primary responsibility is to ensure that food products are safe and meet specific standards. It is likely you will also be involved in developing the manufacturing processes and recipes of food and drink products. This could involve working on both existing and newly-discovered ingredients to invent new recipes and concepts.

You may modify foods to create products such as fat-free items and will often work closely with the product development teams to help deliver factory-ready recipes, based on development kitchen samples. Keeping up with ever-changing food production regulations will be an essential part of your job.





OTHER

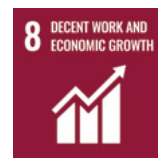
INTERNATIONAL AID / DEVELOPMENT WORKER

International aid/development workers provide aid and assistance to people and communities in the developing world. Humanitarian aid work often involves responding to emergency situations, helping those affected by natural and man-made disasters, such as earthquakes and war.

International aid/development workers work with developing countries to set up long-term, sustainable solutions to problems. Working on development projects in fields such as education, sanitation, health and agriculture. You may also be involved with the development of urban and rural areas and small businesses.

Types of international aid work are diverse and encompass:

- conflict
- disaster preparedness
- economics
- education
- environment
- forced migration
- gender equality
- governance
- healthcare
- human rights
- infrastructure
- livelihoods
- security



ARCHITECT

Architects use technical and creative skill to design structures that suit the requirements of their clients. As an architect, you will design new buildings or extensions or alterations to existing structures and advise on the restoration and conservation of old properties. You may work on individual buildings or on large redevelopment schemes, and your responsibility can extend to the design of the surrounding landscape and spaces.





TEACHER

Teachers help their students learn and apply concepts in a wide array of subjects, such as maths, art, science and music. While duties differ slightly depending on the age group you decide to work with, the key responsibilities remain the same for both primary and secondary school teachers:

- Plan lessons and prepare teaching materials
- Create a safe learning environment
- Attend meetings and training courses
- Set and mark students' work
- Keep records and perform general classroom administrative duties
- Discuss students' progress with parents and guardians
- Work with other professionals, like social workers or education psychologists

While primary school teachers teach a broader range of subjects, secondary school teachers typically specialise in teaching a particular subject like English, geography or drama.

Primary school teachers work with children aged 5 to 11, whereas secondary school teachers work with young people aged 11 to 16, and up to age 19 in schools with sixth forms.

