

Agricultural Engineer

Introduction

Agricultural engineers use engineering science to solve problems in the agricultural industry. They design, develop, test and manage agricultural machinery and equipment. Most agricultural engineers specialise in a particular area.

Also known as

- Engineer, Agricultural
- Farming Engineer
- Land Based Engineer



Work Activities

As an Agricultural Engineer, you will design, develop, install and manage machinery, buildings, vehicles and systems used in the agricultural industry.

You could also work in horticulture, forestry, groundcare (eg, for professional sporting venues such as golf courses) and environmental engineering - in fact, anywhere where 'engineering meets the land'.

After your initial training, it is likely that you will then choose to specialise in either vehicle and machine manufacture, sales and service engineering, farm organisation or field engineering.

As an Agricultural Engineer working in manufacturing design, you will plan and test new specifications for machinery and equipment, helping farmers to:

- cultivate, drain and irrigate soil
- sow, spray and harvest crops
- grade, store and process produce
- house, feed and water livestock

Most manufacturing companies are small, so you will usually be responsible for more than one function. In a large manufacturing company, you'll most likely have a specialist area and work as part of a team with Mechanical and Production Engineers, Materials Scientists and costing experts.

You may work for a local machinery dealer. In this situation you will supply Farmers, local authorities and other customers with suitable machinery, as well as offer advice, information and an aftersales service. You may also provide advice and information to growers and manufacturers of machinery and equipment.

As an Agricultural Engineer, you might also be involved in farm organisation. This could involve designing the layout of buildings such as crop dryers and greenhouses, to make sure farming and horticultural processes are carried out with the greatest efficiency.

You will also select and install computer-controlled systems that regulate temperature, humidity and feeding rates.

Agricultural Engineers are increasingly involved with the conservation of the rural environment, for example, through waste management. Field Engineers are responsible for the management of rural land and for planning the most efficient use of soil and water resources.

In developing countries, there is a great need for Agricultural Engineers who can introduce methods to reduce crop failure and increase crop yield, while being aware of conservation and sustainable development issues.

You could work for specialist research institutes, colleges and universities, and equipment manufacturers. Research Engineers solve agricultural problems in areas such as environmental protection, food safety and pollution control.

You might prepare and present reports of your findings.

Agricultural Engineers often have management responsibility for teams including other Engineers, Engineering Technicians and Mechanics.

Work takes place both indoors and outdoors, depending on which specialism the Engineer works in.

Being able to read, write and speak Welsh may be an advantage when you're looking for work in Wales.

Personal Qualities and Skills

To become an Agricultural Engineer, you need:

- a broad-based knowledge of engineering, eg, mechanical, electronic, civil and environmental engineering
- an understanding of the problems that exist in agriculture
- to solve problems combining technical ability with creativity and imagination
- to be good at generating new ideas
- to work well in a team
- an interest and understanding of environmental issues
- good analytical skills
- a willingness to learn and develop new knowledge and to keep up to date with advancing technology
- good organisational skills to plan and co-ordinate resources, as well as work to deadlines
- to communicate effectively when explaining technical information to people from non-engineering backgrounds

Pay and Opportunities

Pay

The pay rates given below are approximate.

- Starting: £22,000 - £25,000
- With experience: £28,500 - £34,500
- Senior Agricultural Engineers earn £37,500 - £42,500

Hours of work

Most Agricultural Engineers work around 35-40 hours a week, Monday to Friday. However, early starts, late finishes and some weekend work may be required, especially as deadlines approach.

Where could I work?

There is a wide range of employers, including those that make agricultural machinery and equipment.

Opportunities for Agricultural Engineers occur with employers in towns, cities and rural areas throughout the UK.

Where are vacancies advertised?

Vacancies are advertised in local/national newspapers, on recruitment and employers' websites, and on Find a Job (www.gov.uk/jobsearch).

Social media websites, such as LinkedIn, Twitter or Facebook, are a great way to network, find vacancies and get in contact with possible employers. Make sure that your profile presents you in a professional manner that will appeal to potential employers.

Take a look at our General Information Article 'Finding Work Online'.

GreenJobs is a job board aimed at people interested in green careers

www.greenjobs.co.uk/browse-jobs/agriculture-jobs/

Entry Routes and Training

Entry routes

Agricultural Engineers usually complete a relevant engineering degree, foundation degree or HND.

Specialist degrees and foundation degrees in agricultural engineering are available at different universities.

It's also possible to become an Agricultural Engineer with another engineering background, especially in mechanical engineering.

A one year top-up degree is available at Myerscough College.

A great way to get into this career is through an internship. Take a look at our information article 'Internships', for more details.

An Intermediate or Advanced Level Apprenticeship could also help you to get into this job. You may be able to take an NVQ as part of your apprenticeship. Take a look at our information article 'Apprenticeships – How do I apply', for more details about applying for apprenticeship positions.

It's essential to check college/university websites carefully to make sure the course you choose is appropriate to the branch of engineering you want to follow. The Institution of Agricultural Engineers (IAgrE) provides information on relevant courses.

Various vocational BTEC and City & Guilds qualifications are available and could help you to get into this career - see below for more details.

Training

Some graduates join graduate training schemes, which offer structured training and learning.

Depending on their level of entry, engineers can gain Chartered Engineer (CEng) or Incorporated Engineer (IEng) professional status. Both are highly regarded by employers throughout industry.

To register as a CEng or an IEng, you must join a relevant, professional engineering institution licensed by the Engineering Council, such as the IAgrE.

To become a CEng or an IEng, you need to demonstrate the appropriate competence and commitment. The standards for this are set out in the Engineering Council's UK-SPEC document, which can be downloaded from their website.

UK-SPEC and the engineering institution you've joined can tell you which qualifications are accredited or approved towards CEng or IEng status. Your engineering institution will also advise you on, and process, your application.

Routes to CEng status include completing:

- an accredited honours degree in engineering or technology, plus either an appropriate masters degree or engineering doctorate (EngD) accredited by a professional engineering institution, or appropriate further learning to masters level
- or, an accredited integrated MEng degree

Routes to IEng status include completing:

- an accredited bachelors or honours degree in engineering or technology
- or, a HNC, HND or foundation degree in engineering or technology, plus appropriate further learning to degree level
- or, a NVQ level 4, which has been approved by a licensed engineering institution

However, you can still become a CEng or an IEng if you don't have these academic qualifications. Further information about the assessment process can be found in UK-SPEC.

Work Experience

Previous experience working in a farming environment would be really useful for this career.

Progression

Depending on their qualification, Agricultural Engineers can progress by taking on more responsibility for the management of engineering projects and teams of Agricultural Engineers.

Some Agricultural Engineers choose to become self-employed or take contract work on a freelance basis.

Qualifications

To enter a degree course in agricultural engineering, the usual requirement is:

- 2/3 A levels, usually to include maths and a science subject
- GCSEs in your A level subjects at grade C/4 or above
- a further 2/3 GCSEs at grade C/4 or above
- English, maths and a science subject are usually required at GCSE at grade C/4 or above

To get onto an Intermediate or Advanced Level Apprenticeship, you'll usually need five GCSEs at grade C/4 or above, possibly including English and maths.

Other qualifications, such as a BTEC level 3 qualification in agriculture, or the International Baccalaureate Diploma are often accepted.

Check college/university websites very carefully.

Other vocational qualifications are available, such as:

- BTEC level 2 and level 3 - land-based technology (engineering)
- BTEC level 2 and level 3 - agriculture and land use
- City & Guilds level 2 - land-based service engineering

Some universities accept the Welsh Baccalaureate as equivalent to 1 A level.

Adult Opportunities

Age limits

It is illegal for any organisation to set age limits for entry to employment, education or training, unless they can show there is a real need to have these limits.

Courses

If you don't have the qualifications needed to enter your chosen degree or HND course, a college or university Access course (eg, Access to Engineering) could be the way in.

These courses are designed for people who have not followed the usual routes into higher education. No formal qualifications are usually needed, but you should check this with individual colleges.

Harper Adams University College offers a postgraduate degree in Agricultural Engineering, by part-time study.

For Harper Adams courses, those without formal qualifications will be considered based on their work experience.

Distance learning

Numerous institutions offer undergraduate and postgraduate engineering qualifications via distance learning.

Training

Information on pathways to registration as a Chartered (CEng) or Incorporated (IEng) Engineer can be found on the Engineering Council's website.

Funding

Financial support for land-based service engineering is available from the Douglas Bomford Trust.

Further Information

Contacts

- **Lantra**
Skills for land-based and environmental industries
Address: Lantra House, Stoneleigh Park, Coventry, Warwickshire CV8 2LG
Tel: 02476 696996
Email: reception@lantra.co.uk
Website: www.lantra.co.uk
- **Semta**
Skills for science, engineering and manufacturing technologies
Address: 14 Upton Road, Watford, Hertfordshire WD18 0JT
Tel: 0845 6439001
Email: customerservices@semta.org.uk
Website: www.semta.org.uk
- **The Engineer**
Engineering technology news
Email: customerservices@theengineer.co.uk
Website: www.theengineer.co.uk
- **Tomorrow's Engineers**
Publisher: EngineeringUK and Royal Academy of Engineering
Email: contactus@tomorrowseengineers.org.uk
Website: www.tomorrowseengineers.org.uk
- **Farmers Weekly Interactive**
Publisher: Reed Business Information Ltd
Email: fwinfo@rbi.co.uk
Website: www.fwi.co.uk
- **GreenJobs**
Email: info@greenjobs.co.uk
Website: www.greenjobs.co.uk
- **National Skills Academy for Food & Drink**
Sector Skills Council for the food and drinks industry
Email: info@nsafd.co.uk
Website: www.improveltd.co.uk
- **Tasty Careers**
Food and drink careers
Email: info@tastycareers.org.uk
Website: tastycareers.org.uk
- **Engineer Jobs**
Publisher: Venture Marketing Group
Email: ner@vmgl.com
Website: www.engineerjobs.co.uk

- **Scottish Engineering**
Scottish enquiries
Address: 105 West George Street, Glasgow G2 1QL
Tel: 0141 2213181
Email: consult@scottishengineering.org.uk
Website: www.scottishengineering.org.uk
- **Engineering Council**
Address: 246 High Holborn, London WC1V 7EX
Tel: 020 3206 0500
Website: www.engc.org.uk
- **Engineering Training Council Northern Ireland (ETC NI)**
Northern Ireland Enquiries
Address: Sketrick House, Ards Business Park, Jubilee Road, Newtownards BT23 4YH
Tel: 028 9182 2377
Email: info@etcni.org.uk
Website: www.etcni.org.uk
- **Institution of Agricultural Engineers (IAgrE)**
Address: The Bullock Building (Bldg 53), University Way, Cranfield, Bedford MK43 0GH
Tel: 01234 750876
Website: www.iagre.org
- **Douglas Bomford Trust**
Address: The Bullock Building (Bldg 53), University Way, Cranfield, Bedford MK43 0GH
Tel: 01234 750876
Website: www.dbt.org.uk
- **Careers Wales - Welsh Apprenticeships**
Tel: 0800 028 4844
Website: ams.careerswales.com/

Related Careers

- Agricultural/Garden Service Engineer
- Agricultural Engineering Technician