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# Acoustician

## What is the work like?

Acoustics is the name given to the branch of science that deals with sound. Acousticians manage, regulate and control noise and vibration in workplaces and the environment. They may also work in acoustics research for healthcare, defence, music and telecommunications.

Their work can cover:

- aerodynamic noise - the effects of aircraft noise
- architectural acoustics - the effects of noise on structures such as bridges
- building acoustics - sound insulation for houses and offices
- electroacoustics - recorded and broadcast sound
- environmental issues - noise from industry and entertainment
- therapeutic and diagnostic uses of ultrasound
- industrial processing (by ultrasound)
- audiology
- the design of audio systems
- underwater acoustics
- sonar systems
- the design of machinery, including cars and domestic products
- sound waves caused by vibration.

Acousticians tend to specialise in one or more areas and their daily tasks vary widely depending on the field they work in. They could be advising on sound insulation, drawing up plans for a concert hall so that the music can be heard clearly throughout the auditorium, or researching new ways of making engines or electrical equipment run more quietly. In the medical field, they might plan audiometric rooms and acoustic doors. In industry they may work on machinery noise and control systems.

Many acousticians are employed in the aircraft industry, working on engine design and manufacture or airport controls. Others investigate the effects of noise and vibration in marine engineering.

Acousticians must be aware of legislation relating to noise and often need to produce concise accounts of complex problems. Some acousticians may need to present their findings at public inquiries, where they may be asked to give evidence supporting or opposing new projects, for example the location of a new road or factory.

They usually work as part of a team with professional colleagues from different disciplines.

## Hours and environment

Working hours and environments vary depending on the area of work. Acousticians in

research may spend most of their time in a laboratory, typically working from 9.00am to 5.00pm or in shifts.

Although they use computers at a desk, the job is rarely deskbound. They are frequently in meetings or recording studios or on site. The work may involve standing and bending, as well as lifting and installing instruments.

Travel between offices and sites may be required. Staying away from home may be necessary if projects are in different parts of the country or overseas.

## Salary and other benefits

These figures are only a guide, as actual rates of pay may vary, depending on the employer and where people live.

- Starting salaries for newly qualified acousticians are usually between £18,000 and £22,000 a year.
- The average salary for an acoustics engineer is £34,000.
- Senior acoustic consultants can earn more than £50,000 a year.

## Skills and personal qualities

An acoustician should have:

- a good understanding of sound and acoustics
- an aptitude for maths and physics
- a creative and innovative approach to solving problems
- good technology skills for planning and testing designs
- an organised and methodical approach to designing and planning projects
- an understanding of environmental legislation and standards
- good project management and teamwork skills
- strong spoken and written communication skills.

## Interests

It is important to have an interest in:

- how sound behaves
- environmental science
- problem solving.

## Getting in

Acousticians work in many different fields. They may be employed by:

- building and civil engineering firms
- government departments and local authorities

- manufacturing companies
- the aerospace industry
- sound recording studios
- medical organisations, including the NHS
- telecommunications companies
- universities, colleges and research establishments.

The Institute of Acoustics (IOA) has nearly 3,000 members. Job vacancies are advertised in the local and national media, through specialist recruitment agencies, on the website of the Institute of Acoustics (IOA) and in IOA's membership journal, Acoustics Bulletin.

**Entry routes**

Although most scientific acoustic posts require qualifications at degree level, opportunities are available at trainee and technician levels. These usually require at least four GCSEs (A*-C), including two science subjects, maths and English. Suitable alternative qualifications include BTEC First Certificate/Diploma in applied science.

Relevant degrees include acoustics, physics, environmental science, mechanical engineering or construction-related subjects.

For a degree course, applicants usually need at least two A levels and five GCSEs (A*-C) or equivalent qualifications. Graduates may then study a specialist postgraduate course, for instance transport or building acoustics. The Institute of Acoustics also offers a range of qualifications.

It may also be possible to train by following an engineering Apprenticeship, specialising later in acoustics.

Apprenticeships and Advanced Apprenticeships provide structured training with an employer and pay at least £80 per week - £95 per week from August 2009. A recent survey found that the average wage for apprentices was £170 a week. Entry to Employment (e2e) can help to prepare those who are not yet ready for an Apprenticeship. In addition, Young Apprenticeships may be available for 14-to 16-year-olds. To find out more, see the Apprenticeship page on this website, contact the local Connexions service or visit: www.apprenticeships.org.uk.

Employers may also consider alternative qualifications, for instance music or sound recording. Work experience in areas like non-destructive testing may also be beneficial.

# Training

Training for new graduates is mainly on the job, typically complemented by an in-house training programme. Many employers offer a structured graduate training scheme.

Apprentices follow a structured training scheme at work, with part-time study at a local college leading to NVQ Levels 2 and 3 in engineering subjects. They may also gain engineering technician status.

For technician grades, training may include studying towards an acoustic-related qualification offered by the IOA, including:

- Diploma in Acoustics and Noise Control
- Certificate of Competence in Workplace Noise Risk Assessment (CCWPNRA)
- Certificate of Competence in Environmental Noise Measurement (CCENM)
- Certificate in the Management of Occupational Exposure to Hand Arm Vibration (CMOEHAV).

These courses are delivered at accredited centres in universities and colleges throughout the UK. A tutored distance-learning option is available for the Diploma in Acoustics and Noise Control.

The IOA offers different membership grades depending on experience, starting at Affiliate membership and extending to Technician, Associate and Member. The IOA's grade of Fellow is usually awarded to people over the age of 35 who have made a significant contribution in their acoustical field. Honorary Fellowship is by special invitation of the IOA Council.

The IOA also operates a continuing professional development (CPD) scheme to help member acousticians extend their skills and knowledge.

## Getting on

Acousticians may go on to specialise in a particular branch of acoustics, manage a team of people or move into a consultancy role.

The IOA is licensed by the Engineering Council to register suitably qualified and experienced members as professional engineers.

## Further information

Engineering and Technology Board. Websites: www.scenta.co.uk and www.enginuity.org.uk

Institute of Acoustics (IOA), 77a St Peter's Street, St Albans, Hertfordshire AL1 3BN. 01727 848195. Website: www.ioa.org.uk

SEMTA (Sector Skills Council for Science Engineering and Manufacturing Technologies), 14 Upton Road, Watford WD18 0JT. Learning helpline 0800 282 167. Website: www.semta.org.uk

WISE (Women Into Science, Engineering and Construction), 2nd Floor, Weston House, 246 High Holborn, London WC1V 7EX. 020 3206 0408. Website: www.wisecampaign.org.uk

## Magazines/journals

*Acoustics Bulletin*

*The Engineer*

*Engineering*

(Some may be priced)

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