Biomedical Engineering

Employers include:

- Hospital trusts
- Medical equipment manufacturers
- University research departments, other research units and rehabilitation or health charities

Hospitals employ engineers to oversee the deployment, maintenance and safety of high-tech equipment of all kinds used in the diagnosis and treatment of medical conditions. Some equipment is dispersed around GP surgeries and patients’ homes. Rehabilitation units exist in larger hospitals, where engineers play an important role in providing customised solutions to patients’ needs for prosthetic devices, wheelchairs and a range of assistive technology.

Other employers include research organisations. Well-known research units include:

- Bath Institute of Medical Engineering (BIME)
- Brunel Institute for Bioengineering (BIB)
- The Medical Engineering Resource Unit (MERU) designs and produces bespoke devices for individual children with disabilities, where no commercial alternatives exist.

In the private sector, there is a need for engineers in companies that research and manufacture medical products, such as artificial heart valves, replacement joints and monitoring equipment. Some private sector manufacturers operate internationally and may offer scope to work in Europe and beyond.

Sources of vacancies

New Scientist Jobs

NHS Clinical Scientists Recruitment Scheme for NHS Grade A training posts (England and Wales).

Institute of Physics and Engineering in Medicine (IPEM)

Hospital trusts generally advertise on their own websites as well as in the press. For opportunities in the commercial healthcare field, you should research employers using contacts, directories and journals.

Career development

There are three main career directions for a biomedical engineer:

- Research
  If you choose to go into research, your career path will typically involve a PhD in biomedical engineering, followed by a role at a university or academic institute as a lecturer and/or researcher.

- Industry
  Working in industry generally involves going into a job after your degree and working towards becoming a chartered engineer (CEng). Senior posts may offer roles in management, research, technical advice, quality assurance, production or marketing. There may be scope for international work if a company has branches outside the UK.

- The National Health Service (NHS)
  A career path in the NHS has a clearer structure in the early years after graduation (https://www.healthcareers.nhs.uk/i-am/considering-or-university/not-studying-health-related-degree/nhs-scientist-training-programme) The main bottleneck occurs as graduates compete for a small number of pre-registration clinical scientist training posts. Beyond this point, competition for higher posts is likely to be less intense, though a willingness to relocate is important. Progression to state registration with the Health & Care Professions Council (HCPC) is the next step, or possibly a post in a research unit.

The Institute of Physics and Engineering in Medicine (IPEM) runs a four year Programme of Advanced Training and Responsibility (PATR), which incorporates preparation for state registration (after two years) and culminates in corporate membership (MIPEM) and CEng application (where appropriate).

Career prospects are reasonable, as there is a slight shortage of suitably qualified and experienced applicants.

Movement between hospital-based jobs and the healthcare industry to gain wider experience is possible in either direction, bearing in mind the requirement for NHS engineers to obtain state registration.

Beyond this, you could expect to manage a department (e.g. in a hospital trust) with responsibility for medical equipment and technical staff across a regional area. Engineers at this level have status equivalent to medical consultants.

Biomedical engineers have the opportunity to specialise in areas such as biomechanics, biomaterials, medical instrumentation or rehabilitation. Some engineers pursue PhDs or obtain fellowships with their professional body.

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