Careers in biomedical engineering

This handout contains information and resources related to careers in biomedical engineering. Like the majority of our sector handouts, the content is divided into Discover, Focus and Action.

Discover:

I’m uncertain about who I might become, what I have to offer and the world I would like to enter and would like to find out more about this area.

Biomedical engineering is a very dynamic and diverse area with significant overlap with bioengineering, medtech/healthcare technology, AI and machine learning among other disciplines.

Technology is transforming healthcare, pharmaceuticals and the medical device industry. As a result, the range of options in the field of biomedical engineering is also changing. It’s an exciting time to be discovering this multidisciplinary sector.

This 2018 feature about bioengineering from renowned Forbes magazine (in the USA) has further comments: https://www.forbes.com/sites/quora/2016/05/25/the-high-paying-low-stress-stem-job-you-probably-havent-considered/#658372582bf8

Examples of what you could work on as bioengineer:

• 3-D printing applications in healthcare
• Diagnostic and imaging technology
• Drug delivery mechanisms
• Drug development processes e.g. alternatives to in-vivo research
• Implants
• Manufacturing process improvements for drugs and devices
• Medical devices (incl. miniaturized medical devices)
• Prosthetics
• Regenerative medicine and biomaterials
• Surgical tools (non-invasive and robotic)
• Wearable technology
• Data science to inform and improve prevention, diagnosis and treatment in relation to the above areas

Examples of roles linked to science:

• Consultancy
• Entrepreneurship
• Finance
• Law (inc patent attorney)
• Media
• Teaching (inc http://graduates.teachfirst.org.uk/)

Examples of roles beyond science:

• Consultancy
• Entrepreneurship
• Finance
• Law (inc patent attorney)
• Media

These are just a few examples. See the resources in www.kcl.ac.uk/careerkit to find out more

Focus:

I’m focusing my future choices and beginning to understand what knowledge, attributes, skills and experience I have to offer and might need to develop.

To focus your career ideas, you’ll find it helpful to:

Find out more about what you can do and where you can work (i.e. what’s out there for you). The ideas below will help with this.

Get to know the knowledge, attributes, skills and experience that you offer and build on these. Tip: Future Advantage workshops (e.g. ‘What do I Offer?’) are a good way to get clearer. Find dates and campus locations at www.kcl.ac.uk/careerconnect
Employers include:

- NHS
- See Scientist Training Programme – link below
- Medical device and equipment manufacturers
- Pharmaceutical companies
- University research departments, other research units
- Rehabilitation and health charities

In the NHS hospitals employ engineers to manage the deployment, maintenance and safety of 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.

A career path in the NHS has a clear structure in the early years after graduation. See information about the Scientist Training Programme (STP) here. https://www.healthcareers.nhs.uk/i-am/considering-or-university/not-studying-health-related-degree/nhs-scientist-training-programme Applications typically open in January each year and competition is high.

In industry (mostly in the private sector, but look for ‘spin-outs’ from universities too), there is a need for Biomedical Engineers in companies that research and manufacture healthcare, pharmaceuticals and medical products, equipment and devices. It’s a vast and evolving area (see Discover section). In your research into employers, consider large employers and smaller employers. Large employers include:

- Siemens (inc Siemens Healthineers)
- Philips
- GE Healthcare
- GSK
- Novartis

Smaller (more specialist) employers include 100s of organisations in the UK and 1,000s globally. There’s a helpful list here which you can search my activity (e.g. medical devices) and region: https://bioparmguy.com/links/company-by-location-medical-devices.php

Research-led universities (such as King’s) provide opportunities for biomedical engineers to work in research. Find out more about biomedical engineering research at King’s here: https://www.kcl.ac.uk/bmeis. A career in research will start with further study and include a PhD. Depending on your path, your role will include teaching and other responsibilities as well as research. Find out more about taking steps to a PhD here. Tip: Ask your lecturers, personal tutor and other academic staff about careers in research – you are surrounded by experts!

Other employers include research organisations. Well-known research units in the UK include:

- Bath Institute of Medical Engineering (Designability) http://www.bath.ac.uk/health/about/partner-organisations/designability/%20
- Brunel Institute for Bioengineering (BIB)

An example of a rehabilitation charity is:

The Medical Engineering Resource Unit (MERU) designs and produces bespoke devices for individual children with disabilities, where no commercial alternatives exist. https://meru.org.uk/

More information on your career options can be found here: https://www.prospects.ac.uk/job-profiles/biomedical-engineer

**Action:**

I’ve got a really good understanding of myself and how what I offer enables me to put my plans into action.

**King’s CareerConnect**

[www.kcl.ac.uk/careerconnect](http://www.kcl.ac.uk/careerconnect)

King’s CareerConnect is our exclusive online career portal enabling students and recent alumni to engage with our services. Once logged in, you can access our vacancy board and search hundreds of part-time roles, placements, internships and graduate-level opportunities, book one-to-one careers or application guidance appointments, apply for exclusive King’s Internships and view our full events calendar to book attendance at our many events throughout the year.

**Other useful sources of vacancies**

- Gradcracker (graduate recruitment site for STEM jobs)
- NHS Clinical Scientists Recruitment Scheme for NHS Grade A training posts (England and Wales).
  - [https://www.healthcareers.nhs.uk/](https://www.healthcareers.nhs.uk/)
- Institute of Physics and Engineering in Medicine (IPEM)
- New Scientist Jobs
- Association of British Pharmaceutical Industry (ABPI)
- Websites of pharmaceutical companies, medical device manufacturers etc
- Direct applications to organisations that interest you (even if they are not advertising a vacancy). See [applying for unadvertised jobs and experience](https://www.prospects.ac.uk/applying-for-unadvertised-jobs-and-experience)

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