

Nanotechnologist

Nanotechnologists manipulate the tiniest of particles (nanomatter) to develop new or existing technology. They work with materials (organic or inorganic) using specialist devices (nanotools) such as microscopes, on the atomic scale (the nanometre, which is one billionth of a metre).

They are also known as nanotechnology engineers.

The Work

Nanotechnology is a combination of science, technology and engineering which has a wide spectrum of applications spanning electronics, biotechnology, health and medicine, robotics and energy production. This could range from developing more effective sunscreens and more potent medicines, to more durable materials and faster electronic microprocessors.

You could be:

- carrying out experiments for investigations, such as testing for minute amounts of pollution in air and water
- working with genetic material, such as DNA fragments and proteins
- creating new electronics, such as designing microchips that can hold higher amounts of information
- creating high-performance materials and components by integrating atoms and molecules
- identifying new applications for existing nanotechnologies
- generating high-resolution images or measure force-distance curves, using technologies such as atomic force microscopy
- developing production processes for specific nanotechnology products, processes or systems
- conducting medical experiments and writing up detailed reports
- applying to companies and organisations for funding for research.

Pay

The figures below are only a guide. Actual pay rates may vary, depending on:

- where you work
- the size of the company or organisation you work for
- the demand for the job.

Salaries for nanotechnology engineers can start at around £20,000 to £27,000 a year. Nanotechnologists working in research earn between £25,000 and £35,000 a year after completing their PhD.

Senior nanotechnologists working in industry earn between £30,000 and £40,000 a year.

Academic professors teaching at a university might earn around £60,000 a year.

Conditions

- You would work around 37-40 hours a week which might involve overtime to reach project deadlines if working in industry or research and development.
- If you work in industry, you would be based in a laboratory.
- You would wear a lab coat, and protective gear such as safety glasses.
- You may have to work with other scientists from other disciplines to collaborate on projects.
- You might have to travel overseas to work on projects.

Getting In

- Most people entering this profession have a Masters degree or doctorate in nanotechnology.
- Relevant degree subjects include maths, physics, chemistry, electronics engineering, computer science and nanoscience.
- Entry requirements for degree courses are usually 4-5 Highers including 2 or 3 from Maths, Chemistry and Physics. You need English and Maths at least to National 5. Individual course requirements vary so check with the institution.
- Heriot-Watt University offers the MChem Chemistry with Materials and Nanoscience. Entry requirements are 4 Highers at AABB including Maths, Chemistry and Physics plus National 5 English. Check university website for widening access entry requirements.
- The University of Strathclyde offers the Masters in Nanoscience. Entry requirements are a 2:1 or 2:2 Honours degree in physics, chemistry or related subject.
- The University of Glasgow offers the Masters in Nanoscience and Nanotechnology. For entry you need a 2:2 Honours degree in a relevant subject.
- You may be able to get a paid studentship for a PhD course at a university or research institute.

You could work in a research centre (perhaps a university or government laboratory) or in industry. You could look for jobs on site such as [New Scientist Jobs](#).

What Does It Take

You need to be:

- scientifically minded
- practical, logical and methodical
- patient and persistent
- a good communicator to report your findings
- able to work in a team and independently.

You need to have:

- excellent technical, maths and IT skills
- strong analytical and problem solving skills
- an enquiring mind
- a keen interest in science and engineering
- excellent hand to eye co-ordination
- an eye for detail.

Training

- Training normally takes place on the job.
- You would keep up to date with research techniques and new technological developments.
- You would attend training courses and conferences as part of your continuing professional development.

Getting On

- With experience you might move on to senior scientific or management positions, supervising technicians or technologists engaged in nanotechnology research or production.
- You might move on to teaching at a university.
- You may become a consultant or adviser to other businesses.
- There may be opportunities to travel and work abroad.

Contacts

Institute of Physics (IOP)

Tel: 020 7470 4800

Email: education@iop.org

Website: www.iop.org/careers/index.html

Website (2): www.physics.org

Twitter: @PhysicsNews

Royal Society of Chemistry

Tel: 01223 432231

Website: www.rsc.org

Website (2): www.rsc.org/careers/future

Twitter: @RoySocChem

Facebook: www.facebook.com/RoyalSocietyofChemistry

SEMTA (Science, Engineering and Manufacturing Technologies Alliance)

Tel: 0845 643 9001

Email: customerservices@semta.org.uk

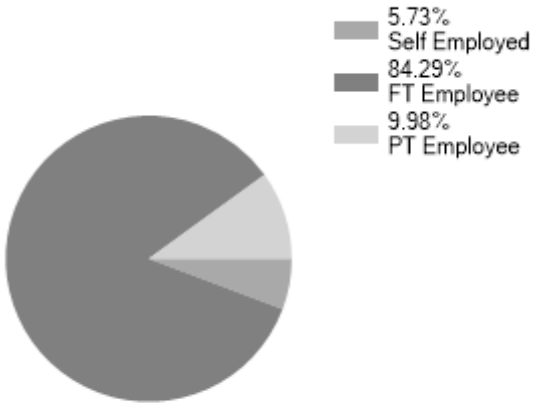
Website: www.semta.org.uk

Twitter: @SemtaSkills

Facebook: www.facebook.com/SemtaSkills?ref=hl

Statistics

Employment Status UK %



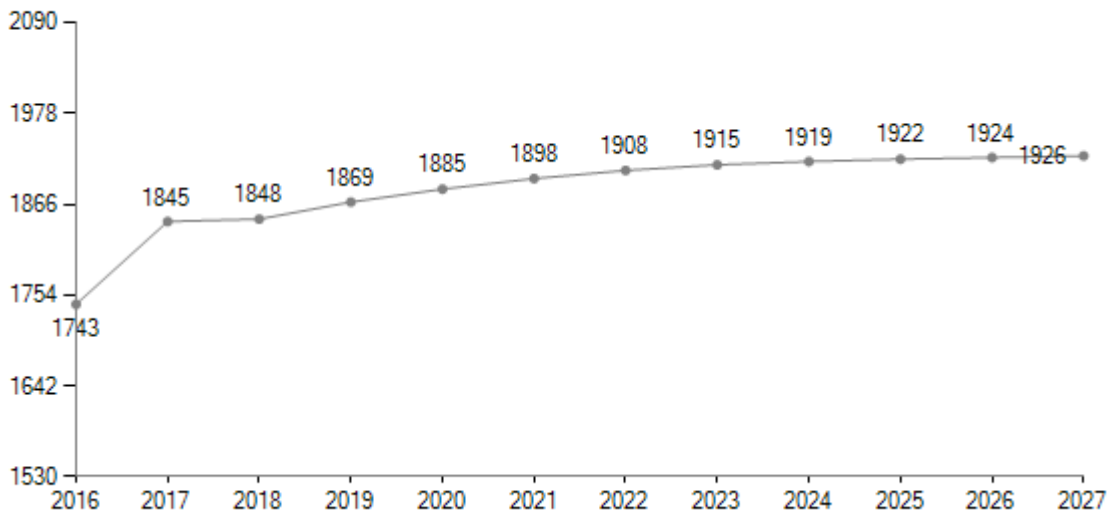
Past Unemployment - Scotland

Date	Unemployed
Dec 2018	0.54%
Mar 2019	0.54%
Jun 2019	0.54%
Sep 2019	0.27%

LMI data powered by [EMSI UK](#)

LMI data powered by [LMI for All](#)

Predicted Employment in Scotland



LMI data powered by [EMSI UK](#)