

The engineering sector needs collaborative action:

This year's Engineering UK report, which presents new demand and supply analyses from previously unavailable data sets, confirms that the long-term recommendations (up to 2022) remain broadly the same as the recommendations in last year's report (up to 2020). New analysis shows we need:

- **Either a doubling of the number of engineering graduates or a 50% increase in the number of engineering and technology and other related STEM and non-STEM graduates who are known to enter engineering occupations.** This is vital to meet the demand for future engineering graduates and to meet the additional shortfall in physics teachers and engineering lecturers needed to inspire future generations of talented engineers.
- **A doubling of the number of young people studying GCSE physics as part of triple sciences** and a growth in the number of students studying physics A level (or equivalent) to equal that of maths. This must have a particular focus on increasing the take-up and progression by girls.
- **A two-fold increase in the number of Advanced Apprenticeship achievements** in engineering and manufacturing technology, construction planning and the built environment, and information and communications technologies.
- **Provision of careers inspiration for all 11 to 14 year olds.** This should include opportunities for every child between 11 and 14 years old to have at least one engineering experience with an employer. This inspiration must highlight the value placed on STEM skills and promote the diversity of engineering careers available. It must be backed up, when required, by (face-to-face) consistent careers information, advice and guidance that highlights the subjects needed and the variety of routes to those careers.
- **Support for teachers and careers advisors delivering careers information** so that they understand the range of modern scientific, technological and engineering career paths, including vocational/ technician roles. It is vital that our education system recognises the employer value placed on STEM subjects and that young people have the opportunity to experience a 21st century engineering workplace for themselves.

The Engineering UK report was produced with the support of the members and fellows of the following Professional Engineering Institutions:

BCS The Chartered Institute for IT	Institution of Engineering Designers
British Institute of Non-Destructive Testing	Institution of Fire Engineers
Chartered Institute of Plumbing & Heating Engineering	Institution of Gas Engineers & Managers
Chartered Institution of Water & Environmental Management	Institution of Lighting Professionals
Energy Institute	Institution of Mechanical Engineers
Engineering Council	Institution of Railway Signal Engineers
Institute of Acoustics	Institution of Royal Engineers
Institute of Cast Metals Engineers	Nuclear Institute
Institute of Highway Engineers	Royal Aeronautical Society
Institute of Marine Engineering, Science and Technology	Society of Environmental Engineers
Institute of Materials, Minerals & Mining	The Chartered Institution of Building Services Engineers
Institute of Measurement & Control	The Chartered Institution of Highways & Transportation
Institute of Physics	The Institute of Healthcare Engineering and Estate Management
Institute of Physics & Engineering In Medicine	The Institution of Engineering and Technology
Institute of Water	The Institution of Structural Engineers
Institution of Agricultural Engineers	The Royal Academy of Engineering
Institution of Chemical Engineers	The Royal Institution of Naval Architects
Institution of Civil Engineers	The Society of Operations Engineers
Institution of Diesel and Gas Turbine Engineers	The Welding Institute

EngineeringUK partners with business and industry, Government and the wider science and engineering community: producing and sharing evidence on the state of engineering, inspiring young people to choose a career in engineering and matching employers' demand for skills. EngineeringUK leads two programmes: The Big Bang and Tomorrow's Engineers.

www.EngineeringUK.com

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Key facts about the state of Engineering



Britain is great at engineering

Engineering turnover grew **6.7%** to



...which is **24.9%** of all UK turnover.

5.4 million people are employed across **576,440** enterprises.

...but we need many more engineers

Engineering employers are projected to need **1.82 million people** with engineering skills from 2012-2022.

This means we will need **double the number of engineering apprentices and graduates** entering the industry.



Filling the demand for NEW engineering jobs will generate an additional **£27 billion** per year from 2022 for the UK economy – equivalent to building **1,800 schools** or **110 hospitals**.



We need more young people studying STEM subjects

Of a cohort of 11 year olds, around...



one in five

will achieve a GCSE physics A*-C grade,



one in twenty five

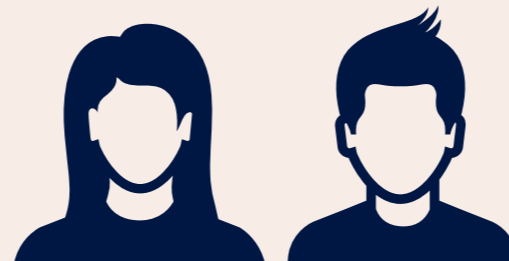
will obtain a physics A*-C grade A level and



only one in fifty

will obtain an engineering degree.

The number of girls gaining physics GCSE at A*-C is **now almost equal to** the number of boys, and the **achievement rate for girls is higher than for boys**.



In 2014, **61,641** girls achieved an A*-C grade GCSE, yet only **5,916** achieved an A*-C grade at A level.



11-14 year olds see a career in engineering as **desirable**.



11-14 year olds said they **knew what people working in engineering do**.

But there is more to do:

In 2014, **only 52%** of 18-24 year olds could **cite the engineering development** of the last 50 years that has **had the greatest impact** on them.

Whilst almost **six out of ten STEM teachers** felt that career in engineering **was desirable** to their pupils **one in six** STEM teachers thought a career in engineering **would be undesirable**.



parents know what people **in engineering do**.

Great prospects

£26,536

Average graduate starting salary for engineering and technology.

Over a fifth more than for all graduates



Nearly **two thirds of engineering & technology graduates** who went into employment **went to work for an employer whose primary activity was engineering and technology**. Just one in fifty go into the financial services sector.