# ****Текст для письменного перевода****

# **Helping define the frontiers of knowledge in modern Chemical and Biological engineering**

Сhemical and biological engineering is absolutely central to our everyday lives. So ingrained is it in everything around us that you may not even realise the myriad of applications that surround us. Without them, many of our modern-day luxuries and lifestyles would not be possible. From your phone battery to your drinking water, the crops that feed us to healthcare; chemical and biological engineers are helping to diminish starvation, disease and poverty, improving the standard of living for people around the globe.

To find the best solutions to challenging global issues, the field must continue to question the existing status quo, pushing through the boundaries of current knowledge and understanding.

Universities are leading the charge in this movement. While research and expertise from these disciplines are steeped in our global society, it will be the young chemical and biological engineers of higher education who will stand at the forefront of the industry’s future development.

This makes graduates highly employable across a wide range of sectors, including energy, healthcare, food, water, and more. Chemical engineering is one of the best-paying professions in the US, with the median starting salaries for qualified engineers listed as around [$94,000](http://typesofengineeringdegrees.org/highest-paid-engineering-jobs/), while the business of biomedical engineering is expected to [grow much faster](http://typesofengineeringdegrees.org/highest-paid-engineering-jobs/) than the nation’s average rate, according to the US Department of Labor.

The work of both the chemical and biological engineers in society is so important that members of this field stand strong in the knowledge that what they do each day makes a real difference in the world, both now and long into the future.

But there is still so much of the biological and chemical engineering landscape that remains uncharted. Many areas exist that are open for exploration and innovation – could you soon become an industry pioneer?

**Тексты для второго задания**

**What is the importance of research in everyday life?**

Сhemotherapy. Browsing the internet. Predicting hurricanes and storms. What do these things have in common? For one, they all exhibit the importance of research in everyday life; we would not be able to do these today without preceding decades of trial and error. Here are three top reasons we recognise the importance of research in everyday life, and why it is such an integral part of higher education today.

According to [Universities Canada](https://www.univcan.ca/priorities/research-and-innovation/university-research-improves-quality-life/), “Basic research has led to some of the most commercially successful and life-saving discoveries of the past century, including the laser, vaccines and drugs, and the development of radio and television.” Canadian universities, for example, are currently studying how technology can help breed healthier livestock, how dance can provide long-term benefits to people living with Parkinson’s, and how to tackle affordable student housing in Toronto.

We know now that modern problems require modern solutions. Research is a catalyst for solving the world’s most pressing issues, the complexity of which evolves over time. The entire wealth of research findings throughout history has led us to this very point in civilisation, which brings us to the next reason why research matters.

Though scientists carry out research, the rest of the world benefits from their findings. We get to know the way of nature, and how our actions affect it. We gain a deeper understanding of people, and why they do the things they do. Best of all, we get to enrich our lives with the latest knowledge of health, nutrition, technology, and business, among others.

On top of that, reading and keeping up with scientific findings sharpen our own analytical skills and judgment. It compels us to apply critical thinking and exercise objective judgment based on evidence, instead of opinions or rumours. All throughout this process, we are picking up new bits of information and establishing new neural connections, which keeps us alert and up-to-date.

# **These 5 schools make their mark on the global field of** **Engineering**

The 21st century has been [defined by innovation](https://www.forbes.com/sites/christopherskroupa/2017/10/04/competitive-advantage-how-innovation-is-shaping-the-21st-century-company/#5a4bcedf6a4c). From high-speed transport networks to the [rise of 5G](http://techhq.com/2018/03/what-5g-could-mean-for-your-business/) and sustainable energy sources, global infrastructure can no longer simply be detailed by our rail tracks, roads and bridges.

At the centre of each development is a leading team of engineers, each one bringing unique specialisations that allow us to progress. We live in a technological era rife with new and emerging technologies, where engineers stand as the [problem-solving visionaries](https://theconversation.com/engineers-dont-just-build-things-they-can-help-save-the-world-49814)who ensure daily life keeps pace. Constantly working to produce the most advanced devices, systems and machines, this discipline keeps graduates professionally engaged while establishing a multi-disciplinary, multi-cultural and multi-location [career](http://i-want-to-study-engineering.org/whyeng/).

“One of the key attractions of…engineering is the wide variety of roles on offer, from computer-based analysis and design work to overseeing installations on site and funding solutions to problems as part of a wider team of architects, clients and other professionals,” [says](https://www.independent.co.uk/student/UWE/engineering-a-career-in-building-services-a7167941.html) Paul Kirby, a respected UK academic of the engineering field.

“When students realise what’s involved, often the penny drops in terms of what they want to do with their careers,” he adds. “It’s a very rewarding profession with diverse niches to find a home in, stimulating intellectual challenges and good prospects.”

When we look at the latest Apple device, swallow an antibiotic or even catch a glimpse of the most recent hybrid car, we don’t always consider the brains behind the cutting-edge contraption. Regardless of whether it lies in tech, business, health, physics, design or the environment, engineering is the beating heart of augmentation and improvement.

As such, employers around the world are eager to hire candidates equipped with the skill and competence needed to drive growth. Acknowledging that corporate innovation culture forms the bedrock of success, recruiters actively seek out-of-the-box ideas and new perspectives fresh graduates can bring.

[**WHITING SCHOOL OF ENGINEERING,   
JOHNS HOPKINS UNIVERSITY – USA**](https://ep.jhu.edu/)

Johns Hopkins University maintains its position as a premier US institution for online engineering studies. Drawing on the principles of multiple STEM disciplines, this school empowers students with the extensive industry knowledge needed to combat the technical challenges of the 21st century world.

Powered by a mission to give its online students an outstanding education supported by innovation, rigor and relevance, the Whiting School is known to produce graduates who pioneer the field.

The school has offered online courses since 2001, and, today, students can complete their coursework 100% online in most programs. The school’s interactive courses are built specifically for the online environment, and use state-of-the-art technology and learning tools. Plus, [its online programs](ttps://ep.jhu.edu/programs-and-courses/program-pathways/online) are among the most highly regarded in the world. In particular, the online and part-time Computer Science, Cybersecurity, Data Science and Information Systems Engineering programs were recently [ranked #5 by US News & World Report](https://www.usnews.com/education/online-education/computer-information-technology/rankings).

[**SCHOOL OF ENGINEERING, UNIVERSITY OF EDINBURGH – UK**](https://www.eng.ed.ac.uk)

Edinburgh’s [School of Engineering](https://www.eng.ed.ac.uk/) represents one of the largest the university has to offer, encompassing more than 200 staff, plus over 2,000 students at both UG- and PG-level. The school is set across 10 buildings on the stunning King’s buildings site in south Edinburgh – a city recently named the [UK’s best for inward investment](https://www.scotsman.com/business/markets-economy/edinburgh-named-as-uk-s-top-city-for-inward-investment-1-4692262).

Here, students can choose from five broad disciplines that include [Chemical Engineering](https://www.eng.ed.ac.uk/chemical-engineering/), [Civil and Environmental Engineering](https://www.eng.ed.ac.uk/civil-and-environmental-engineering/), [Electronics and Electrical Engineering](https://www.eng.ed.ac.uk/electronics-and-electrical-engineering/), [Mechanical Engineering](https://www.eng.ed.ac.uk/mechanical-engineering/) and Engineering Mathematics. The university also boasts a strong portfolio of [PhD](https://www.eng.ed.ac.uk/postgraduate/degrees/phd/) and [research](https://www.eng.ed.ac.uk/research/projects/) activities across seven research institutes. This, in turn, has fostered [collaborative ties](https://www.eng.ed.ac.uk/research/collaborate) with industry and government bodies both nationally and worldwide.

Considering these outstanding offerings, it’s no surprise Edinburgh’s School of Engineering fares well on the global stage. In fact, as an institution considered ‘[the UK powerhouse of Engineering](https://www.eng.ed.ac.uk/about/news/20141218/ref-2014)’, graduates of this school draw long-term benefits from its unparalleled approach.

[**SCHOOL OF ENGINEERING, BROWN UNIVERSITY – USA**](https://www.brown.edu/academics/engineering/)

As one member of the prominent Ivy League collective, Brown University’s School of Engineering provides the ultimate foundation for your globally-recognised degree. Maintaining a strong commitment to diversity among its student body, next year’s intake will promote a female population of an impressive 50 percent, with the school also hosting individual student groups for black, Hispanic and female student engineers to encourage a cohesive and integrated culture.

Undergraduate students can choose to specialise in [Biomedical Engineering](https://www.brown.edu/academics/engineering/undergraduate-study/concentrations/biomedical-engineering), [Biomedical and Chemical Engineering](https://www.brown.edu/academics/engineering/undergraduate-study/concentrations/chemical-and-biochemical-engineering), [Computer Engineering,](https://www.brown.edu/academics/engineering/computer-engineering) [Electrical Engineering](https://www.brown.edu/academics/engineering/undergraduate-study/concentrations/electrical-engineering), [Environmental Engineering](https://www.brown.edu/academics/engineering/undergraduate-study/concentrations/electrical-engineering), [Engineering Physics](https://www.brown.edu/academics/engineering/undergraduate-study/concentrations/engineering-physics), [Materials Engineering](https://www.brown.edu/academics/engineering/undergraduate-study/concentrations/materials-engineering), [Mechanical Engineering](https://www.brown.edu/academics/engineering/undergraduate-study/concentrations/mechanical-engineering) and [Engineering](https://www.brown.edu/academics/engineering/undergraduate-study/concentrations/scb-engineering). These programmes prepare students for long-term careers in engineering, granting them in-depth knowledge within their specialist field.

The breadth of available topics also benefits graduate students, who can take advantage of the interdisciplinary nature of the department through [Masters and PhDs.](https://www.brown.edu/academics/engineering/graduate-study/masters-and-phd-programs)

[**DIVISION OF ENGINEERING, KING’S COLLEGE LONDON (KCL) – UK**](https://www.kcl.ac.uk/nms/About-Us.aspx)

KCL is one of the most cutting-edge, globally-connected education providers in the entire UK capital, intent on producing some of the world’s top graduates for hire, while continually trailblazing the engineering sector.

Ranked in the Top 25 by [QS Global World Rankings](https://www.topuniversities.com/universities/kings-college-london), a degree from KCL has the potential to place you ahead of other talent entering the field. Its position in the heart of London means students benefit from the UK’s influential scientific network. Here, learners gain proximity to the best libraries, science societies and engineering firms in the country, and more opportunities than anywhere else in the UK.

This school was formally established in 1838, arguably making it one of the oldest of its kind. With so many years’ experience plus an elite reputation for both teaching and research, KCL engineering students are given an edge through industry links and placements that truly are unrivalled.

[**SCHOOL OF ENGINEERING, UNIVERSITY OF EXETER – UK**](http://emps.exeter.ac.uk/engineering/)

With a wide range of [professionally-accredited](http://emps.exeter.ac.uk/engineering/about/) specialist [undergraduate](http://www.exeter.ac.uk/undergraduate/degrees/engineering/) and [postgraduate degrees](http://emps.exeter.ac.uk/engineering/postgraduate/), Exeter’s School of Engineering is a prime choice for study in any discipline of engineering.

“I like that Exeter has a general first year for all the engineering disciplines. It means that you get more rounded knowledge and a better understanding when working in interdisciplinary teams.” [Materials Engineering student, Rianna Russell](http://www.exeter.ac.uk/undergraduate/degrees/engineering/), says of the networked teaching approach found at Exeter – a feature that results in a detailed knowledge transfer between various schools of thought.

Course options include [Civil Engineering](http://www.exeter.ac.uk/undergraduate/degrees/engineering/civil/) and [Energy Engineering](http://www.exeter.ac.uk/undergraduate/degrees/energy/energy-engineering-beng/), while the [Engineering and Entrepreneurship](http://www.exeter.ac.uk/undergraduate/degrees/engineering/engineering-entrepreneurship/) course utilises experiential learning to help students launch their own business and innovative products.

Touting [collective investments and study projects](http://www.exeter.ac.uk/business/) that produce ‘research-led teaching enhanced by strong industrial links’, Exeter is an established centre of research excellence  that students can be assured will supply [specialised facilities](http://emps.exeter.ac.uk/engineering/facilities/), and useful and impactful course material shaped by industry feedback.

[**THAYER SCHOOL OF ENGINEERING, DARTMOUTH COLLEGE – USA**](https://engineering.dartmouth.edu/)

Free of specialist departments, engineering students at Dartmouth are free to explore all avenues of study. The school embraces cross-disciplinary teaching so that students and staff alike [reap the rewards](https://engineering.dartmouth.edu/about/dartmouth-difference):

“Creativity, collaboration, and innovation thrive when biomedical engineers work side-by-side with electrical engineers, and materials scientists with computer engineers, and engineering majors rub elbows with Ph.D. students.”

Dartmouth runs courses at both [undergraduate](https://engineering.dartmouth.edu/academics/courses/undergraduate) and [postgraduate](https://engineering.dartmouth.edu/academics/admissions/graduate) level in a staggering number of topics, such as [Virtual Medicine and Cybercare](https://engineering.dartmouth.edu/academics/courses/engs13), [Chemical Engineering](https://engineering.dartmouth.edu/academics/courses/engs36), and [Engineering Electromagnetics](https://engineering.dartmouth.edu/academics/courses/engs64).

In the true spirit of melding education with industry application, Dartmouth students learn [Engineering in Action](https://engineering.dartmouth.edu/about/dartmouth-difference/engineering-in-action), using their skills in outreach projects, like building hydro-power systems in Africa as part of the [Dartmouth Humanitarian Engineering](http://www.dhedartmouth.org/) team; just one example of the difference engineering students can make in the wider global community.