Engineering

Cambridge is unusual in offering a broad Engineering degree, which specialises only in later years. In a working career of perhaps forty years, an engineer will need to absorb many new techniques and ways of thinking. We believe that our general course equips students well for this kind of challenge; many former students testify to the benefits of this type of course. The course is fast-moving and demanding and is held in high regard by employers throughout the world.

At Cambridge, our course has been accredited by the major Engineering Institutions, subject to reasonable restrictions on the choice of subjects in the final years.

Most Cambridge Engineering students take an additional fourth year which leads to the M.Eng. degree, although it is possible to leave after three years with a B.A. degree. The first two years cover fundamental principles of Engineering across a very wide range of topics: Mechanical, Electrical, Civil, and so on, with a minor element of choice in the second year. In the third year, students choose modules from a wide range of topics, but with the majority taken from one of eight engineering areas. These areas represent professional specialisations and include Aerospace and Aero-thermal Engineering, Electrical and Electronic Engineering, Civil and Mechanical Engineering (the full list can be found on the Department of Engineering website). The final “Masters” year then comprises 50% project work, plus a selection taken from a broad range of short, specialist courses. Alternatively, it is possible to move into Manufacturing Engineering or Management Studies for years three and four, or into Chemical Engineering for years two, three and four (after a foundation year in either Engineering or Natural Sciences).

Engineering at Peterhouse

Peterhouse has a strong tradition in Engineering, with notable alumni including Babbage, Kelvin, Whittle and Cockerell. Although undergraduate work is centred around the University Engineering Department, which is next door to Peterhouse on Trumpington Street, College teaching is also significant. The College currently has a total of five Fellows in Engineering, who teach in all the main disciplines as well as directing studies for each undergraduate year. This enables most first and second year supervisions to be given in College by Fellows of Peterhouse, amounting to approximately two hours of supervising per week during term. College-based supervisions may continue in later years in cases where options chosen coincide with Fellows’ specialist interests, although many are arranged with other specialists in the Department.
Engineering is one of the larger subjects taught in Peterhouse, with typically 10 undergraduates being admitted each year. There is also a strong community of graduate students working towards the M.Phil. and PhD.

Students’ views

‘Peterhouse has the best location for Engineering students and a solid academic background in the subject. We have many amazing engineering fellows and really talented young engineers-to-be. Of course, being the smallest college, I really enjoy the close relationship we have built within the engineering community and with people doing other subjects here. The engineers’ drink and dinner are some of the best free meals we have and great opportunities to talk to engineers in different fields.’

Phoebe, 3rd Year Engineering student

Course requirements

In terms of entry requirements, A level Mathematics and A level Physics (or their equivalents) are essential, and it is expected that candidates who have the opportunity to study A level Further Mathematics at school will have done so. There is the opportunity to state on the SAQ if you have not had the opportunity to take Further Mathematics. Science and technology subjects are desirable and Chemistry is of some use generally, and essential for applicants to Chemical Engineering (via Engineering). We consider Mathematics and Physics essential for Engineering and we would expect the highest levels of achievement to be in these subjects, whatever the qualifications studied. IB candidates should be on track for 7s in these subjects. Candidates who are not on track for high grades in (Further) Mathematics and Physics may not be invited to interview.

The application process

All applicants for Engineering across the University will be asked to sit a pre-interview written assessment at their school, college or local testing centre on 4th November. These will form part of our holistic assessment of candidates’ achievements, abilities and potential and are no more, and no less important than any of the other pieces of information considered during the admissions process. Registration for this assessment closes on 15th October. Further information can be found on the University website.

At Peterhouse, there are normally two interviews of half an hour each and a maths test of 70 minutes. We also ask candidates to spend about 45 minutes on a problem sheet (calculators permitted) before one of the interviews for discussion during that interview. The problems have no concise answer; we expect to hear candidates’
considered views, but we will also give some prompting and hence assess how new ideas are absorbed. A wider range of engineering issues will also be discussed at this interview. The other interview assesses candidates’ abilities in Mathematics appropriate to Engineering, and includes some more Engineering questions.

The at-interview maths test is a 70 minute multiple choice test on maths and physics (calculators not permitted). The level of difficulty will be appropriate for candidates in their final year from all school backgrounds that are recognized by the University as providing the necessary preparation for the Engineering Tripos (see the Engineering Department online prospectus for details). It is recognised that the way and order in which material is covered by different schools varies, and applicants won’t be disadvantaged by this. No special preparation is necessary for this test, or for any other part of the interview process, beyond what candidates already do at school.

Several universities have engineering admissions tests and interviews that involve solving problems. If you want to practise solving problems relevant to engineering, you may wish to visit: i-want-to-study-engineering.org.

**Typical conditional offers**

Our typical conditional offer for Engineering is A*A*A in relevant subjects at A level, with the A*s generally expected in Further Maths and Physics. IB offers are usually for a minimum of 40-42 points, to include 776 or 777 at Higher Level, with 7s in maths and physics. For all qualifications, we consider Mathematics and Physics essential for Engineering and we would expect the highest grades in these subjects. Candidates who are not on track for high grades in Mathematics and Physics may not be invited to interview. Further Mathematics is essential wherever possible.

We often ask for a grade 1 in STEP Mathematics I, but this would be part of a conditional offer and there is no expectation that candidates should sit STEP before applying.

Offers are designed to be realistic, taking into account individual circumstances, and to reflect potential and likely levels of achievement. Most of those who receive offers will attain the grades required.

Some of our Engineers take a gap year, often linked to sponsorship. We encourage this when there is a good prospect of gaining appropriate industrial experience. In any case, some approved industrial training is a requirement as part of the Engineering degree, and we strongly encourage links to industrial companies during your time here.