Foundation Engineering and Physical Sciences

Solve it

Achieve it

nottingham.ac.uk/feps
Undergraduate guide 2019
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Top 10 in UK
for Engineering and Technology
Times Higher Education World University Rankings 2017

Join a global community
of over 45,500 students, from more than 150 countries

Expert academics
ensure you get the same high quality teaching from day one

Guaranteed progression
on to your chosen degree after successful completion of the programme

Get involved
by choosing from over 300 clubs and societies

Guidance and advice
from dedicated teaching staff to ensure you get the best support possible

Be inspired by our award-winning campuses
Our UK campuses have won 20 Green Flag Awards

80+ degrees
to choose from in Engineering, Mathematics, Physics and Computer Science after successful completion of the programme
Studying foundation engineering and physical sciences at Nottingham

Our foundation programme will give you the skills and knowledge needed to undertake a degree while studying at a world-class university.

Fully integrated programmes
Unlike some UK universities, the foundation programme at Nottingham is fully integrated into your chosen degree, and is simply counted as year zero of a four or five-year programme. It will provide you with the best possible grounding for entry onto these programmes, with the topics covered being perfectly matched to subsequent stages of your course.

On successful completion of the foundation programme, providing you pass at the required level, you are guaranteed progression onto the first year of your chosen degree subject.

Student support
A great strength of our programme is the quality of care we provide to our students. A team of professional and experienced teaching staff ensure students learn in an environment in which they can realise their true potential, and as well as a personal tutor, we also allocate a mentor to look after each student during the foundation year. Mentors are chosen from trusted and high performing former foundation students who are able to pass on their experiences of student life at Nottingham.

At a glance
- Develop your academic reading, writing, critical thinking, communication and subject-specific skills in preparation for undergraduate study
- Receive one-to-one support with a personal tutor and allocated mentor
- Access the same facilities as other undergraduate students at the University of Nottingham

Scholarship
The foundation programme has an annual BP scholarship where the top five students will each receive a cash prize of £1,000. For more information on bursaries and scholarships please visit nottingham.ac.uk/financialsupport

Extracurricular opportunities
We provide a wide range of extra opportunities and activities throughout the foundation programme, including social events, cultural visits and industrial talks and visits, all with the aim of bringing your learning to life and giving you the opportunity to enjoy new experiences. We also invite external speakers from industry and academia to give you an insight into the world of engineering and science, and the annual foundation football match is not to be missed.

nottingham.ac.uk/engineering/foundationyear

Progression requirements

In order to progress onto year one of your chosen undergraduate degree programme, for most routes you are required to pass the foundation programme and obtain a 50% course average at the first attempt.

You are allowed to ‘compensate’ a limited amount of modules, for example, if you fail a module (get less than 40%) and your overall average is acceptable you can still pass the course. However, ‘compensation’ is not allowed between certain core modules, for example, engineers must pass second semester mathematics.

If you pass the foundation programme with the required modules but with an average of between 40% and 49%, you will not be eligible for guaranteed progression onto the first year. You will instead be considered on an individual basis by destination schools. This is similar to Clearing within the UCAS system. If we think that you are likely to be in this situation, we will talk to you as early as possible in the year and make sure that you are aware of the situation and your different options.

In the unlikely event that you do not meet the progression criteria at the end of the foundation programme, you will be offered the opportunity to re-sit modules in order to pass the foundation certificate. Please note that if you are in this situation, automatic progression will not be guaranteed.

<table>
<thead>
<tr>
<th>Module</th>
<th>Grade Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science</td>
<td>50% and over</td>
</tr>
<tr>
<td>Engineering</td>
<td>50% and over</td>
</tr>
<tr>
<td>Mathematical Sciences</td>
<td>Average of 60% and over</td>
</tr>
<tr>
<td>Physics and Astronomy</td>
<td>60% and over</td>
</tr>
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</table>

Overseas students may be required to take additional English Language modules for progression. Please see website for full details.
Course content

The foundation engineering and physical sciences programme consists of modules in engineering, computer science, mathematics and physics.

The particular modules you study will be determined by the pathway you have chosen and your destination school (the one you wish to progress onto after the foundation programme). For example, if you have chosen to progress onto mechanical engineering you will need to study engineering, maths and mechanics in addition to certain science topics.

There are certain core (compulsory) modules that are always undertaken, but the optional modules will vary from year to year. During the first week and beyond, staff will be on hand to offer advice and support in choosing modules that will be suited to you, in order to give you the best possible start for the first year of your chosen degree.

The modules we offer are inspired by the research interests of our staff. As a result modules may change due to research developments or legislative changes, for example. The list below is a sample of typical modules that we offer, not a definitive list.

Foundation Mathematics 1 and 2
For students on both the engineering and physical sciences pathways, mathematics will form a large part of your undergraduate programme and your future career. Topics covered are broadly comparable to A level maths, but these modules have a narrower and deeper focus for engineering and science.

Study Skills
The objective of this module is to develop your study skills in the context of engineering and science, aiming to improve your awareness of research and communication methods, referencing, and presentation skills. Topics covered include effective technical writing through reports, laboratory and skills reports, developing reflective skills for professional development, preparing for exams, and time management.

Computer Methods
This module involves the use of a software environment (MATLAB) to help solve engineering and mathematical problems related to the course. MATLAB is a powerful mathematical modelling tool used heavily in industry. You will learn how to break down problems into smaller, manageable tasks, while being introduced to programming techniques. Topics covered include data structures and formats, plotting of graphical data, programming structure and style, and simple file handling.

Electricity and Magnetism/ Electrical Circuit Principles
These two modules will provide basic knowledge of electricity and magnetism, required for entry into the first year of degree courses in the faculties of engineering and science. As the modules develop throughout the year, you will look at a range of component technologies, from passive devices such as inductors and capacitors through to simple semiconductors. In the second semester, topics covered include: AC circuits, circuit analysis techniques and electrical resonance.

Foundation Mechanics/ Further Mechanics
These two modules will introduce you to the concept of scalars and vectors and give you a broad grounding in the basic response of rigid structures to imposed forces. You will also investigate the behaviours of rigid structures under circular and simple harmonic motion. On completion, you will be able to demonstrate your ability to collect, analyse, and evaluate experimental data relating to basic engineering mechanics, as well as solve set problems.

Vibration and Waves/ Properties of Matter
These applied physics modules provide grounding in the physical explanations of vibrations (oscillations) and waves. This will cover simple models of vibrations and waves and extend their importance in the study of engineering and physics. In the second semester you will study atomic structures and behaviour.

The Universe/ Molecules on the Move
These modules are for those of you who choose the physics and astronomy pathway. The Universe will provide you with an introduction to astronomy from the solar system to the Big Bang, covering general physical principles including cosmology, gravitational fields and orbits, observational techniques in astronomy, and stellar evolution. Molecules on the Move will give you an introduction to the thermal and mechanical properties of matter. Both modules are taught using a combination of lectures, workshops and practical lessons.

Course content Credits
Foundation Mathematics 1 20 (core)
Foundation Mathematics 2 20 (core)
Study Skills 10 (core)
Computer Methods 10 (core)
Electrical Circuit Principles 10
Electricity and Magnetism 10
Foundation Mechanics 10
Further Mechanics 10
Properties of Matter 10
Vibration and Waves 10
The Universe 10
Molecules on the Move 10

Modules may change, for example due to curriculum developments. The above list is a sample of typical modules that we offer, not a definitive list. The most up to date information can be found on our website at nottingham.ac.uk/feps.
Progression opportunities

Successful completion of the foundation programme leads on to around 90 different degree courses at the University of Nottingham. The degree you choose to take following the foundation programme depends largely upon the modules you select to study. Most students are able to delay making their final choice until the second semester of the foundation programme.

Engineering routes
Students are able to progress from the foundation programme on to courses in the following disciplines within the Faculty of Engineering:
- Aerospace Engineering
- Architecture and Built Environment*
- Chemical and Environmental Engineering
- Civil Engineering
- Electrical and Electronic Engineering
- Mechanical, Materials and Manufacturing Engineering*

Science routes
Students are able to progress from the foundation programme onto courses in the following disciplines within the Faculty of Science:
- Computer Science*
- Mathematical Sciences*
- Physics and Astronomy

If you would like more information on the undergraduate degree programmes available to you, please contact us using the details on the back cover.

As a mature student, I hadn’t studied maths or science since my GCSE’s and I was quite nervous when I embarked on this venture. The foundation year provided me with everything I needed and more, to make sure I had the ability and confidence to enter the first year.

Kim Onjun, MEng Mechanical Engineering with Foundation Year

nottingham.ac.uk/feps

Engaging study, incredible results

The structure of this course aims to give students the skills and confidence they need to tackle their first year at university.

Course structure
Each full year at university consists of 120 credits. A typical one-year foundation programme will consist of 12 modules, usually worth 10 credits each (some 20 credits). You will take a maximum of seven study modules in each semester.

A 10-credit module typically requires you to study around 42 contact hours, which are broken down into 24 hours of lectures; 12 hours of tutorials/problem workshops; and six hours of laboratory classes. In addition to this, each module requires you to complete coursework and assessments, directed study and reading. In total, each module will consist of at least 100 hours of your time.

Teaching methods
You will be taught through a combination of lectures, workshops, tutorials, practical work, projects and group work. This varied approach will give you the opportunity to learn in both formal and informal environments, and you will receive one-to-one tuition as well as encouragement to take part in group discussions and activities. We also encourage students to come and ask staff for help on a one-to-one basis if required. Theoretical-based sessions are usually supported by practical workshops where you can gain hands-on experience.

Key Information Sets
Key Information Sets (KIS) are comparable sets of information about full or part-time undergraduate courses and are designed to meet the information needs of prospective students. All KIS data is published on the Unistats website unistats.co.uk

Assessment
All modules are assessed through a combination of examinations and coursework. Typically, examinations count for around 60% of the module mark while the coursework mark (40%) is usually created from a series of smaller laboratory reports, tutorial exercises and self-directed research projects.

* There are some degree routes that have additional progression requirements. Please see our website for an updated list: nottingham.ac.uk/engineering/foundationyear
How do I apply?

All applications for undergraduate study at Nottingham, including applications by international students, must be made through UCAS.

You can apply online at ucas.com and will be notified of decisions through UCAS Track.

Your personal statement
This is the section of your UCAS form that tells us most about you, and you should make the best use of it. Be as specific and detailed as you can – we would like to see that you are a student who can work hard, be self-motivated and make the best possible use of the opportunities that our courses offer you. We would also like to hear about any skills you have gained through extracurricular activities.

Minimum entry requirements
Unless otherwise stated in individual course profiles, all UK applicants should have GCSE English grade 4 (C) as a minimum.

Alternative qualifications
In this brochure you will find our A level and International Baccalaureate entry requirements but we accept a much broader range of qualifications. For more details, visit nottingham.ac.uk/ugstudy/applying.

Academic entry requirements
BBB at A level (any subjects will be considered except general studies and critical thinking), 30 at International Baccalaureate (IB), DDM at STEC Extended Diploma. You must have mathematics and physics (or double science or science and additional science) at GCSE (or equivalent) both at grade 5 (B), and a grade 4 (C) in GCSE English or equivalent. We will consider some applications from students who do not meet our GCSE requirements if they have a higher level award in an acceptable subject at an acceptable grade. Following the reform of GCSE grading in England from A*–G to 9–1, we have adopted Ofqual’s recommended equivalence. This means that GCSE grade A*=9, A=7, B=6/6 and C=4. GCSE qualifications taken outside of the UK will still be graded A* to G.

Mature applicants
We encourage applications from mature applicants who have a significant gap in education. You should apply through UCAS. Find out more at nottingham.ac.uk/mature.

International applicants
The University provides a range of information and advice for international applicants. If you are unable to attend an open day, we can meet you in your country at one of our overseas events or arrange an individual visit to the University. For further information please visit nottingham.ac.uk/go/international-applicants.

Deferred entry
Applicants who wish to defer their entry by a year will not be at a disadvantage. Please tell us something about your plans for your gap year in your UCAS personal statement.

Equal opportunities policy
The University aims to create the conditions whereby students and staff are treated solely on the basis of their merits, abilities and potential, regardless of gender, race, colour, nationality, ethnic or national origin, age, socio-economic background, disability, religious or political beliefs, trade union membership, family circumstances, sexual orientation or other irrelevant distinction.

Accommodation
To suit every budget and personal choice
nottingham.ac.uk/accommodation

Experience it

One of the UK’s leading universities for sport* with over 70 student sports clubs
nottingham.ac.uk/sport


Join in with the vibrant musical life on campus and in the city
nottingham.ac.uk/music/performance

Choose from 9 modern languages to study alongside your course
nottingham.ac.uk/language-centre
This brochure has been drafted in advance of the academic year to which it applies. Every effort has been made to ensure that the information contained in this brochure is accurate at the time of publishing, but changes (for example to course content) are likely to occur given the interval between publication and commencement of the course. It is therefore very important to check our website for any updates before you apply for the course by following nottingham.ac.uk/ugstudy. Where there is a difference between the contents of this brochure and our website, the contents of the website take precedence.