This exciting and rapidly developing subject draws on engineering technologies and applies them to medical and biological problems. It has led to many scientific breakthroughs – everything from robotic skeletons that can help disabled people to walk to the use of stem cells to create an artificial windpipe.
**Cross-disciplinary programme**
This degree draws on both the School of Engineering and Digital Arts’ experience in developing medical-electronic systems, and on the considerable research expertise within the School of Biosciences.

**Academic support**
University is not like school; you need to be motivated and well organised. We help by assigning you an academic tutor and running a peer mentoring programme. You can also get guidance on how to master key academic skills such as revision techniques.

**Excellent resources**
You have access to 150 high-end computers, a 120-seat engineering lab, motion-capture and scanning facilities and a staffed mechanical workshop. There are also excellent study facilities within the superb Templeman Library.

**World-leading research**
In the Research Excellence Framework (REF) 2014, 98% of Kent’s engineering research was judged of international quality. Also, the School of Biosciences at Kent is among the most research active in the UK.

**Friendly community**
We teach in small groups. This means you quickly get to know our staff and other students. We also have a programme of extra-curricular lectures and seminars, where you hear from today’s experts.

**Lively campus**
Everything is within walking distance, including shops, banks, a medical centre and a pharmacy. See plays or films at the Gulbenkian, dance until the early hours at The Venue and keep fit at our excellent gym.

**International links**
We strive to nurture strong partnerships with academic, business and industrial organisations in the UK, Europe and worldwide. Our courses reflect the feedback we gain from these business networks.

**Career success**
The School’s unique blend of technological and design expertise is at the forefront of the needs of 21st-century society, producing engineers with a cutting-edge knowledge of both biology and medical science.

**Historic location**
Canterbury is a lovely city with medieval buildings, lively bars and atmospheric pubs, and a wide range of shops. It’s close to charming coastal towns and within easy reach of both London and mainland Europe.
Inspirational teaching

Spectacular advances in this field have made a huge impact on our lives. Our teaching is based on leading-edge research using case studies based on hot topics within industry and emerging technologies. Our lecturers have wide experience of research, teaching, industry and healthcare, and you also hear from experts in private companies, research centres and NHS institutions. As well as lectures, there are many opportunities for hands-on work, particularly in project work involving electronic design.

Independent rankings

The Complete University Guide 2019
- Electrical & Electronic Engineering at Kent ranked 26th overall
- Biological Sciences at Kent ranked 17th overall

Research Excellence Framework
- Based on the most recent Research Excellence Framework, Kent was ranked in the top 20 for research intensity by the Times Higher Education, outperforming 11 of the 24 Russell Group universities

Destination of Leavers from Higher Education (DLHE)
- Over 95% of Kent graduates who graduated in 2017 and responded to a national survey were in work or further study within six months

Teaching Excellence Framework
- Kent was awarded gold, the highest rating, in the UK government’s Teaching Excellence Framework*

*The University of Kent’s Statement of Findings can be found at www.kent.ac.uk/tef-statement
Camilla Felici is in her second year of Biomedical Engineering.

What attracted you to this programme?
The idea of mixing medicine and technology was amazing. I wanted to find a way to help people – for instance, by using technology instead of surgery. It puts together the two subjects I like the most, so I just thought it was the perfect combination.

And why did you choose Kent?
My home is in Italy, but I graduated from high school in the US, and wanted to keep studying in English, so the UK was closest. Kent was well-ranked and biomedical engineering is not widely offered in other universities.

How is your course going?
It’s definitely living up to my expectations. I’m really happy with all the practicals, all the projects and lab work we do, because it makes more sense when you put into practice what you learn from theory. Last year we had a huge robotics project: we had to create a robotic car in competition with a French university. This year is a group project, so I’m with three other people and we are planning a device for people with swallowing problems. We have to design the whole project, and it’s very interesting.

What are your favourite modules?
I’ve actually just started them: Biomechanics and Physiological Measurement. Until now we’ve studied mainly background information, but now we’re actually starting to do biomedical engineering, so it’s a lot more interesting – I like the practical aspects. And I’m enjoying computing, because it’s mostly about programming, which is not something I’d done before. It’s exciting.

What do you think of the teaching and support?
The lecturers are really friendly and easy to talk to – they’re not at all scary! So if you have a problem, if you didn’t understand something, you can easily reach them through email or just by showing up at their office, and they’ll be more than happy to help you. The careers advice is good too, learning how to write your CV and a covering letter.

What about the facilities?
We have 24-hour access to the computer labs, and that’s really, really helpful. I feel we have access to a lot of up-to-date equipment. There’s even a 3D printer we can use. We have everything, to be honest.

What social activities are you involved in?
I’ve tried lots of societies, including yoga, astronomy and travel. Also because the course is a small one, just about 10 of us, we all know each other and spend time together. We are really close to each other and it’s a nice environment.

What are your plans for after graduation?
I’m very interested in prosthetics, so I’m looking into that area of biomedical engineering. If that doesn’t work out, I’m open for anything related to my field, from pharmaceutical industries to medical devices in general. It’s quite a wide field because we are gaining knowledge from multiple areas, and it’s not widely offered yet so there’s a range of things we can get into.

Any advice for future students?
Enjoy all the facilities, and don’t be shy about questioning people in your field who know more, because this is the only time you’re going to have access to them. Keep up with your studies, because it’s hard work catching up if you fall behind. Make the most out of your time at university – it’s hard work, but it can be fun. You make a lot of friends, and they’re probably long-lasting ones, because you share a lot of experiences with them and start to feel like a grown-up.
CHOOSING YOUR DEGREE

Degrees in the School of Engineering and Digital Arts range from design, through programming to specialist engineering.

Biomedical Engineering
This three-year, full-time BEng programme is offered jointly with the School of Biosciences. It produces engineers with a solid knowledge in biology and medical science, opening up career opportunities in the bioengineering industry and the NHS. You can also take Biomedical Engineering with a Year in Industry (see p9).

Other degree programmes
The following degrees are also available within our School. For more details, you can download the relevant subject leaflet at www.kent.ac.uk/studying/leaflets

The BEng and MEng degrees are fully accredited by the Institution of Engineering and Technology (IET). The MEng programmes also meet the educational requirements for Chartered Engineer (CEng) status.

Electronic and Communications Engineering
On a full-time three-year BEng or four-year MEng course, you learn all aspects of electronic engineering, allowing you to enter any branch of electronics. The syllabus includes analogue and digital circuits and systems, mobile and other communications, and computing for electronics.

Computer Systems Engineering
In this programme, you develop the skills and expertise needed to design computer systems. This includes detailed, up-to-date knowledge of computer hardware and software, and background knowledge of electronics, communications systems and control theory. You can study full-time on a three-year BEng or four-year MEng course, jointly taught by EDA and the School of Computing.

Electronic and Computer Systems
This programme is for you if you already have 240 credits from modules equivalent to those on our Stage 1 and 2 Electronic and Communications Engineering programme. You study full-time for one year to gain the same level of qualification as students taking a traditional three-year course.

Multimedia Technology and Design
This programme gives you the opportunity to develop in-depth knowledge in areas such as web design, DVD authoring, 3D modelling, special effects and compositing. Career possibilities include film animation, multimedia production and website creation.

Digital Arts
This exciting programme gives you practical skills, creative thinking and design expertise through a multidisciplinary exploration of website design, digital photography, moving image, graphic design, 3D modelling and animation, digital portfolio production and design for print. You can take it as a three-year BA degree or a four-year MArt degree.

Flexible entry routes
Foundation Year
This programme is for those who don’t have the qualifications needed for direct entry to the first year of our degree programmes. It covers electronics, computing, physics and mathematics. If you successfully complete the foundation year, you can go on to take either the Electronic and Communications Engineering or Computer Systems Engineering programmes. To be considered for the Biomedical Engineering degree programme, you also need to have A level Biology or Chemistry (or the equivalent).

International Students
The International Foundation Programme (IFP) is for international students. Passing the electronics pathway of the Kent IFP with an overall mark of 60% or over guarantees you entry on to the first year of the relevant degree programmes. For more details, see www.kent.ac.uk/ifp
Our Biomedical Engineering degree offers the possibility of working for a year in industry, which you’ll do between Stages 2 and 3.

Study and career benefits
Employers are very keen to employ graduates who already have work experience, so this year can greatly enhance your job prospects. It also allows you to check out a career path and get a taste of the working environment. If your placement is a success, you may even find that your are offered a job with the same employer after graduation.

The practical experience can also be put to good use in your final year of study. It gives you a sense of how the theory works in practice and improves your skills in many areas, helping you to gain a better degree.

Finding a placement
The School has a dedicated placement officer, who works with the University’s Careers and Employability Service to help you find businesses and organisations offering placements. The Careers and Employability Service also gives support when it comes to writing CVs and developing skills for placement applications and interviews. And it can put you in touch with students who have completed successful placements in industry while studying at Kent.

Companies frequently visit Kent to present their placement opportunities and also interview candidates.

Salary and benefits
Students usually work on placement for the entire calendar year. Salary and holiday entitlements vary according to the employer you work for, but many students find that they earn enough to be able to save some of their income and this often helps during the final year of studying at Kent.

Keeping in touch
The University maintains close contact with you during your year away. You have to keep a log of your training and work experience during the year and write a report on your placement. The Year in Industry is assessed by a combination of employer feedback and academic evaluation.

“The School gave me one-to-one assistance with work placements and CV writing. This really helped me get a paid placement during the course.”

Tom Taylor
School of Engineering and Digital Arts
Your Study Programme

Our programme goes beyond traditional disciplinary boundaries and educates engineers who can develop systems used in medical practice and research in biology.

Please note, the module lists below are not fixed as new modules are always in development and choices are updated yearly. See www.kent.ac.uk/ug for the most up-to-date information.

To read a full description of the modules listed, go to: www.kent.ac.uk/courses/modules and search using the module code.

Foundation Year

The Foundation Year is designed for students who don't have the qualifications for direct entry to our degree programmes. (You also need to have an A level in Biology or Chemistry to study the BEng in Biomedical Engineering.)

If you successfully complete this year, you can go to Stage 1 of any of our BEng programmes. The modules you study during your Foundation Year are:

- Algebra and Arithmetic (PH020)
- Analogue Electronics (EL026)
- Calculus (EL021)
- Electrical Principles and Measurements (EL025)
- Electromagnetics for Engineers (EL024)
- Graphs, Geometry and Trigonometry (MA022)
- Introduction to Programming using MATLAB (EL033)
- Semiconductor and Digital Electronics (EL027).

For those who need it, instruction in English is also available.

Stage 1

Stage 1 covers the first year of your degree programme. You undertake laboratory practicals in both electronics and biology.

You take the following modules:

- Digital Technologies (EL315)
- Engineering Mathematics (EL318)
- Engineering Analysis (EL319)
- Introduction to Biochemistry (BI300)
- Introduction to Electronics (EL305)
- Molecular and Cellular Biology (BI302)
- Robotics Project (EL311)
- Skills for Bioscientists (BI308).

Stage 2

This is the second year of your degree programme. You continue with practical work, building bioscience-related electronic devices under the supervision of academics from engineering and biosciences.

You take the following general modules:

- Computer Interfacing (EL562)
- Signals and Systems (EL569).

You will also take Biomedical Engineering modules in:

- Biomechanics (EL514)
- Human Physiology and Disease (BI307)
- Image Analysis and Applications (EL561)
- Introduction to Programming (EL313)
- Physiological Measurement (EL515)
- Skills for Bioscientists 2 (BI532).

Stage 3

This is your final year of study. You take the following compulsory modules:

- Biomaterials (EL614)
- Digital Signal Processing and Control (EL676)
- Human Physiology and Disease 2 (BI513)
- Product Development (EL671)
- Project (EL600).

You can also choose one module from:

- Bioinformatics and Genomics (BI638)
- Cancer Biology (BI642)
- Medical Physics (PH513).
SUPERB STUDY SUPPORT

We’ll support you throughout your time at Kent, from helping you adjust to university study to discussing module choices and essay topics with you.

You are assigned an academic adviser in your first year, and they help you get the most from your degree programme. They meet with you regularly to discuss general academic issues or specific assignments. They also assist you in developing academic skills and refer you to other sources of help if you need it.

Peer support
The best advice often comes from people who’ve been in your situation. On our Academic Peer Mentoring scheme, first-year students can request to be matched with second- or third-year students on a similar degree programme.

Peer mentors can help you settle in to university life and find your feet. They discuss ideas with you and help you to improve your study skills as you progress through your first year at Kent.

Study skills advice
Successful students take control of their own learning. Kent’s Student Learning Advisory Service (SLAS) can help you to increase your competence and confidence and fulfil your potential. You can request a one-to-one appointment or attend workshops on a diverse range of subjects from making the most of lectures to revision techniques.

Student support and wellbeing
You might need extra help to get the most from university. If you have a medical condition, specific learning difficulty, mental health condition, or disability, the Student Support and Wellbeing team is there to support you.

They are committed to improving access to learning for all students at Kent and can assist with many things, including:
• discussing exam access arrangements
• helping you with emotional, psychological or mental health issues
• applying for relevant funding to support you.

Find out more at: www.kent.ac.uk/studentsupport

“The lectures are very interactive which is important. If you have questions, the lecturers explain things for you. And if you don’t understand it from one angle, they explain it from another.”

Laura Mihalache  
BEng (Hons) Bioengineering with a Year in Industry
A SUCCESSFUL FUTURE

Studying at Kent gives you the essential skills for a competitive advantage when job-hunting.

Our track record speaks for itself: just six months after graduating in 2017, more than 95% of Kent graduates who responded to a national survey were in work or further study (DLHE).

An expanding sector

Modern healthcare draws on the latest bioengineering technology, such as:

- electronics and computing for diagnosis and treatment
- biomaterials for body implants
- artificial organs
- joint replacements
- technology to enhance mobility and communication for people with disabilities
- structures to treat biomedical problems at the microscopic level
- medical imaging for diagnosis or treatment
- stress analysis tools for the musculoskeletal system
- computer models to predict physiological events.

The European Alliance of Medical and Biological Engineering and Science (EAMBES) says this sector is vital for the health and wellbeing of European citizens, and for the European economy, calculating the sector’s growth rate at 5-7% per year.

Common career paths

Biomedical Engineering graduates typically go into industry, research or healthcare – for instance as a clinical scientist in the NHS.

Companies employing bioengineers include Haag-Streit, Philips Healthcare and Pentax.

Professional accreditation from the Institution of Engineering and Technology (IET) opens up many other, more general, career paths. The IET provides accreditation for several EDA degrees (see p8) and we are now applying for accreditation for our new degree in Biomedical Engineering.

Key transferable skills

Studying for a degree is not just about mastering your subject area. These days employers are also looking for a range of key skills, and we encourage you to develop these within your degree programme. The ability to analyse situations, troubleshoot problems, and construct written and verbal presentations are all valuable skills, no matter what your final profession.

Careers advice

Our award-winning Careers and Employability Service can advise on how to choose a career, apply for jobs, write a good CV and perform well in interviews and aptitude tests. It also has information on work opportunities before and after you graduate. For more information on the careers help we provide, see www.kent.ac.uk/employability
Dr Layla Larsen works as a clinical engineer in the NHS and as a lecturer at the University of Kent.

What initially attracted you to the field of bioengineering?
My father was a doctor so I was exposed to healthcare at a young age. While in high school, I had a placement at our local rehabilitation centre. I was fascinated by the idea of using engineering principles and technology to solve medical problems.

As an undergraduate, did you have a career in mind?
I didn’t know what I would do when I finished, but I soon realised that I could go into many different areas – for instance, the development of medical devices, or working with people who needed assistive technologies.

What route did you eventually choose and why?
I came across the NHS Clinical Scientist Scheme and I liked the idea of becoming a clinician who has direct contact with patients. The NHS offers a Scientist Training Programme which takes you through a Master’s course, as well as workplace training in a clinical setting. Following a Master’s in Biomedical Engineering, I worked in two hospitals within areas of medical electronics, ultrasound and rehabilitation. I went on to specialise in electronic assistive technologies. This involved working with people with physical disabilities and assessing them for provision of communication aids (such as that used by Stephen Hawking) and environmental control systems to improve their quality of life.

Can you describe your current work?
I have a joint post as a clinical engineer at East Kent Hospitals and as a lecturer at the University of Kent. As a clinical engineer, I work to ensure the safe use of medical devices in the hospital. I also carry out assessments of patients who have physical disabilities and impaired speech. This involves matching a person with a suitable technological solution to meet their needs. Often the people I see have very little physical movement, but if they have good head or eye movement, this can be harnessed so that they can control a computer screen. This in turn opens up a lot of possibilities for communication.

I’m also at the University for two days a week and that involves teaching and research. For instance, we are running a trial for an exoskeleton – a robotic mobility device that supports a person as they move. It allows a person who uses a wheelchair to stand and walk. On the teaching side of things, we want students to have a good grounding in engineering, and to gain knowledge of physiological systems. The students take modules in engineering and bioscience but we also have modules that are specifically related to bioengineering applications.

And you’ve also been very involved in research.
Yes, after qualifying as a clinical engineer, I realised that there was also a lot of interesting research that I wanted to get involved in. I applied to do a PhD and worked on the development of a touch sensor for an artificial finger. It was an European Union project so I was able to collaborate with other researchers who were working on robotic hands and artificial skin.

My post-doc research was working on the development of bio-artificial liver tissue. This is a classic bioengineering project: you need the engineering skills, but you also need to understand how the liver works. Liver tissue is very complex; you need a three-dimensional structure to grow the liver cells on, as well as biocompatible material and microfluidic technologies to provide nutrients to keep cells alive.

Any advice for prospective bioengineering students?
People are not all that aware of the areas you can go into with a bioengineering degree. There are so many options – companies such as Siemens and Philips Healthcare are making medical devices and there’s also research in academia or in industry, and there’s clinical work as well. It’s good to try and meet people in the field. For instance, most people don’t know what a clinical engineer does, but if students are interested in finding out more, they are welcome to visit the hospital and meet other engineers working in healthcare.
Choosing a university is a big step, so it’s important to find out as much as you can before you make your decision. Come and visit us to see what we can offer you.

Open Days
Open Days are a great way to find out what life as a student at Kent is like. For instance, you can:

• learn more about the course you are interested in at a subject presentation
• ask questions – talk to the academic teams at the information stands
• experience our teaching at a taster lecture (events vary according to subject)
• find out about student finance, other study opportunities and extracurricular activities such as Kent Sport.

Explore the campus at your own pace on the self-guided walking tour. You can visit different types of accommodation, chat to students and enjoy the stunning views over the city of Canterbury.

Open Days are held in the summer and autumn. Book your place at www.kent.ac.uk/opendays

Applicant Days
If you apply to Kent and we offer you a place (or ask you to come for an interview), you will usually be invited to an Applicant Day.

Applicant Days run in the autumn and spring terms and are an opportunity to find out about the course in more detail. You spend time with your academic school meeting staff and current students, and take part in activities that give you a flavour of your prospective course and university life.

Informal visits
If you can’t make it to an Open Day or Applicant Day, you can still visit us. We run tours of the campus throughout the year.

If you live outside Europe, we appreciate that you might find it difficult to attend our scheduled events, so we can arrange a personal campus tour for you and your family.

Let us know you’re coming
Scheduled tours and personal campus tours (for international students) need to be booked in advance – you can do this via www.kent.ac.uk/informal

Meet us in your country
Our staff regularly travel overseas to meet with students who are interested in coming to Kent. We also have strong links with agents in your home country who can offer guidance and information on studying at Kent. Find out more at www.kent.ac.uk/courses/international

CONTINUED OVERLEAF
Self-guided tours
If you prefer to explore on your own, download a self-guided walking tour at www.kent.ac.uk/informal or pick up a copy from us.

A self-guided audio tour is also available, so you can learn about Kent without even leaving home. See www.kent.ac.uk/courses/visit/informal/audio-tour.html

Explore online
Find out more about the academic team, the course and events in the School at www.eda.kent.ac.uk

Keep in touch with us via: www.facebook.com/edakent/ www.twitter.com/edakent/

Scholarships and bursaries
See www.kent.ac.uk/ugfunding for details of scholarships and bursaries.

Contact us
If you would like more information on Kent’s courses, facilities or services, please contact us on:
T: +44 (0)1227 768896 www.kent.ac.uk/ug

Location
Canterbury

Award
BEng (Hons)

Degree programmes
• Biomedical Engineering BEng (3D9J)
• Biomedical Engineering BEng with a Year in Industry (05C3)

Entry requirements
• ABB at A level inc Mathematics and Biology or Chemistry, plus Electronics/Physics/Computing/Chemistry AS or A level grade B
• IB Diploma: 34 points inc Mathematics (not Mathematics Studies) 5 at HL or 6 at SL; Physics 5 at HL or 6 at SL; and either Biology or Chemistry 5 at HL or 6 at SL
or
IB Diploma: 16 points from three Higher Level subjects with at least 5 in each subject, inc HL Mathematics (not Mathematics Studies), HL Physics; and either HL Biology or HL Chemistry
• BTEC Level 3 Extended Diploma Engineering or Applied Science: DDD inc a merit in Maths III or Maths for HE modules

Direct entry to second year
Successful completion of the first year of an appropriate degree-level course; an appropriate HND qualification; an appropriate overseas diploma (equivalent to a BTEC HND).

Foundation Year
DDD at A level. For IB requirements, contact the Admissions Officer.

Year in industry
You have the option of spending a year working in industry between Stages 2 and 3. See p9 for details.

Professional recognition
We are in the process of applying for accreditation from the Institution of Engineering and Technology (IET) for our new degree in Biomedical Engineering, to bring it in line with other programmes within the School of Engineering and Digital Arts.

Entry requirements and offer levels are subject to change. For the latest information, see www.kent.ac.uk/ug

This brochure was produced in June 2018. The University of Kent makes every effort to ensure that the information contained in its publicity materials is fair and accurate and to provide educational services as described. However, the courses, services and other matters may be subject to change. For the most up-to-date information, see www.kent.ac.uk/ug and for full details of our terms and conditions, see www.kent.ac.uk/termsandconditions

For the University to operate efficiently, it needs to process information about you for administrative, academic and health and safety reasons. Any offer we make to you is subject to your consent to process such information and is a requirement in order for you to be registered as a student. All students must agree to abide by the University rules and regulations at: www.kent.ac.uk/regulations

FIND OUT MORE (CONT)
COME AND VISIT US

To find out more about visiting the University, see our website:
www.kent.ac.uk/visit