COMPUTER SYSTEMS ENGINEERING/ELECTRONIC AND COMMUNICATIONS ENGINEERING

Canterbury
CUTTING-EDGE TECHNOLOGY

Spectacular advances in electronics, computing and communications have made a huge impact on modern life. These programmes give you a great opportunity to play an active part in developing state-of-the-art systems, working at the cutting edge of technology and being part of this revolution.
WHY CHOOSE TO STUDY AT KENT?

Flexible programmes
Our Computer Systems Engineering degree covers computer technology and telecommunications. Interested in electronics too? Why not consider Electronic and Communications Engineering.

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. There’s also help with academic skills, such as revision techniques.

Excellent resources
You’ll 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
The School of Engineering and Digital Arts conducts research with significant national and international impact, including iris recognition and reducing carbon emissions, and attracts substantial funding.

Professional recognition
Our courses in Electronic and Communications Engineering, and Computer Systems Engineering, have been accredited by the Institution of Engineering and Technology for more than 30 years.

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

Industry links
With strong industrial links, much of the School’s research is supported by commercial organisations; there is also a range of industrially sponsored prizes for the best students in each of our years.

Student sponsorship
We encourage industrial sponsorship which brings financial benefits, the possibility of vacation employment, experience of the industrial environment and also the prospect of a job at the end of your degree.

Global outlook
Kent is in the top 10% of the world’s universities for international outlook according to the Times Higher Education (THE) World University Rankings (2018). Canterbury is also ideally located, close to London and mainland Europe.
Inspirational teaching

Our BEng and MEng courses are based on leading-edge research, which is vital in a field that advances so quickly and makes such a huge impact on modern life. The School has 34 lecturers with both academic and industrial experience, as well as visiting lecturers who provide a more specialist view. As well as lectures, there are many opportunities to get hands-on practical knowledge too, particularly in project work.

Independent rankings

The Complete University Guide 2019
- Electrical & Electronic Engineering at Kent ranked 26th 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
Joe Richmond Knight is in his final year studying Computer Systems Engineering.

What attracted you to Kent, and to this degree course?
Kent always scored well in tables, and Canterbury is a lovely place to study. I fell in love with the campus on an Open Day. I’d seen universities in towns that didn’t feel like one establishment, and at other universities some buildings were a 15-minute walk away and didn’t have that campus feel.

I liked the fact that the course is accredited by the Institution of Engineering and Technology, so must adhere to strict standards and stay up to date. Also, if you’ve got an accredited degree, that’s a huge employability bonus. Having the option to do a work placement was another major attraction for me.

My firm choice of course was Kent’s Computer Systems Engineering programme, and my insurance was that with a foundation year, which I ended up doing because I didn’t quite get the grades. I was initially concerned about having to take the foundation year, due to the additional time. However, my lecturer explained that people who take it can get quite a bit more in their final grade than those who don’t.

How is your course going?
We’ve covered everything from the advent of electronic computing to cutting-edge technology – you need to know how things were done in order to understand how they will be done in the future. It’s a more applied version of computer studies, as we learn how to build and program a system. The School is not too big – you feel you’re part of something – and the facilities are great; the computers have all the software you could need and the labs are fantastic.

What are your favourite modules?
I really enjoyed the basic electronics modules, especially the hands-on work. It really opens up job opportunities. You can work in IT, networking, as an electronic or systems engineer, or a software developer. I’ve also enjoyed the projects: my final-year project is on the wi-fi home – a home automation project. You can see a clear application for what you’re learning, and you’re actually developing something that could be used in the wider world.

How was your placement?
I worked for a predictive maintenance company, who collect sensor data and apply machine learning to understand if a fault will soon occur. I did a lot of programming, but also a lot of soldering and building things. It was perfect. I’m working part-time for them now, and will go back when I graduate. I work on the data collection side of things: I’ve designed hardware platforms that connect sensors and systems then send that data up to the cloud.

What do you think of the teaching and support available?
The lecturing has been brilliant and I’ve learned so much; but if we ever do have a problem, we have course representatives. I was one for the first three years. This means that, at the staff-student meetings, you can voice your opinions – and they are definitely taken on board.

What about the social life?
I made very good friends in Freshers’ Week. There was plenty going on and, by the end of the first week, I already felt that this was my university. Living in Darwin, you have 10 people sharing a kitchen, so it’s a great opportunity to be sociable. The Venue is very well run, and the gym is fantastic. All the committees and groups Kent Union has to offer are great too.

What are your plans for after graduation?
I’d really like to stay involved with the ‘Internet of Things’ – every device being connected to the internet. It’s an emerging technology and, in terms of data, it has huge potential.

Any advice for future students?
Get involved, get to know the lecturers, join societies in your first year. Just be proactive and don’t be afraid to get stuck in.
CHOOSING YOUR DEGREE

If you’re not sure which programme to choose, here’s a guide to what’s available, ranging from design and programming to specialist engineering.

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

Electronic and Communications Engineering
This is offered full-time as either a three-year BEng or four-year MEng course, covering all aspects of electronic engineering. Graduating from this degree means you should be able to enter any branch of electronics. Subjects you’ll study include analogue and digital circuits and systems, mobile and other communications, and computing for electronics.

Computer Systems Engineering
In this programme, you’ll be helped to develop the expertise 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 either a three-year BEng or four-year MEng course, jointly taught by the School of Engineering and Digital Arts and the School of Computing.

Other programmes
Biomedical Engineering
Are you interested in a career in bioengineering? Then you’ll need a solid knowledge of biology and medical science too.

This three-year, full-time BEng programme is offered jointly with the School of Biosciences. It draws on the School of Engineering and Digital Art’s expertise in developing medical-electronic systems, and on its research synergies with the School of Biosciences.

Electronic and Computer Systems
This programme is designed for students who 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 a year to gain the same qualification as those taking a three-year degree.

Multimedia Technology and Design
This gives you the chance to develop in-depth knowledge of web design, DVD authoring, 3D modelling, special effects and compositing, with the possibility of a career in film animation, multimedia production and website creation.

Digital Arts
Providing you with practical skills, creative thinking and design expertise, this course explores website design, digital photography, moving image, graphic design, 3D modelling and animation, digital portfolio production and design for print. It can be taken as a three-year BA, or a four-year MArt degree.

Flexible entry routes
Foundation Year
If you don’t have all the qualifications needed for the first year of our degree programmes, you can take a foundation year in electronics, computing, physics and mathematics. Once you’ve successfully completed this, you can take either the Electronic and Communications Engineering or Computer Systems Engineering programmes. If you have an A level in Biology (or equivalent) you may also like to consider Biomedical Engineering.

International Students
Passing the electronics pathway of the Kent International Foundation Programme with an overall mark of 60% or more guarantees you entry onto the first year of the relevant degree programmes. For more details, see www.kent.ac.uk/ifp

Further information
For details on all our programmes, see www.kent.ac.uk/ug
YEAR IN INDUSTRY

If you’re on our Electronic and Communications Engineering or Computer Systems Engineering programme, you can take a Year in Industry between Stages 2 and 3.

Study and career benefits
Employers are very keen to find graduates who already have work experience, so this year can greatly boost your job prospects by providing you with real commercial experience. It also gives you a taste of the working environment, and lets you check out a particular career path. If your placement is a success, the company may even offer you a job after graduation.

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

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 Service provides guidance on writing CVs too, and developing skills for placement applications and interviews. It can put you in touch with Kent students who have completed successful placements in industry while studying at Kent.

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

Salary and benefits
Students usually work on placement for the entire calendar year; salary and holiday entitlements vary according to your employer. However, many students find that they can save some of this income, which often helps them during their final year of studying at Kent.

Keeping in touch with Kent
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 placement honestly has been the most fantastic part of this degree. University has given me qualifications and it’s opened doors to work, so it’s been perfect.”

Joe Richmond Knight
Computer Systems Engineering
YOUR STUDY PROGRAMME

Those who can integrate aspects of IT, design, technology and communication are in short supply in today’s multidisciplinary environment. Our courses can help you succeed.

Module information
The module lists below are not fixed as new modules are always in development and choices are updated yearly. Please 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
This is for students who don’t have the qualifications for direct entry to our degree programmes. If you successfully complete the Foundation Year, you can go to Stage 1 of our BEng degrees. (For Bioengineering, an A level, or equivalent, in Biology or Chemistry is also required.)

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)

CONTINUED OVERLEAF
YOUR STUDY PROGRAMME (CONT)

• Communications Principles (EL570)
• Digital Implementation (EL568)
• Electronic Instrumentation and Measurement Systems (EL565)
• Microcomputer Engineering (EL560).

Electronic and Communications Engineering students also take:
• Electronic and RF Circuit Design (EL567)
• Microwave Circuits and Electromagnetic Waves (EL566).

Students in Computer Systems Engineering also take:
• Further Object-Oriented Programming (CO520)
• Image Analysis and Applications (EL561).

Stage 3
In Stage 3, the final year for BEng students, you can specialise in areas of interest, but all students take the following modules:
• Product Development (EL671)
• Project (EL600).

Electronic and Communications Engineering students take:
• Communication Systems (EL665)
• Digital Communications Systems (EL677)
and choose two modules from:
• Digital Signal Processing and Control (EL676)
• Digital Systems Design (EL673)
• Embedded Computer Systems (EL667).

Computer Systems Engineering student take:
• Digital Signal Processing and Control (EL676)
• Digital Systems Design (EL673)
• Embedded Computer Systems (EL667)
and also choose one module from:
• Computer Security and Cryptography (CO634)
• Computer Networks and Communications (CO633)
• Computing Law and Professional Responsibility (CO643).

Stage 4
This is the final stage for those taking our MEng degrees. Whatever your chosen degree programme, the topics you cover involve a significant amount of specialisation. All students take the following compulsory modules:
• Business Strategy (CB934)
• Systems Group Project (EL750).

Optional modules for Electronic and Communications Engineering students include:
• Advanced Communication Theory (EL827)
• Advanced Networking Systems and Technology (EL873)
• Data Networks and the Internet (EL822)
• Reconfigurable Architectures (EL893)
• Wireless Communications (EL872).

Computer Systems Engineering students take:
• Embedded Real-Time Operating Systems (EL829).

Their optional modules include:
• Biometric Technologies (EL857)
• Computer and Microcontroller Architectures (EL896)
• Data Networks and the Internet (EL822)
• Digital Signal Processing (EL871)
• Reconfigurable Architectures (EL893).
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 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 are able to discuss ideas with you and improve your study skills as you progress through your first year.

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:

- talking to your lecturers about any help you need in lectures or seminars
- arranging note-takers, signers and other support workers for you
- 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

“There’s a lot of support. If you go to the lecturers they will definitely help you out. And it’s nice to sit and have a chat with them about engineering – your project, your future. That’s what they are there for; to help you grow into the person you should be.”

Krisha Kanumuru
BEng (Hons) in Electronic and Communications Engineering
A SUCCESSFUL FUTURE

Kent equips you with essential skills to give you a competitive advantage when it comes to getting a job.

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).

Graduate career paths

The fields of computer technology, telecommunications and consumer electronics are rapidly evolving, so expertise in these fields is in great demand.

In recent years, graduates from our engineering programmes have found employment in careers as varied as developing the next generation of mobile telephones, creating animated human models, managing the ground segment of a new broadcasting satellite system, and employing computer-based techniques in a hospital environment.

Many graduates have also extended their studies by registering for MSc and PhD programmes. Examples of their research include the remote monitoring of patients in their own homes, the design of small satellites and the development of improved computer-aided integrated circuit design tools.

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 career path you choose.

Careers advice

Our award-winning Careers and Employability Service can give you advice on how to choose your future career, how to apply for jobs, how to write a good CV and how to perform well in interviews and aptitude tests. It also provides up-to-date information on graduate opportunities before and after you graduate.

Further information

For more information on the careers help we provide at Kent, please see www.kent.ac.uk/employability
Tom Taylor graduated from his Electronic and Communications Engineering degree in 2017. He tells us about his time at Kent and what he did next.

‘As a local resident, Kent was an obvious choice for me – we’re so lucky to have a top university here on our doorstep!

‘As for the course, I really wanted to learn about modern communication systems and antenna design, because virtually everything has wireless communications, from the Internet of Things to the bank cards in your wallet. I also wanted to further my knowledge of electronics and embedded systems. This course offered an excellent mix of modules to fully cover these topics.

‘Of all the subjects covered, I really enjoyed learning about embedded computer systems including programming, architecture, and applications. In the final year I chose modules to further my studies in this area, learning how to creatively design systems for project work.

‘The teaching was a mixture of lectures, labs, projects, and example classes. This lets you study the theory, then apply it in a variety of ways, so you fully understand the material.

‘The lecturers were extremely knowledgeable, excellent teachers, and always happy to assist you outside of lectures through emails or weekly drop-in sessions.

‘Kent provided all the facilities you’d need to excel, including 24-hour computer access, a large and well-equipped lab, quiet study areas, and the Templeman Library. There was also a pop-up librarian service for engineering, technical support staff, academic advisers, and demonstrators who were also Master’s or PhD students.

‘I really enjoyed spending time with like-minded students – I learnt a lot from discussing electronics with friends over coffee. And commuting by bike meant I could make the most of the green surroundings; cyclists are very well catered for, with cycle paths and lockable shelters.

‘When it came to job-hunting, I found Kent was really focused on employability, with annual careers fairs where you can learn what opportunities there are, and meet potential employers. The School’s Employability Officer was very approachable, giving one-to-one assistance with work placements and CV writing. This really helped me get a paid placement during the course.

‘I was awarded a University prize for my final-year project, sponsored by Megger Instruments Ltd, and now I’m working with that company. It designs and makes electrical test equipment, and I’m a hardware engineer on the graduate engineering programme. You get to work with almost every department in the company, so I understand how it operates and how the products are made, from concept to dispatch. I’ve learnt a lot about lean manufacturing, surface-mount production, calibration and testing, and designing for manufacture.

‘I’m now in the engineering department, focusing on the continuous improvement of products. My degree prepared me well for this and Kent enabled me to network with my employer while still a student.

‘In the near future I’ll be moving to new product design. My aim is to become a chartered engineer and I’m working towards this with Megger. I’d also like to progress to a leadership role.

‘If you’re thinking of coming to Kent, go for it! I thoroughly enjoyed my time there, and it has already led to an excellent career in a really interesting subject.’
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 about Kent. 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 an interview, you will usually be invited to an Applicant Day. These 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 students, and taking part in activities that give you a flavour of the 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. Or, if you live outside Europe, 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 students who are interested in 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

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/

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

CONTINUED OVERLEAF
## Degree programmes
- Computer Systems Engineering BEng (H618)
- Computer Systems Engineering BEng including a Foundation Year (H614)
- Computer Systems Engineering BEng with a Year in Industry (H615)
- Computer Systems Engineering MEng (H613)
- Computer Systems Engineering MEng with a Year in Industry (H617)
- Electronic and Communications Engineering BEng including a Foundation Year (H605)
- Electronic and Communications Engineering BEng (H619)
- Electronic and Communications Engineering BEng with a Year in Industry (H608)
- Electronic and Computer Systems BEng (H691)

## Entry requirements
**BEng/BEng with a Year in Industry (H604, H615, H618, H619):**
- BBB at A level inc Mathematics and a science/technology subject (Physics, Computing or Electronics) at grade B.
- IB Diploma: 34 points overall inc Mathematics (not Mathematics Studies) 5 at HL or 6 at SL, and 5 at HL or 6 at SL in a science subject.

**or**
- IB Diploma: 15 points from three Higher Level subjects, inc HL Mathematics (not Mathematics Studies) at 5, and any HL science subject at 5.
- BTEC Level 3 Extended Diploma Engineering: DDD inc Further Mathematics for Technicians module.

**BEng/MEng with a Year in Industry (H607, H608, H613, H617):**
- ABB at A level inc Mathematics and a science/technology subject (Physics, Computing or Electronics) at grade B.
- IB Diploma: 34 points overall inc Mathematics (not Mathematics Studies) 5 at HL or 6 at SL, and 5 at HL or 6 at SL in a science subject.

**or**
- IB Diploma: 16 points from three Higher Level subjects, inc HL Mathematics (not Mathematics Studies) at 5, and any HL science subject at 5.
- BTEC Level 3 Extended Diploma Engineering: DDD inc Further Mathematics for Technicians module.

## BEng/MEng 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).

## BEng one-year intensive top-up programme (H691): **Please contact the Admissions Officer.**

## Foundation Year
**H614, H605:** DDD at A level; GCSE Mathematics and Science grade C. 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.

## Professional recognition
Accredited by the Institution of Engineering and Technology (IET).

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

## Offer levels and entry requirements 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.
COME AND VISIT US

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