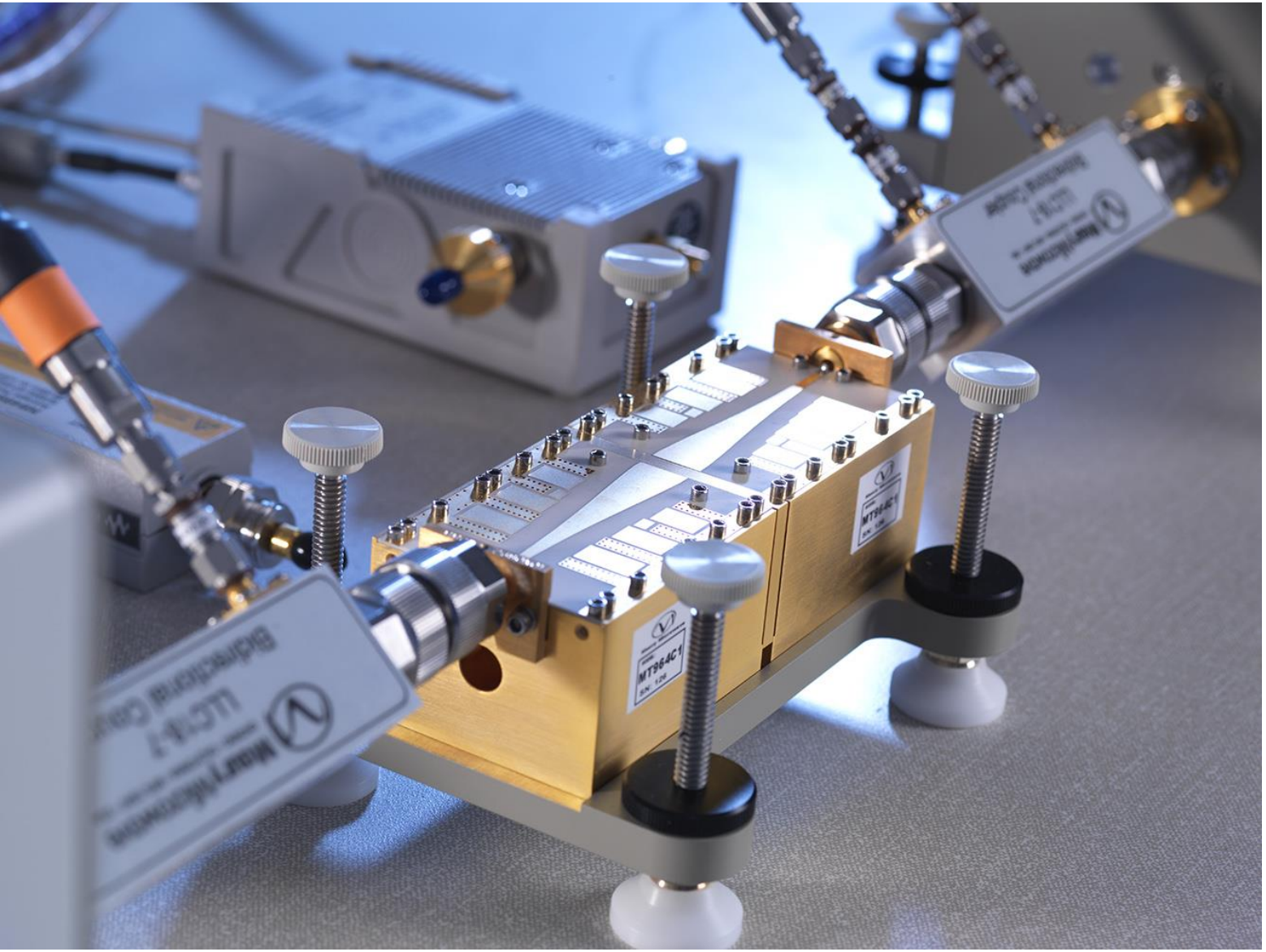


Department of Electrical and Electronic Engineering

Undergraduate Applicant Day

Dr David Carey, Head of Department

Dr Radu Sporea, UG Admissions Tutor

Electrical, Electronic and Computer Engineering

UNIVERSITY OF SURREY

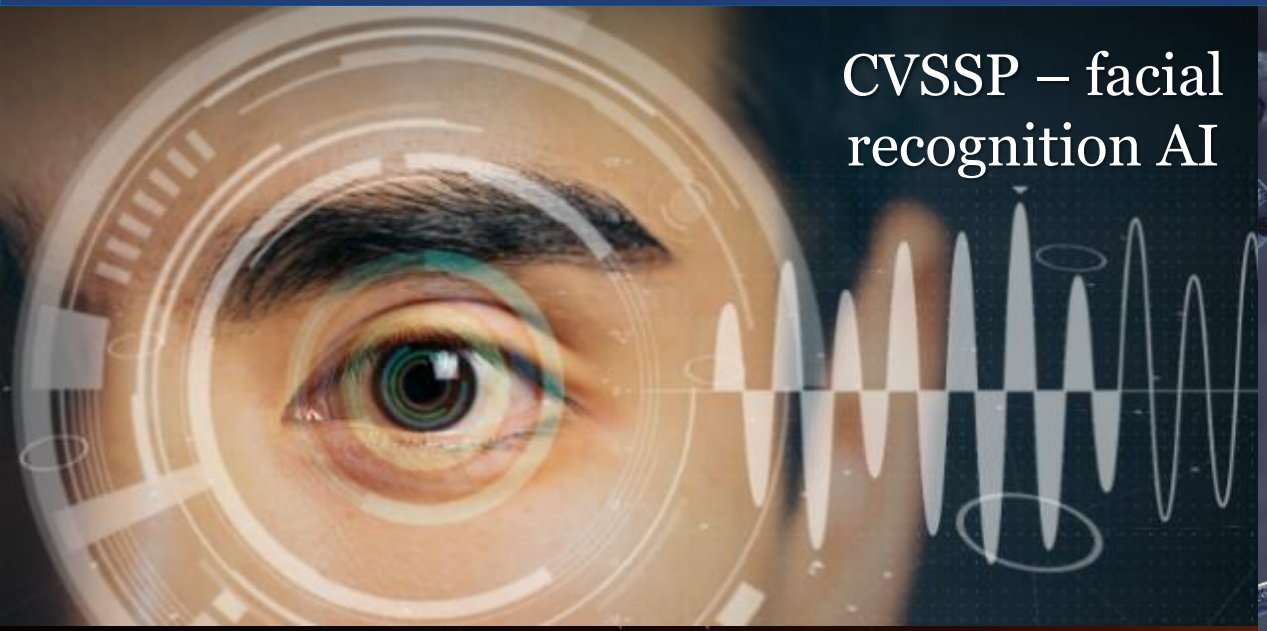
- Electrical, Electronic and Computer (E, E & C) Engineering: Where **Science + Engineering + Creativity meet**
- Our Degree Programmes – **What's distinctive about Surrey**
- Every graduate has a degree. **What will make you different?**
- **Student and Department Success**
- Bursaries and Scholarships

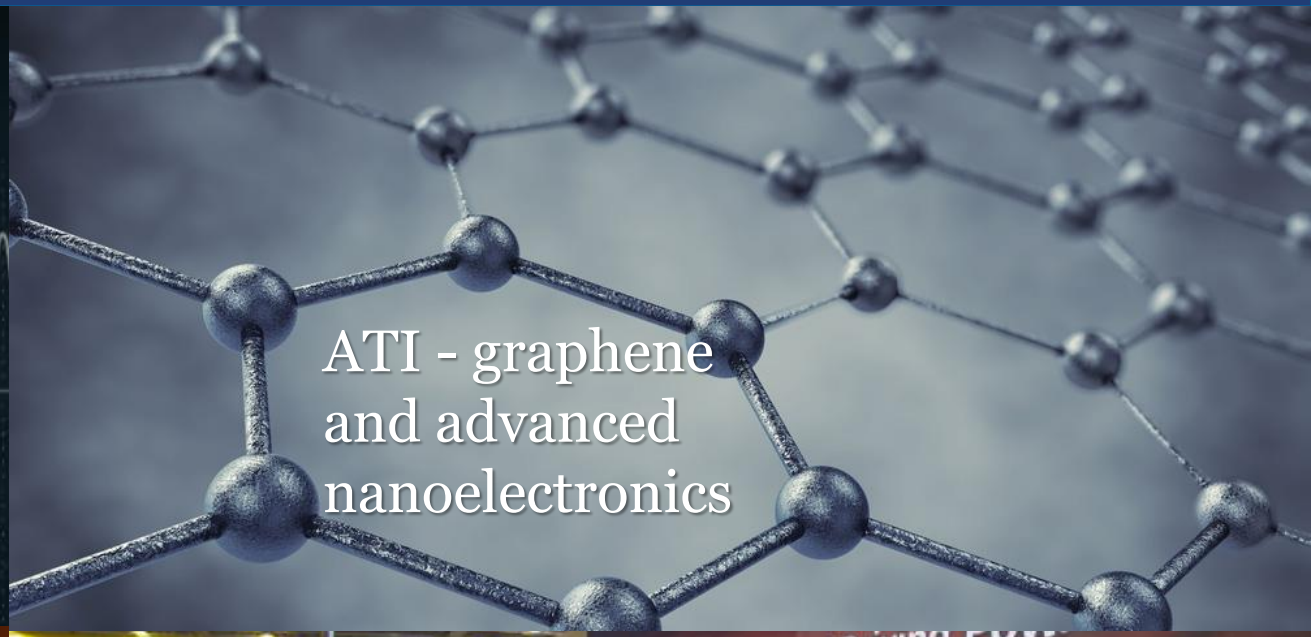
Athena SWAN Bronze Award

TEF Gold

Recent success in the department's research

UNIVERSITY OF SURREY



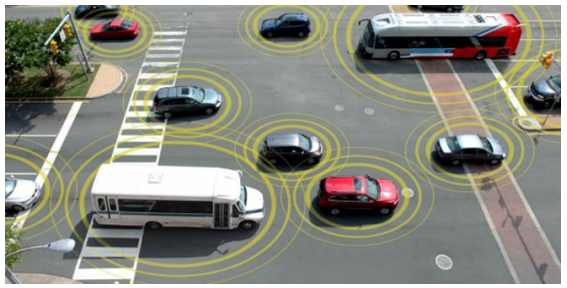


What we do: 5G Innovation Centre (5GIC)

UNIVERSITY OF SURREY

» Mobile and wireless communications

The largest international research Centre of Excellence in new generation mobile technologies and Internet of Things **(£70m+ investment);** in healthcare & dementia care, data and cyber security, and autonomous vehicles



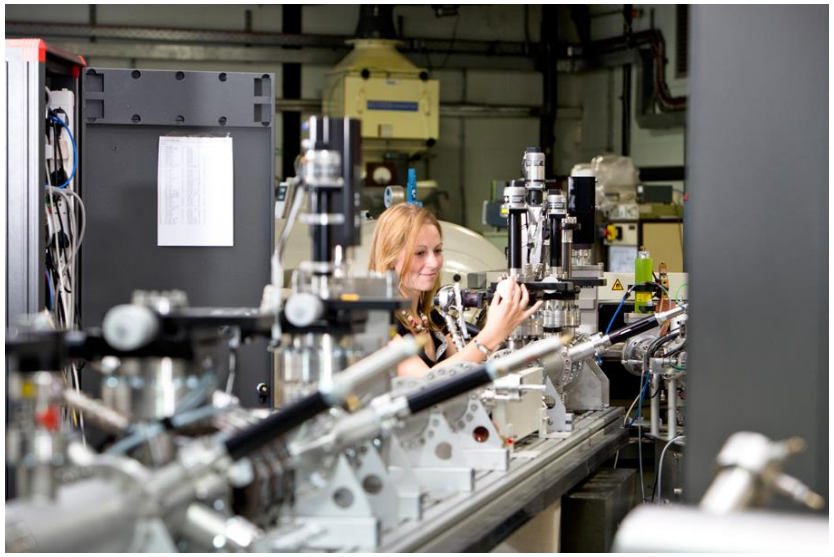
E E
FUJITSU
HUAWEI
vodafone
McLaren APPLIED TECHNOLOGIES
ROHDE&SCHWARZ
SAMSUNG
BBC
enterprise M3
NPL National Physical Laboratory
Telefónica
O2
BT
3
Anite
AEROFLEX
mycomOSI
Chemring Technology Solutions
ascom
Ofcom
工業技術研究院 Industrial Technology Research Institute
TEOCO
Ordnance Survey
bre
Imagination
HIGHER EDUCATION hefce FUNDING COUNCIL FOR ENGLAND

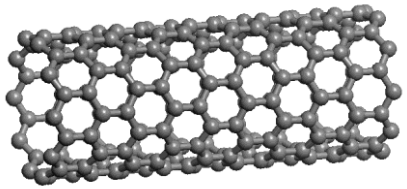
What we do: Advanced Technology Institute

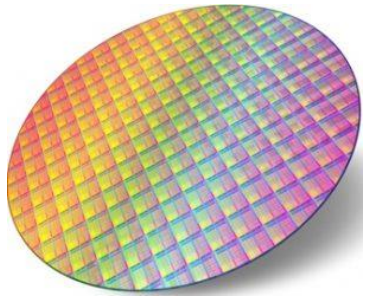
» Energy and nanotechnology

Applications of our research

- All aspect of nanoscience and nanotechnology
- Graphene and new materials
- Energy production and storage
- Solar cells & batteries
- Printable & plastic electronics
- UK Facility for Ion Implantation





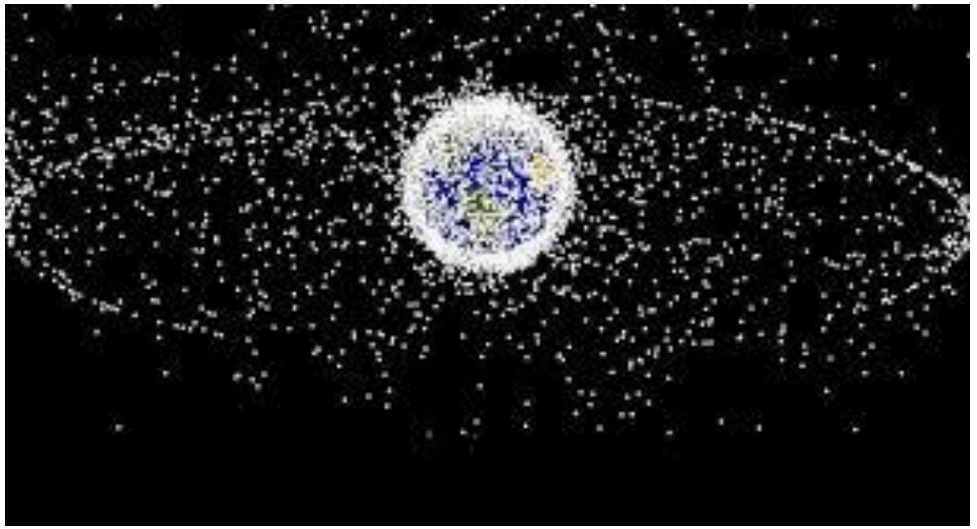


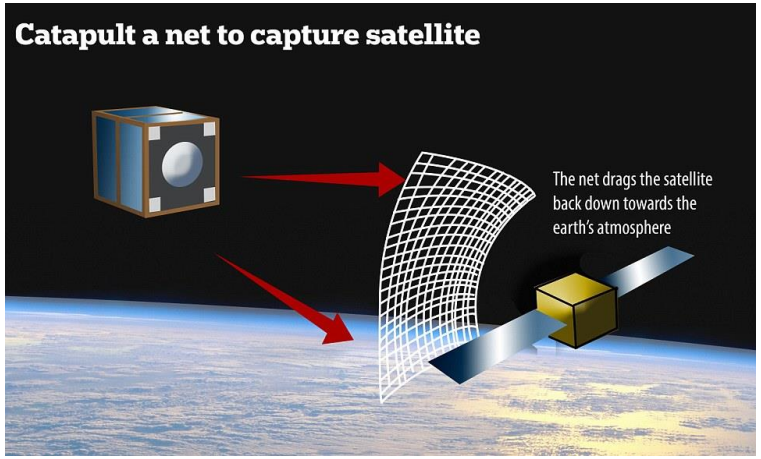
What we do: Surrey Space Centre

» Space engineering & remove debris

Applications of our research

- Surrey has pioneered the manufacture of small scale satellites, Galileo project
- Space robotics and vehicles
- Satellite remote sensing & disaster monitoring
- Autonomy and control systems
- RemoveDEBRIS from space





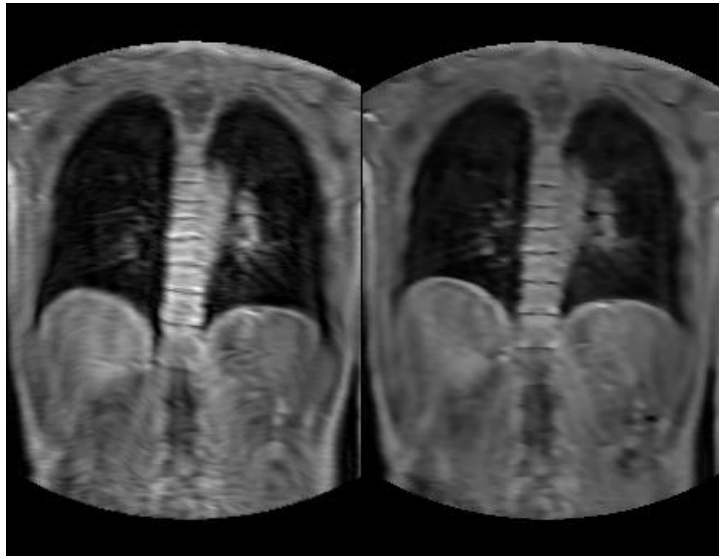
What we do: Vision, Speech and Signal Processing

» AI, machine learning & robotics

Applications of our research

- Computer vision & graphics
- Pattern recognition
- 4K video and audio
- Machine learning and AI
- Biometrics & security
- Digital signal processing
- Media content and streaming
- Medical imaging
- Robotics

Google Landmark Retrieval Challenge 2018 winner



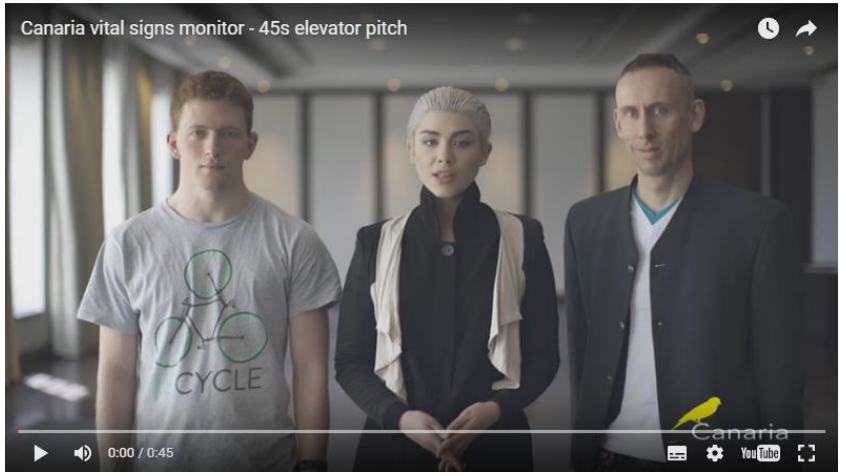
Student Success

- **Abdullah Al-Shakarchi and James Telfer (On placement)**
- Winners, Santander Big Ideas Challenge
  (most other entries were MSc / PhD students)
- **Encord**: Voice capture for automatic data entry for customer – advisor conversations. Example of AI in action

- **James Lynn (2nd year UG)**
- 2016 NASA Space Apps Challenge

» Best Use of Hardware in NASA's Space Apps Challenge 2016

- **Canaria**: CO_2 monitor patch and ear piece based on low energy Bluetooth

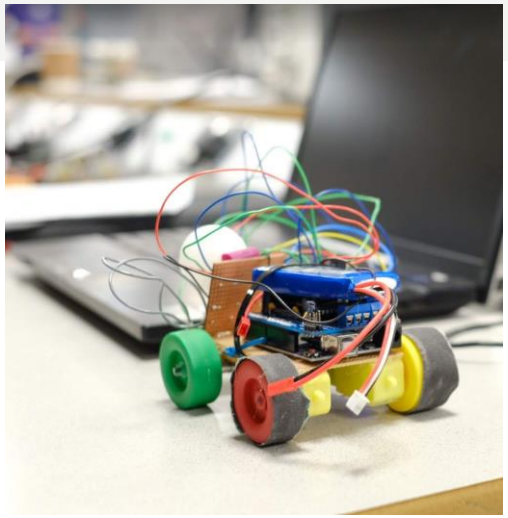


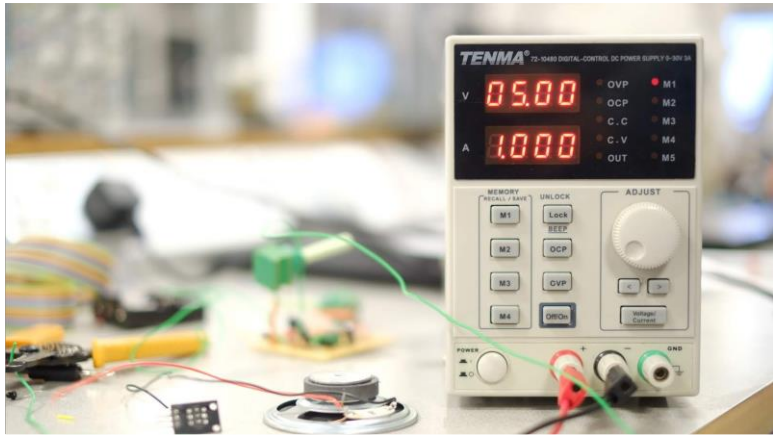
Student Involvement - Your Department

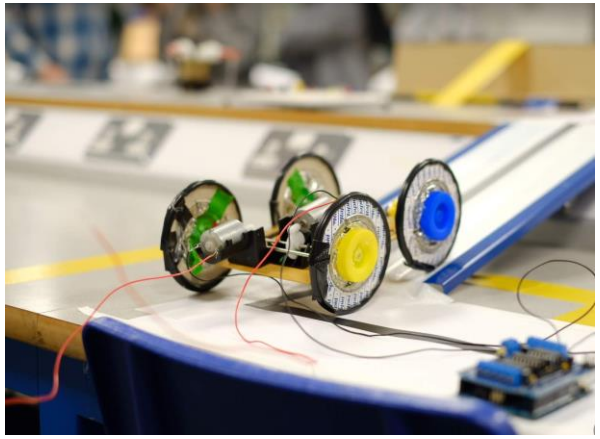
- **EARS – Electronics and Amateur Radio Society**
  - Events, challenges, competitions
  - Manage the **Makerspace** – chance to visit during lab tour
- **Support for HackSurrey society**
- **Student enterprise**
  - Studio – a place for your business
  - Hub – presentation and meeting
  - Mentoring; Business Engagement
- **Women in Engineering Society**
  - Faculty-wide group
- **Equality and Diversity**
  - Athena SWAN Bronze Award - recognising advancement of gender equality: representation, progression and success for all.

Student Enterprise

EARS – ScraphEEp Challenge 2019





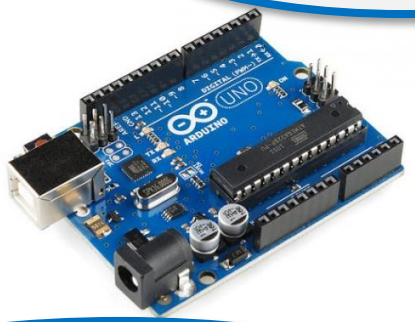


Choosing Your Degree – Opportunities

UNIVERSITY OF SURREY

Electronics and Nanotechnology

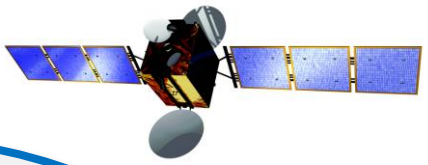
Electrical, Power and Energy



Computer and Internet Engineering

Your Department E, E & C

Space & Satellite Engineering



Robotics and AI, Machine Learning

Communications, mobile & wireless Engineering

Choosing your Degree – Structure

- Electronic Engineering (EE)

Our core degree programme

- Electrical and Electronic Engineering (EEE)
- Computer and Internet Engineering (CIE)
- Electronic Engineering with Computer Systems
- Electronic Engineering with Nanotechnology
- Electronic Engineering with Space Systems

Degrees with a specialised title but a narrower choice of modules

Key point 1: First year is common to all BEng and MEng degrees

Choosing your Degree – MEng and BEng (Hons)

- MEng is a higher undergraduate qualification than BEng (Hons)
  - MEng (four academic years) with more specialist modules
  - Qualification of choice of many employers and industries
  - Faster Route to CEng status which applies across ALL branches of engineering

Key point 2: Transfer between BEng and MEng possible subject to performance.

Key point 3: MEng guarantee: If you apply for a MEng degree but meet the BEng admissions criteria you will be automatically be offered (in August) admission to the BEng programme.

What you will study*

Year 1	Digital Logic + intro to Programming (Python)	Electronic Circuits	Pure Mathematics	Labs, Design and Professional Studies I	Small group tutorials with Personal Tutor
	Programming in C	Electrical Science I	Engineering Mathematics	Labs, Design and Professional Studies II	Small group tutorials with Personal Tutor
Year 2 or study overseas	Computer Algorithms and Architecture	Circuits, Control and Comms	Further Engineering Mathematics	Labs, Design and Professional Studies III	Small group tutorials with Personal Tutor
	C++ and Object Oriented Programming	Electrical Science II	Module choice	Labs, Design and Professional Studies IV	Small group tutorials with Personal Tutor
Professional Training Year (PTY) – Paid Year in Industry - Support from Careers and Employability Service & during Year 2					

* Modules subject to change

Year one – typical schedule

Day	Monday	Tuesday	Wednesday	Thursday	Friday
9 am	Lecture	(Extra	Lecture	(Extra	Lecture
10 am	Lecture	Maths)	Lecture	Maths)	Lecture
11 am	Lecture		Lecture		Lecture
12 pm	Lecture	Lecture	Lecture		
1 pm				Group	
2 pm	Labs	Labs	Private	Tutorials	Tutorial
3 pm	Labs	Labs	Study	**Programming**	
4 pm	Labs	Labs	or	**Programming**	
5 pm		**DPS**	Sports	Lecture	

- 25 timetabled contact hours per week = Engineering theory (13 hours lectures) + 8 hours of practical labs
- Small group tutorials with your personal tutor + Design and Professional Studies (DPS)

Year two – option to study abroad

Key point 4: Opportunity to study abroad in year two

- Australia-La Trobe University
- Australia-Swinburne University of Technology
- Australia-University of Sydney
- Australia-University of Wollongong
- China-The Hong Kong Polytechnic University
- Korea, Republic of-Seoul National University
- Malaysia-Universiti Malaya (UM)
- New Zealand-Victoria University of Wellington
- Singapore-Nanyang Technological University
- United States-California State University, Los Angeles
- United States-North Carolina State University
- United States-Texas Tech University
- United States-University of Central Florida
- United States-University of Cincinnati
- United States-University of North Texas

Year in Industry – between Years 2 and 3

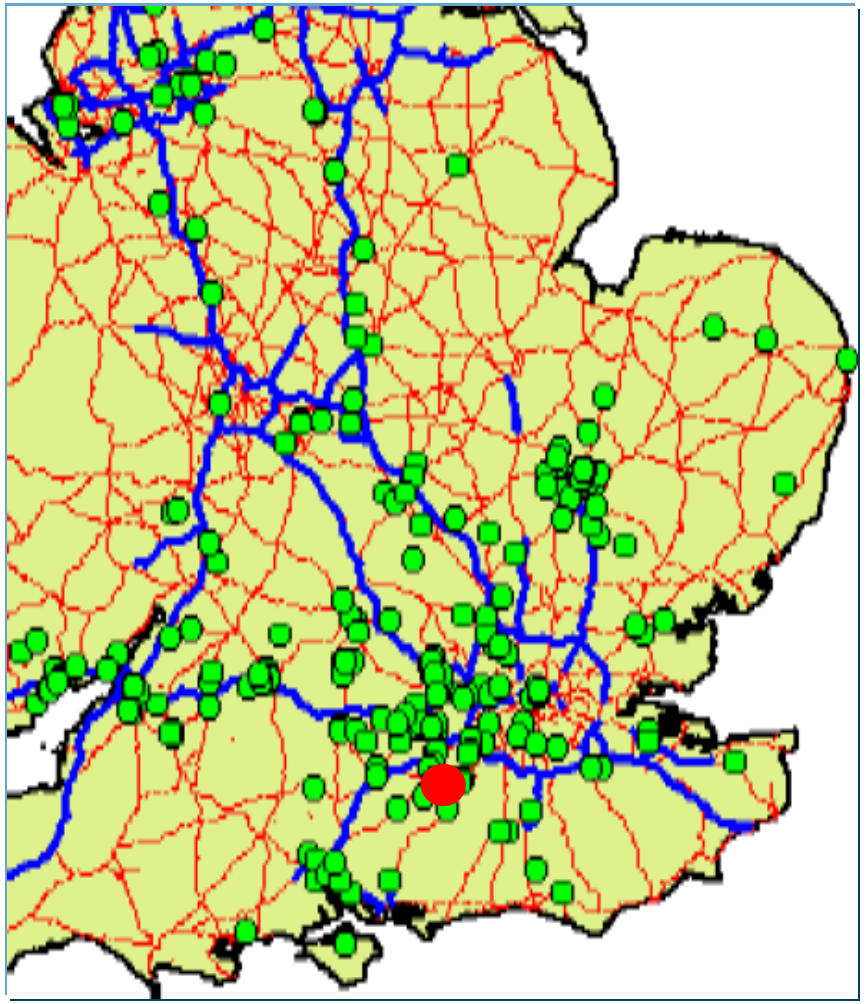
- Optional 12 month placement in industry (UK or overseas).
- Often results in job offers, sponsorship, a network of contacts & improved academic performance.

Key point 5: The Year in Industry is optional; final decision in Year 2

Sony	ARM	BBC	SSTL
Sharp	Logica	Thales	Astrium
Philips	NEC	EA	ESA
Canon	Lucent	Dolby	Goldi
Mitsubishi	Motorola	Microsoft	Pulse Structural
Hewlett Packard	Nortel	FrameStore	Radio Tactics
BAe Systems	Tactiq Ltd	Thomson	EMEA (Madrid)
Siemens	Ericsson	Vicon	Airbus
Ultra Electronics	BT	Snell & Wilcox	Renesas
Tyco Electronics	IBM	Stemmer Imaging	EnOcean
EDF	Nokia	Pharos	AWE
National Instruments	Bytronic	Focusite	Hawk-Eye Innovations
Qualcomm	EDA Solutions	Forsenic Telecoms	
General Electric	Intel	Sky TV	
GE Healthcare	Jaguar Landrover	McLaren Applied Technologies	

“Every graduate has a degree” – What makes <u>you</u> different?

Year in Industry – between Years 2 and 3



University of Surrey

The UK Electronics industry

- is worth £23 billion a year
- fifth largest in the world
- employs over 250,000 people
- home to over 40 per cent of Europe's independent electronic design community
- Majority based in the South East region

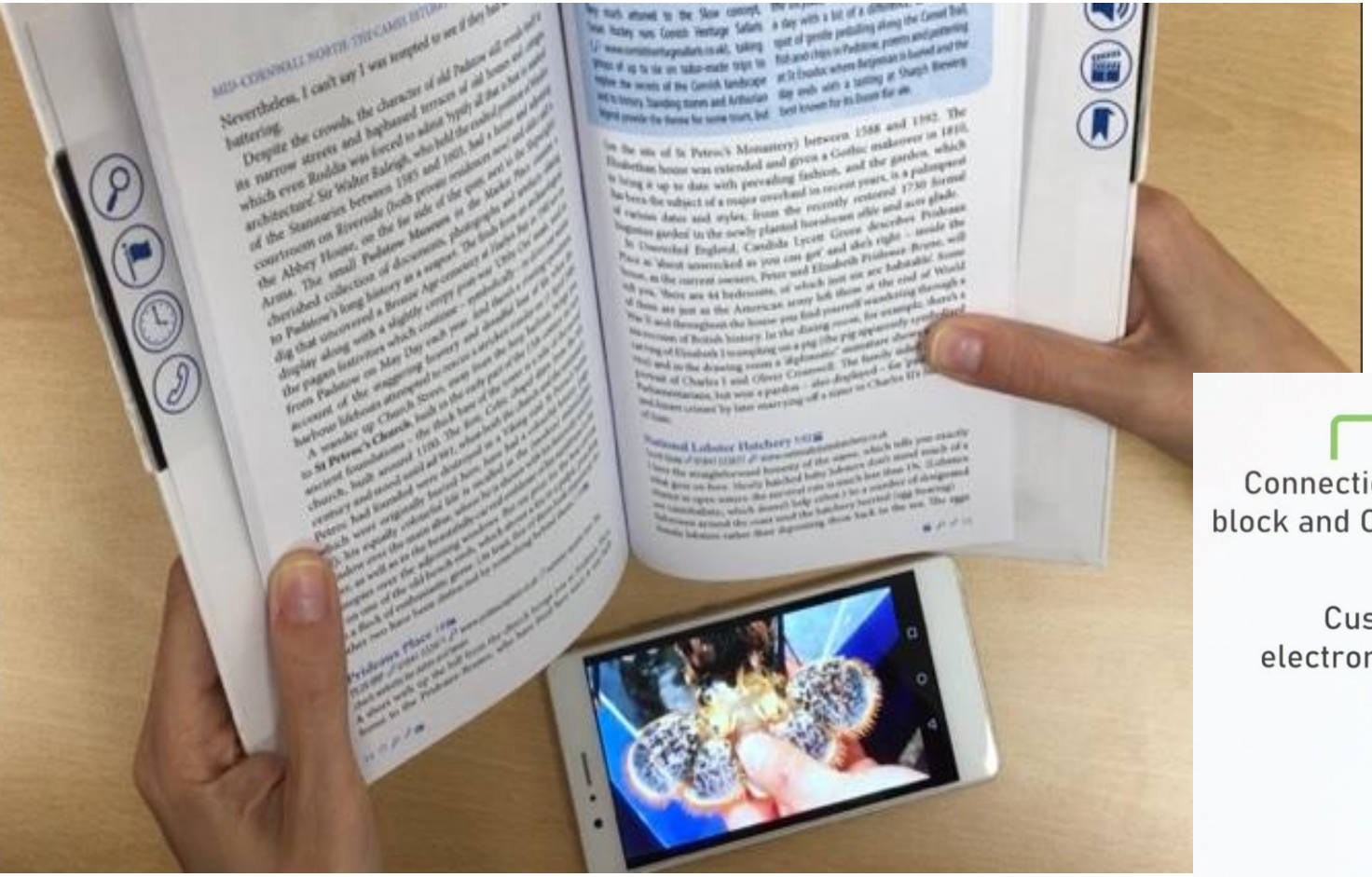
Source: National Microelectronics Institute

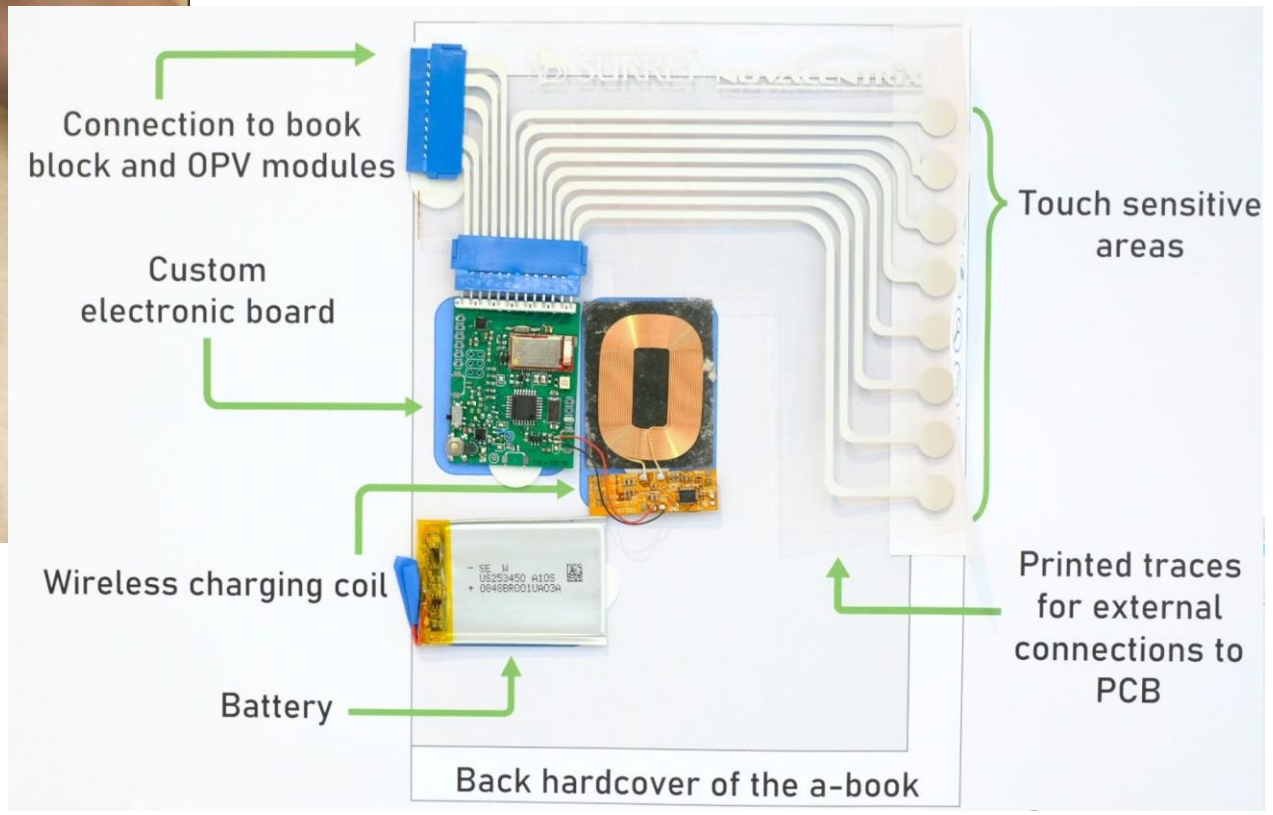
Employability at Surrey

Surrey's work placements and research partnerships ranked best in the UK by QS World Employability Rankings

QS World Employability Rankings 2019 *have ranked the University of Surrey 1st in the UK and 7th in the world for work placements and research partnerships with employers.*

Year three – research project





Choosing your University – TEF

- **Teaching Excellence Framework (TEF)** aims to "recognise and reward excellence in teaching and learning, and help inform prospective student choices within higher education". Results 22nd June 2017
- **Institutions graded as Gold, Silver, Bronze or given provisional status.**
- *Gold* - provision is consistently outstanding and of the highest quality found in the UK Higher Education sector. (Gold status awarded to 59 institutions)
- *Silver* - provision is of high quality, and significantly and consistently exceeds the baseline quality threshold expected of UK HE (116 institutions)
- *Bronze* - provision is of satisfactory quality (56 institutions)
- **Surrey Awarded Gold status**

Choosing your University – student focus

» Sustained Excellence in Teaching & Student Experience and Satisfaction

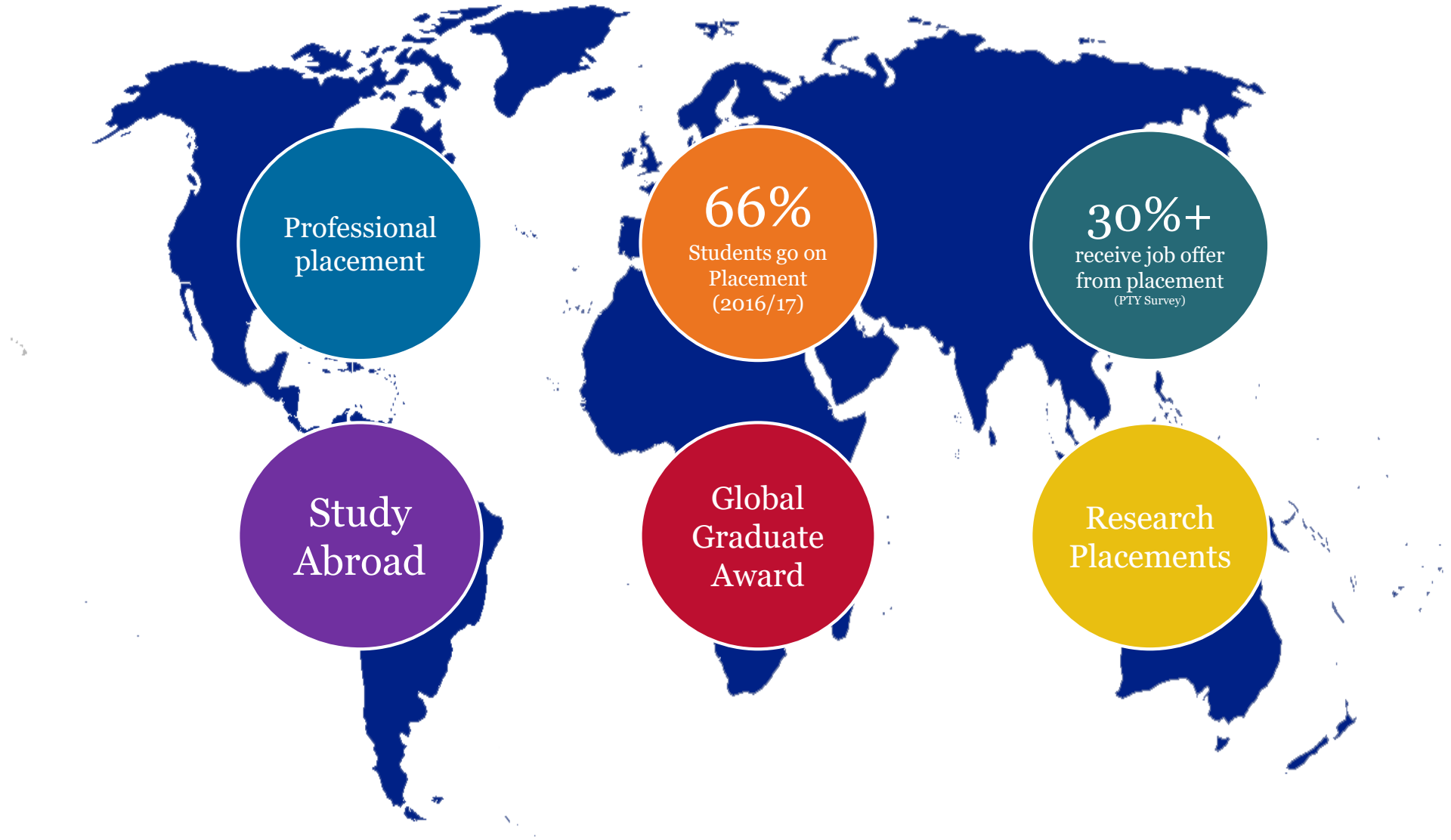
Guardian University Guide 2020 (June 2019)
Teaching Excellence Framework, TEF (as of June 2018)

Times Higher Education Student Experience Survey: 7th of 116 in 2018

2020	Institution	Guardian score /100	Satisfied with course	Satisfied with teaching	Satisfied with feedback	Student - to - staff ratio	Spend per student /10	Average entry tariff	Value added score/10	Career after 6 months	Year 1 to Year 2 progress	TEF ranking
1	Nottingham	100	94.0	87.1	84.8	10.8	10	157	8	n/a	96.4	Gold
2	**Surrey**	**94.1**	**87.0**	**89.1**	**76.1**	**10.9**	**9**	**156**	**5**	**90**	**100**	**Gold**
3	Loughborough	90.6	89.0	90.6	80.2	7.4	7	158	7	84	87.4	Gold
4	Leeds	89.1	95.9	91.7	76.3	11.4	7	176	8	n/a	89.6	Gold
5	Imperial College	88.9	81.0	84.3	64.1	15	9	208	8	92	96.7	Gold
6	Southampton	87.5	90.2	85.1	72.6	12.5	7	186	5	92	96.5	Silver
7	UCL	85.1	78	79.3	73.1	12.1	10	193	7	n/a	94.6	Silver
8	Bath	82.6	87.8	87.0	68.1	15.0	5	170	8	94	97	Gold
9	Ulster	80.8	n/a	n/a	n/a	13.3	3	136	8	n/a	93.9	n/a
10	Hertfordshire	78.8	85.8	90.8	81.4	10.7	4	122	7	n/a	87.1	Gold

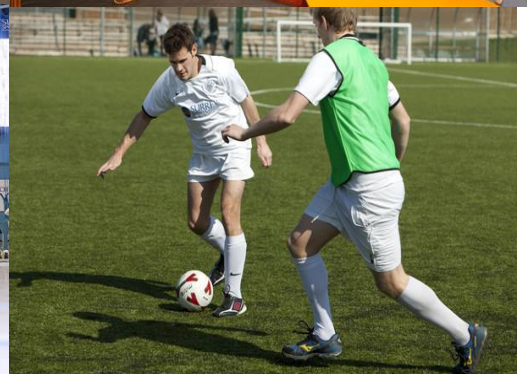
Award-winning facilities

Opportunities at Surrey

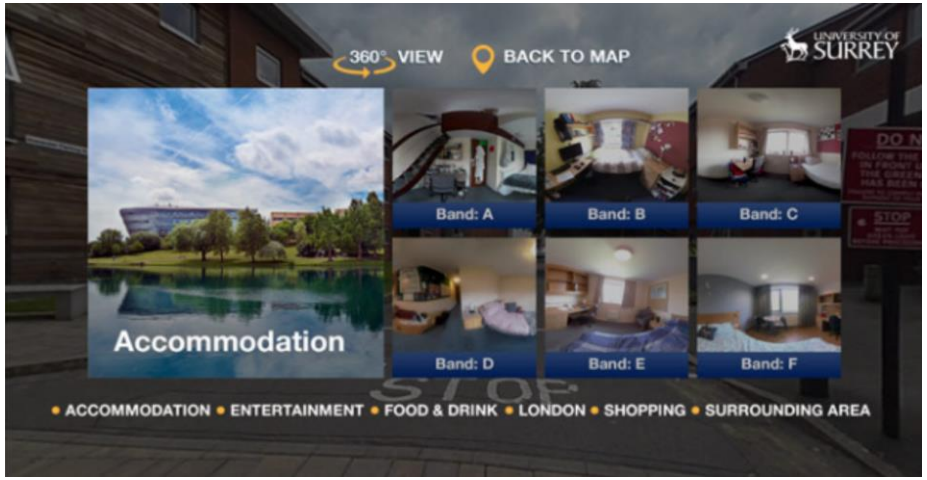


Over societies and clubs

The University of Surrey
Students' Union



Accommodation



Summary: Why study at Surrey

UNIVERSITY OF SURREY

Excellence in Electrical, Electronic and Computer Engineering

- ✓ Imaginative and exciting curriculum covering all aspects of modern electrical, electronic and computer engineering at BEng and MEng levels

- ✓ Recognised and consistent levels of excellence in Research and Teaching with a high degree of flexibility
  - Opportunity to **change between BEng and MEng** possible based upon results
  - **MEng guarantee for admission**
  - Opportunity to **change degree programme into 2nd Year and tailor your module options**
  - Opportunity to undergo **Professional Year in Industry** or **study overseas**

- ✓ Excellent degree and graduate career prospects