

# Welcome to the Department of Chemical & Process Engineering

Dr Colin Hare

Admissions Tutor



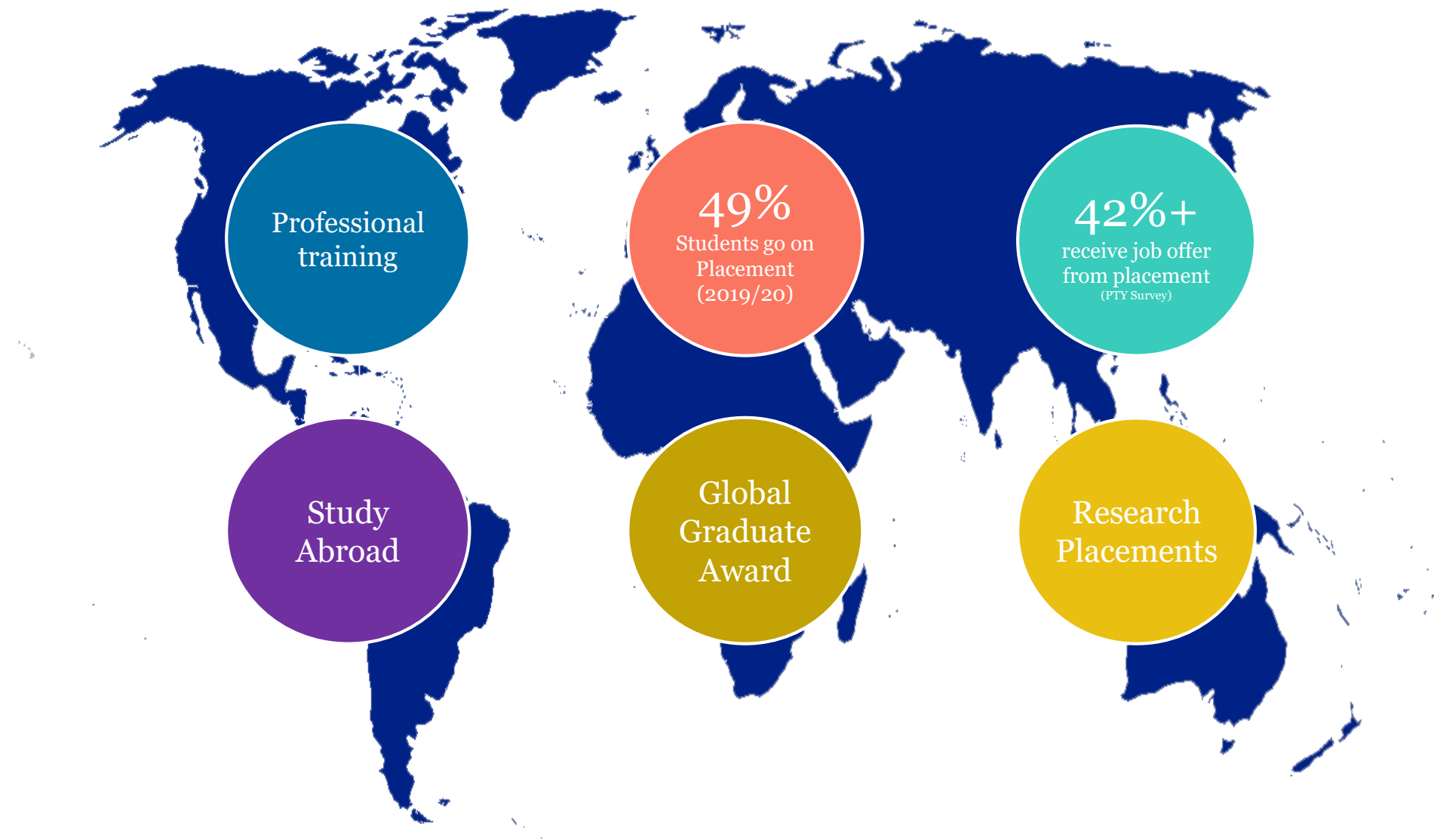
# Acclaimed Research at Surrey



# Award-winning facilities



# Opportunities at Surrey

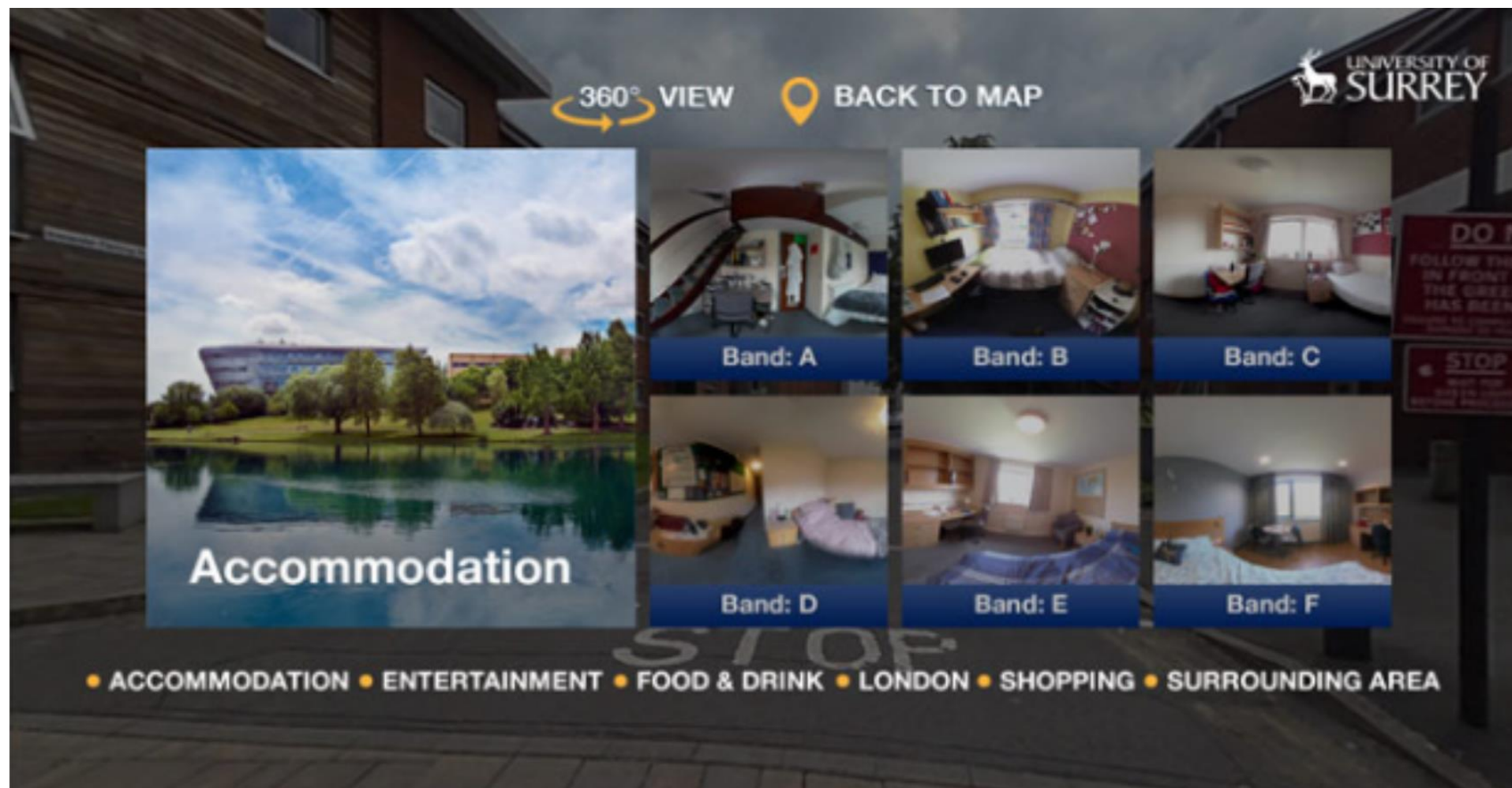


# Over 100 clubs and societies



# Accommodation

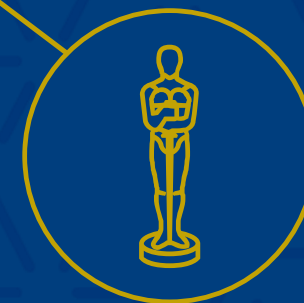
<https://www.surrey.ac.uk/accommodation>



# Exploring Surrey with London 34 Minutes Away



# Chemical and Process Engineering





# Why Engineering?

A recent report...

“Engineers are crucial to the economy and society as a whole.

Engineers are the innovators and problem-solvers who really make a difference to people’s lives.

Engineers are the people behind innovations such as driverless cars, bionic limbs and space travel.

However the UK is facing an engineering skills shortage. Recent figures indicate that we need 69,000 more engineers in the UK every year just to meet industry demand.”

## Engineering UK 2016

The state of engineering



# Why CPE at the University of Surrey?

» *Some of our History*

**1909** Evening course in chemical engineering started at Battersea Polytechnic Institute by John Hinchley. (4<sup>th</sup> attempt to start a course in the UK)

**1911** First students graduate in chemical engineering

**1915-ish** Imperial College poaches John Hinchley to be its first professor of chemical engineering

**1966** The Institute attains Chartered University status as the University of Surrey. The Department relocates to Guildford in **1968**

**Mid 1990s** Department builds first whole-chemical-process 'pilot' plant for teaching and wins contract with OPCW



# Why Chemical Engineering at Surrey?

» *The department in numbers (approximate)*

~ 400 undergraduates studying:

- Chemical and Petroleum Engineering
- Chemical Engineering

~ 60 full-time PGT students studying:

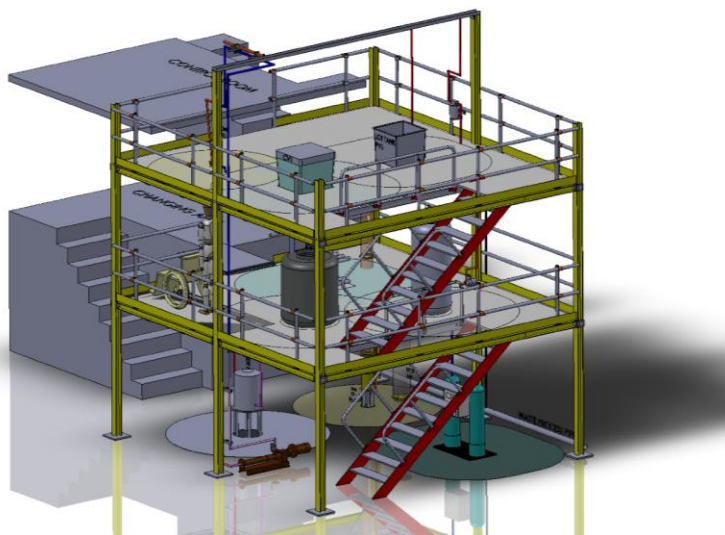
- MSc Information and Process Systems Engineering
- MSc Petroleum Refining Systems Engineering
- MSc Batteries, Fuel Cells and Energy Storage Systems
- MSc Process Systems Engineering
- MSc Renewable Energy Systems Engineering

~ 45 PhD research students



# Chemical Engineering Pilot Plant and New Labs

- » *£1.7m facility that was opened in September 2017*
- » The facility gives students access to state-of-the-art equipment that replicates the types they will use/manage in industry. The facility is part-funded by Surrey alumnus and Vice-President of ExxonMobil, Dr Neil Chapman



# Why Chemical Engineering at Surrey?

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## Syria chemical weapons monitors win Nobel Peace Prize

COMMENTS (540)



The OPCW had helped chemical weapons become "taboo", Norwegian Nobel Committee chairman Thorbjørn Jagland said

**The Organisation for the Prohibition of Chemical Weapons, the body overseeing the destruction of Syria's chemical arsenal, has won the Nobel Peace Prize.**

The Nobel Committee said it was in honour of the OPCW's "extensive work to eliminate chemical weapons".

The OPCW, based in The Hague, was established to enforce the 1997 Chemical Weapons Convention.

OPCW director general Ahmet Uzumcu said the award was a "great honour" and would spur it on in its work.

He said the deployment of chemical weapons in Syria had been a "tragic

**Related Stories**

- ▶ 'Extensive work' recognised  
Profile: Chemical weapons watchdog
- ▶ Behind the scenes at an OPCW lab

# Degree Programmes



## *Choosing between M.Eng and B.Eng*

**M.Eng** *Master of Engineering, 4 or 5 years*

- More analytical: greater breadth and depth in support of R&D roles
- Fastest route to chartered status
- Fuller preparation for the workplace

**B.Eng** *Bachelor of Engineering, 3 or 4 years*

- Fastest degree completion
- Shortest path to industry
- Good if you're planning a further degree such as a specialist M.Sc. or M.B.A.

# Chem Eng Department: Leadership & Expertise

- In 2016, Professor G.Q. Max Lu took up the post as the fifth President and Vice-Chancellor of the University of Surrey. Recognised as one of Australia's most influential engineers, Professor Lu joins as a Thomson Reuters double 'highly cited academic', bringing expertise in chemical engineering and nanotechnology.



- Visiting Professor Jonathan Seville, former Dean of our Faculty at Surrey, is a past President of the Institution of Chemical Engineers (IChemE) – the registration and accreditation body for chemical engineers worldwide.



- Dr Colin Hare, MEng, PhD, MChemE, FHEA, treasurer of the IChemE Particle Technology Special Interest Group, member of the EPSRC Early Career Forum in Manufacturing Research.

# Programme Detail

## First Year

### Year 1 (FHEQ level 4)

Modules include:

Mathematics (x2)  
Fluid Mechanics and  
Thermodynamics  
Engineering Materials and  
Sustainability  
Scientific Fundamentals\*  
Mass and Energy Balances  
Transferable and Laboratory Skills  
Petroleum Fundamentals and  
Chemistry\*

*\* Not available on all programmes*

## Second Year

### Year 2 (FHEQ level 5)

Modules include

Chemical Reaction Engineering &  
Numerical Methods  
Heat Transfer and Laboratory  
Engineering Systems and Dynamics  
Engineering Management  
Separation Processes  
Mass Transfer  
(Process) Control  
Chemical Engineering Thermodynamics



# Programme Detail

## Year 3 (FHEQ level 6)

*Modules include:*

Advanced Chemical and  
Biological/Petroleum Reaction  
Engineering  
Energy and Industrial Systems  
The Design Project  
Process Operation and Management

## Year 4 (FHEQ level 7)

*Module choices include:*

### **Multidisciplinary Design Project**

Chemical Product Design  
Research Project  
Refinery and Petrochemical Processing  
Biomass Processing Technology  
Supply Chain Management  
Optimisation and Decision Making

### **Multi-Disciplinary Design Project:**

- ✓ Run by specialist RAE visiting professors
  - ✓ Teams of different kinds of engineers
- ✓ Students often have to step outside their primary engineering discipline
- ✓ Highly prized by employers because it prepares students for reality



# Professional Placements

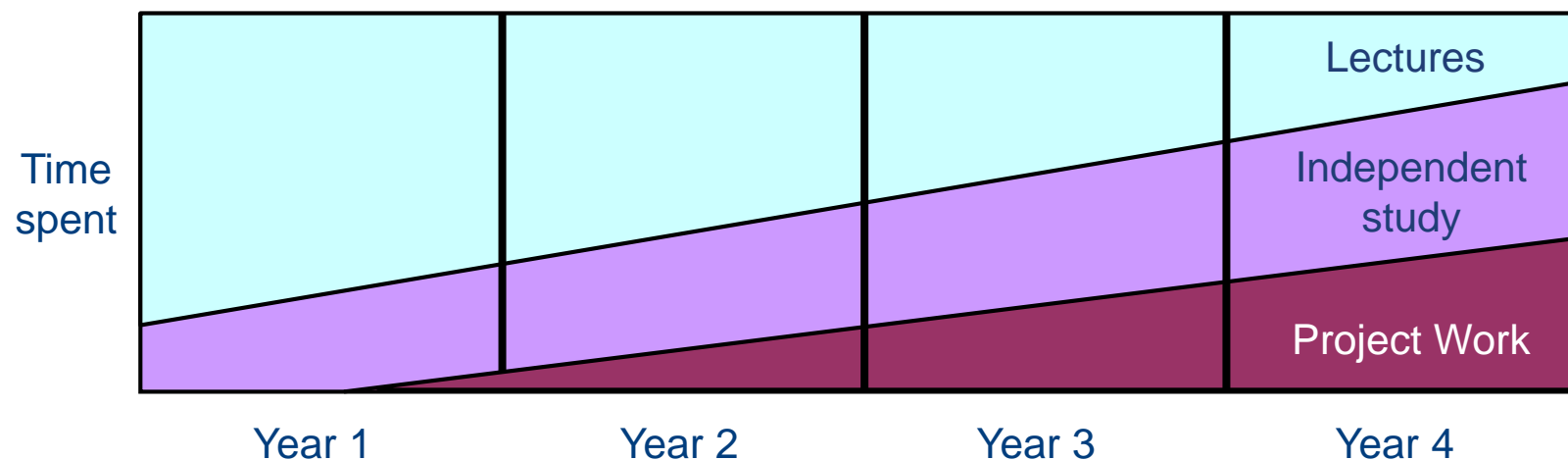
- Professional Training Year (PTY) can be taken between years 2&3 or between years 3&4 (MEng only)
- A dedicated PTY tutor
- Portfolio of companies who come to Surrey
- Accepted as part of experience for CEng
- Paid employment £15k – £25k
- UK or overseas (Africa, USA, Europe)
- Two support visits from Academic Staff
- 100 % employment and 100 % commitment



# Learning and Teaching

*Learning and Teaching is by a Variety of Approaches*

- Lectures and tutorials
- Workshops and laboratory work
- Team design projects
- Individual project
- SurreyLearn



# Advantages of a Surrey Degree

## *Some Key Features*

### **Teaching quality is our priority:**

» You are our future!

### **Focus on graduate employability:**

» You will be strongly supported by the University and the Department in making applications for jobs

### **Chemical Engineering Programmes are fully accredited to Institution of Chemical Engineers**

### **Process, Operations and Management Module**

» For those things you just can't learn in a lecture



# Why Chemical Engineering at Surrey?



## Bianca Borg – Currently working at ExxonMobil

*“I’m back working at the company where I completed my industrial year placement, ExxonMobil. I enjoy my job because it’s fast paced and challenging, which means I never get bored and the day flies by! It’s a multinational corporation, so I know that it can offer a wealth of opportunities in the future, in different countries and departments, which is very exciting.”*

**ExxonMobil**

Top companies keep on employing our graduates.



# Why Chemical Engineering at Surrey?

Royal Academy of Engineering Global Grand Challenges Summit  
Competition 2019  
won by Surrey CPE graduates!





UNIVERSITY OF  
SURREY