

Fluor pilot plant



DEPARTMENT OF CHEMICAL
AND PROCESS ENGINEERING



AT SURREY, ONE OF OUR KEY AIMS IS TO PREPARE STUDENTS TO MEET THE CHALLENGES THEY WILL FACE IN THEIR FUTURE CAREERS.

Within the Department of Chemical and Process Engineering, we are delighted to be able to offer a learning experience which is almost unique among UK universities. Our new £1.7m facility includes a fully operational pilot plant which enables our students to experience the entire chemical process, putting the theory they learn into practice in a real-world environment.

We have always placed strong emphasis on employability, and our graduates are in high demand in the oil and gas industry as well as across sectors such as pharmaceuticals, healthcare, energy, and water and waste management. Our new pilot plant – combined with our inspirational teaching and close links with industry – promises to help new generations of graduates to make their mark.

PROFESSOR SAI GU

HEAD OF DEPARTMENT, CHEMICAL AND PROCESS ENGINEERING



OUR NEW

Fluor *pilot plant*



TRAINING THE ENGINEERS OF TOMORROW

The new Fluor pilot plant facility, housed in an open plan, light-filled learning space within the Department of Chemical and Process Engineering, gives students access to state-of-the-art equipment that replicates what they will eventually use in industry.

The facility is a fully operational chemical process plant that demonstrates all of the main functions of an industrial plant: chemical reaction, solids handling, filtration, heat exchange and CO₂ capture by gas absorption. It utilises a safe whole process to produce very pure saline solution from a contaminated salt feed.

The plant has a high spec. control room, situated on a mezzanine floor, which closely resembles control rooms found in industry, with a mimic display showing a range of data such as the operational status of the plant and real time measurements.

The Fluor pilot plant facility was part-funded by a substantial donation from Fluor, as well as a donation of \$1 million from Surrey alumni Neil and Elizabeth Chapman. Neil Chapman is a Chemical Engineering graduate and currently President of ExxonMobil Chemical Company, and Elizabeth is a Human Health and Biology alumna.





PROFESSOR ESAT ALPAY
DIRECTOR OF LEARNING AND TEACHING,
DEPARTMENT OF CHEMICAL AND PROCESS ENGINEERING

“The new facility has had a transformative effect on the student learning environment. The pilot plant, together with several new semi-technical-scale laboratory items, provides students with opportunities to develop a wide range of practical skills, and to experience real-world plant and process operations. This should place our graduates in an even stronger position when it comes to job applications.”

LEARNING *by doing*



IN YEARS 1 & 2

Parts of the plant are isolated to enable students to undertake a laboratory module experiment to experience different unit operations commonly found in process plants. These operations reflect lecture topics in year 1 and 2, enabling students to put theory into practice.

Second year students also construct industry-standard Process Flow Diagrams for the plant as part of their ‘Engineering Systems and Dynamics’ module.



IN YEAR 3

Students organise themselves into teams of 30, and are challenged to run the plant for a working week. During the week they are required to make tonnes of product, and to meet quality control requirements allowing for changes in product grade.

The students decide how to operate the plant, write operating procedures and risk assessments for what they need to do, unlock, turn and relock valves and adjust controller settings, all without direct supervision. They work shifts of two hours, experiencing all the problems of shift changeovers, including paperwork.

Students experience a range of shift roles during the week with everyone – even the ‘managing director’ – being a plant operator for one shift. On other shifts, students will act as analytical chemists measuring the quality of the product that was made on the previous shift.

This depth of experience is not offered at any other university in the UK and is coveted by industrial design engineers who rarely, if ever, get operating experience in their jobs.





OPCW

Associateship programme

SURREY'S DEPARTMENT OF

Chemical Engineering



The Fluor pilot plant hosts part of the Associate Programme run by OPCW (Organisation for the Prohibition of Chemical Weapons) each summer.

Coming from many different countries around the world, the programme is designed for chemists and chemical engineers, who spend a week at the pilot plant, running it as both a production facility and a chemical business. Part of the three week course at Surrey, this experience prepares the associates for a placement in the global chemical industry in the following weeks.

The OPCW, which has been supported by the University of Surrey in this manner since the 1990s, won the Nobel Peace Prize in 2013.



The Department of Chemical and Process Engineering at Surrey is one of the longest established in the UK. Our undergraduate programmes were ranked in the top 10 by *The Times* and *Sunday Times Good University Guide 2017*, and third in the UK for overall student satisfaction according to the *2017 National Student Survey*.

The main aim of our Chemical Engineering degree courses is to produce highly employable graduates: professionals who are capable of contributing to the needs of the chemical industry in its broadest definition.

Our BEng and MEng degree programmes are accredited by the Institution of Chemical Engineers, and satisfy the educational requirements of becoming a Chartered Engineer.

The Department offers the following undergraduate courses (each with an optional Professional Training placement year):

- ▶ BEng/MEng Chemical Engineering
- ▶ BEng/MEng Chemical and Petroleum Engineering



XXXX-XXXX

**DEPARTMENT OF CHEMICAL
AND PROCESS ENGINEERING**

UNIVERSITY OF SURREY
Guildford, Surrey GU2 7XH, UK

facebook.com/universityofsurrey
[twitter: @uniofsurrey](https://twitter.com/uniofsurrey)
youtube.com/universityofsurrey

+44 (0) 1483 68 2222
admissions@surrey.ac.uk

surrey.ac.uk/subjects/chemical-and-process-engineering