Advanced Separation Processes (CENG0033)

Description

Aims:
The aim of this module is to extend the students' knowledge of basic fluid separation processes to more complex systems commonly found in the chemical processing industry. Students will develop:

• a thorough understanding of the underlying chemical & physical phenomena of the processes;
• a working knowledge of methods for design and operation of industrial separation units;
• a working knowledge of simulation tools applicable for the analysis and design; skills to propose energy efficient and sustainable design solutions.

Learning Outcomes:
On completion of this module students should:

• be able to understand the mass and heat transfer phenomena involved in complex fluid separation processes;
• be familiar with the procedures for the design of complex fluid separation equipment in the context of sustainability and sustainable development;
• be able to select an appropriate fluid separation process to meet a required separation performance;
• be able to apply conceptual design methods for simple and complex distillation columns;
• be able to simulate process flowsheets and mass transfer operations with an appropriate level of detail.

Synopsis:
To provide an understanding of the principles of complex fluid separation processes, as well as an ability to suggest energy efficient and sustainable design & operation alternatives thereof, such as:

• Extractive and azeotropic distillation

Key information

Year: 2019/20
Credit value: 15 (150 study hours)
Delivery: PGT L7, Campus-based
Reading List: View on UCL website
Tutor: Prof Eva Sorensen
Term: Term 2
Timetable: View on UCL website

Assessment

- Written examination (main exam period): 60%
- Coursework: 40%

Find out more

For more information about the department, programmes, relevant open days and to browse other modules, visit ucl.ac.uk

Disclaimer: All information correct as of August 2019. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
- Process intensification including dividing wall columns, reactive and hybrid distillation
- Batch distillation
- Multi-component and reactive absorption
- Process selection
- Advanced chromatographic processes (e.g., Simulated Moving Bed)
- Cooling and evaporative crystallization
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