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:
1. a thorough understanding of the underlying chemical & physical phenomena of the processes;
2. a working knowledge of methods for design and operation of industrial separation units;
3. 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:

Key information

<table>
<thead>
<tr>
<th>Year</th>
<th>2018/19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credit value</td>
<td>15 (150 study hours)</td>
</tr>
<tr>
<td>Delivery</td>
<td>PGT L7, Campus-based</td>
</tr>
<tr>
<td>Reading List</td>
<td>View on UCL website</td>
</tr>
<tr>
<td>Tutor</td>
<td>Prof Eva Sorensen</td>
</tr>
<tr>
<td>Term</td>
<td>Term 2</td>
</tr>
<tr>
<td>Timetable</td>
<td>View on UCL website</td>
</tr>
</tbody>
</table>

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 December 2018. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
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, azeotropic and reactive distillation;
- Pressure- and temperature-swing absorption (PSA/TSA);
- Multi-component distillation & absorption separations, including column sequencing;
- Advanced chromatographic processes (e.g. Simulated Moving Bed);
- Cooling and Evaporative Crystallization;
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:
1. a thorough understanding of the underlying chemical & physical phenomena of the processes;
2. a working knowledge of methods for design and operation of industrial separation units;
3. 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:

Key information

Year 2018/19
Credit value 15 (150 study hours)
Delivery UGM L7, Campus-based
Reading List View on UCL website
Tutor Prof Eva Sorensen
Term Term 2
Timetable View on UCL website

Assessment

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

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 December 2018. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
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, azeotropic and reactive distillation;
Pressure- and temperature-swing absorption (PSA/TSA);
Multi-component distillation & absorption separations, including column sequencing;
Advanced chromatographic processes (e.g. Simulated Moving Bed);
Cooling and Evaporative Crystallization;