Chemical Engineering

Process Dynamics and Control (CENG0017)

**Description**

**Aims:**
The aim of the module is to consider the concepts of process dynamics and control showing why, and how, control ensures safe, smooth and stable operation of process plants, in the context of sustainability and sustainable development.

**Learning Outcomes:**
On completion of this module, students are expected:

- to be aware, and have an appreciation of, the importance of process control in the safe, efficient, economic and sustainable operation of process plants;
- understand system dynamics, be able to predict the response to changes in a dynamic system, and be able to design and determine the characteristics and performance of measurement and control functions;
- to have an understanding of the elements of control loops in regards to feedback and more complex systems, the types of controllers available and the methods of controller tuning;
- to have an understanding of the fundamentals of instrumentation for control purposes

**Synopsis:**
To consider the concepts of:

- Modelling and analysis of the behaviour and dynamics of typical chemical processes;
- Description and analysis of chemical processes in terms of block diagrams to represent behaviour with associated controlled variables, manipulated variables and disturbances;
- The essential functionality of feedback control loops and the circumstances in which their potential benefits may be realised;
- Control system design and functionality;

**Key information**

- **Year**: 2019/20
- **Credit value**: 15 (150 study hours)
- **Delivery**: UG L6, Campus-based
- **Reading List**: View on UCL website
- **Tutor**: Dr Federico Galvanin
- **Term**: Terms 1 and 2
- **Timetable**: View on UCL website

**Assessment**

- Written examination (main exam period): 80%
- Coursework: 20%

**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.
- Advanced, complex and plantwide control;
- Instrumentation for control

The Masters level (level 7) version of the module (CENG0017) has a stronger focus on unseen, and more open ended, problem solving.
Process Dynamics and Control (CENG0017)

**Description**

**Aims:**
The aim of the module is to consider the concepts of process dynamics and control showing why, and how, control ensures safe, smooth and stable operation of process plants, in the context of sustainability and sustainable development.

**Learning Outcomes:**
On completion of this module, students are expected:

- to be aware, and have an appreciation of, the importance of process control in the safe, efficient, economic and sustainable operation of process plants;

- understand system dynamics, be able to predict the response to changes in a dynamic system, and be able to design and determine the characteristics and performance of measurement and control functions;

- to have an understanding of the elements of control loops in regards to feedback and more complex systems, the types of controllers available and the methods of controller tuning;

- to have an understanding of the fundamentals of instrumentation for control purposes

**Synopsis:**
To consider the concepts of:

- Modelling and analysis of the behaviour and dynamics of typical chemical processes;

- Description and analysis of chemical processes in terms of block diagrams to represent behaviour with associated controlled variables, manipulated variables and disturbances;

- The essential functionality of feedback control loops and the circumstances in which their potential benefits may be realised;

- Control system design and functionality;

**Key information**

<table>
<thead>
<tr>
<th>Year</th>
<th>2019/20</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><a href="#">View on UCL website</a></td>
</tr>
<tr>
<td>Tutor</td>
<td>Dr Federico Galvanin</td>
</tr>
<tr>
<td>Term</td>
<td>Terms 1 and 2</td>
</tr>
<tr>
<td>Timetable</td>
<td><a href="#">View on UCL website</a></td>
</tr>
</tbody>
</table>

**Assessment**

- Written examination (main exam period): 80%
- Coursework: 20%

**Find out more**
For more information about the department, programmes, relevant open days and to browse other modules, visit [ucl.ac.uk](http://ucl.ac.uk)
- Advanced, complex and plantwide control;
- Instrumentation for control

The Masters level (level 7) version of the module (CENG0017) has a stronger focus on unseen, and more open ended, problem solving.
Process Dynamics and Control (CENG0017)

Description

Aims:
The aim of the module is to consider the concepts of process dynamics and control showing why, and how, control ensures safe, smooth and stable operation of process plants, in the context of sustainability and sustainable development.

Learning Outcomes:
On completion of this module, students are expected:

- to be aware, and have an appreciation of, the importance of process control in the safe, efficient, economic and sustainable operation of process plants;
- understand system dynamics, be able to predict the response to changes in a dynamic system, and be able to design and determine the characteristics and performance of measurement and control functions;
- to have an understanding of the elements of control loops in regards to feedback and more complex systems, the types of controllers available and the methods of controller tuning;
- to have an understanding of the fundamentals of instrumentation for control purposes

Synopsis:
To consider the concepts of:

- Modelling and analysis of the behaviour and dynamics of typical chemical processes;
- Description and analysis of chemical processes in terms of block diagrams to represent behaviour with associated controlled variables, manipulated variables and disturbances;
- The essential functionality of feedback control loops and the circumstances in which their potential benefits may be realised;
- Control system design and functionality;

Key information

Year: 2019/20
Credit value: 15 (150 study hours)
Delivery: UGM L7, Campus-based
Reading List: View on UCL website
Tutor: Dr Federico Galvanin
Term: Terms 1 and 2
Timetable: View on UCL website

Assessment

- Written examination (main exam period): 80%
- Coursework: 20%

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.
- Advanced, complex and plantwide control;
- Instrumentation for control

The Masters level (level 7) version of the module (CENG0017) has a stronger focus on unseen, and more open ended, problem solving.