Process Plant Design Project (CENG0016)

Description

Aims:
The module aims to further develop and test the students’ ability to apply the knowledge gained in earlier modules and to apply this to the design of a chemical processing plant in a sustainable context.

Lectures, tutorials and group meetings will provide training in the techniques and tools required to carry out the design project, applying appropriate design concepts and computational tools.

The module also develops the following transferable skills: teamwork, presentation, written communication and project management.

Learning Outcomes:

On completion the students will be expected to:

- Understand that design is an open-ended process, lacking a pre-determined solution, which requires: synthesis, innovation and creativity; choices on the basis of incomplete and contradictory information; decision making; working with constraints and multiple objectives; justification of the choices and decisions taken;

- Understand the importance of identifying the objectives and context of the design in terms of: the business requirements; the technical requirements; sustainable development; safety, health and environmental issues; appreciation of public perception and concerns;

- Be able to deploy chemical engineering knowledge using rigorous calculation and results analysis to arrive at, and verify, the realism of the chosen design;

- Be able to take a systems approach to design appreciating complexity; interaction and integration;

- Be able to work in a team and understand and manage the processes of: peer challenge; planning; prioritising and organising team activity; the discipline

Key information

<table>
<thead>
<tr>
<th>Year</th>
<th>2020/21</th>
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<tbody>
<tr>
<td>Credit value</td>
<td>30 (300 study hours)</td>
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<tr>
<td>Delivery</td>
<td>UG L6, Campus-based</td>
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<tr>
<td>Reading List</td>
<td>View on UCL website</td>
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<tr>
<td>Tutor</td>
<td>Dr Michaela Pollock</td>
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<tr>
<td>Term</td>
<td>Terms 1 and 2</td>
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<tr>
<td>Timetable</td>
<td>View on UCL website</td>
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Assessment

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

- Be able to communicate effectively to:
  acquire input information; present the
  outcomes of the design clearly, concisely and
  with the appropriate amount of detail,
  including flowsheets and stream data; explain
  and defend chosen design options and
  decisions taken

Synopsis:

Chemical engineering design is the creation of a
system, process, product, or plant to meet an
identified need and serves to:

- Develop an integrated approach to chemical
  engineering.

- Encourage the application of chemical
  engineering principles to problems of current
  and future industrial relevance including
  sustainable development, safety, and
  environmental issues.

- Encourage students to develop and
  demonstrate creative and critical powers by
  requiring choices and decisions to be made
  in areas of uncertainty.

- Encourage students to take a broad view
  when confronted with complexity arising from
  the interaction and integration of the different
  parts of a process or system.

- Encourage the development of transferable
  skills such as communication and team
  working.

- Give students confidence in their ability to
  apply their technical knowledge to real
  problems.