Advanced Process Engineering (CENG0023)

**Description**

**Aims:**
Advanced use of computers in process design, operation and management.

Particular emphasis is placed on Process Synthesis;

**Learning Outcomes:**

**On completion the students will be expected:**

to be aware of the role of optimisation techniques in plant design, operation and management;

to be aware of numerical techniques for solving continuous and discrete optimisation problems;

to be able to formulate and solve complex optimisation problems both analytically and using computational tools;

to be aware of techniques for process synthesis and be familiar with a contemporary tool;

**Synopsis:**

Approaches to process synthesis and process optimisation;

Linear programming by the simplex and graphical methods;

Introduction non-linear process optimisation, optimality criteria, conditions for an optimum, unconstrained optimisation, constrained optimisation.

Application to flowsheet optimisation;

Discrete modelling of process systems.

Solution methods for discrete optimisation problems:

integer programming, mixed integer linear programming, mixed integer non-linear programming.

Process synthesis using implicit enumeration.

Algorithmic approaches to synthesis of sustainable systems;

**Key information**

**Year** 2018/19

**Credit value** 15 (150 study hours)

**Delivery** PGT L7, Campus-based

**Reading List** View on UCL website

**Tutor** Prof Lazaros Papageorgiou

**Term** Term 1

**Timetable** View on UCL website

**Assessment**

- Written examination (main exam period): 50%
- Coursework: 50%

**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.
heat exchanger networks;
Process synthesis under uncertainty.
Flexibility analysis;
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