Chemical Reaction Engineering (CENG0015)

**Description**

**Aims:**
To provide a basic understanding of the principles of reactor design and of the reasons underlying the selection of reactor type to meet particular sets of process conditions. Reactor selection and design is presented and discussed accounting for safety and sustainability considerations.

**Learning Outcomes:**
On completion the students will be expected:
- to be able to design simple ideal reactors;
- to appreciate technical, economic, safety and sustainability issues that can arise during reactor design;
- to understand the interaction of transport phenomena with reactions in a chemical, biochemical or catalytic reactors.

**Synopsis:**
- Introduction: Brief survey of the scope of the subject together with a review of some of its foundations.
- Conversion and Reactor Sizing: Definition of conversion. Design equations for batch and flow systems. Reactors in series. Space velocity and space time.
- Rate Laws and Stoichiometry: Concepts of reaction rate, reaction order, elementary reaction and molecularity. Stoichiometric table. Reactions with phase change.

**Key information**

**Year**
2019/20

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

**Delivery**
PGT L7, Campus-based

**Reading List**
View on UCL website

**Tutor**
Dr George Manos

**Term**
Term 1

**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.

• Multiple Reactions: Conditions for maximising yield and selectivity in parallel and series reactions.


• Diffusion and Reaction in Porous Catalysts: Diffusion and reaction in spherical pellet. Internal effectiveness factor. Falsified kinetics.

• Models for Non-ideal Reactors: One-parameter models. Two-parameter models.