Advanced Materials Processes and Nanotechnology (CENG0030)

Description

Aims:
To give students an understanding of processes involved in the production of novel materials. To provide students with a systematic approach to the selection of material fabrication routes with applications to the biomedical, coating, fine chemical, food, microelectronic and semiconductor industries.

Learning Outcomes:
On completion of this course students are expected to:

- be aware of novel materials and recently developed material processes;
- understand essential concepts in materials science at multiple scales, from the molecules to manufacturing;
- be able to apply fundamental chemical engineering principles (such as transport phenomena, chemical kinetics, thermodynamics) in the design and operation of materials processes involving nanofabrication, templating, self-assembly.

Synopsis:
To introduce the concepts of:

- Processes in the electronics industry:
  1. epitaxial & polycrystalline silicon production
  2. silicon doping
  3. microlithography
  4. chemical vapour deposition
  5. physical vapour deposition.

- Soft matter fundamentals & applications: Lipids, proteins, colloids, polymers, emulsions, self-assembly, thin-film processing, templating.

Key information

Year: 2020/21
Credit value: 15 (150 study hours)
Delivery: PGT L7, Campus-based
Reading List: View on UCL website
Tutor: Dr Michail Stamatakis
Term: Term 2
Timetable: View on UCL website

Assessment

- Written examination (main exam period): 80.0%
- Coursework: 20.0%

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 March 2020. Please note that aspects of the module may be subject to change. UCL will make best efforts to inform applicants of major changes.
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