

Microfabrication techniques

Lecturer

Pierre LAMBERT (Coordinator)

Course mnemonic

MECA-H500

ECTS credits

5 credits

Language(s) of instruction

English

Course period

Academic year

Course content

This course proposes seminars on precision and microfabrication techniques or micro-engineered products among:

- techniques: water jet cutting, sputtering, photolithography, electro-discharge machining, rapid prototyping, thermoforming, investment cast molding...
- products: stents, CNT, microneedles, IC components, knee prosthesis...

Some of these seminars are prepared by students, after the visit of an industrial contact specialist in the chosen field. This seminar preparation includes the production of a 20 pages report and a 20-30 minutes slideshow.

The goal is to provide to the students insights of physical principles, technological components, design rules, advantages and drawbacks, as well as cost aspects for each technique.

Additionally, 3 industrial visits are organized in Belgium.

Objectives (and/or specific learning outcomes)

Learn to select a manufacturing technique and to assess the manufacturing cost according to the product specifications and the batch size

Teaching method and learning activities

Ex-cathedra seminars given by the professor, seminars given by the students, industrial visits

Contribution to the teaching profile

This teaching unit contributes to the following competences:

- Abstraire, modéliser et simuler des systèmes physiques complexes rencontrés dans les applications biomédicales (bioélectricité, biomécanique, écoulements, etc.)
- Traiter et analyser des signaux de toute nature, 1D, image, vidéo, en particulier ceux issus des dispositifs médicaux
- Gérer le développement complet d'un projet biomédical intégrant l'ensemble des contraintes, depuis le design original jusqu'au produit

References, bibliography and recommended reading

Techniques de l'ingénieur data base

Specific references will be provided according to the topic chosen by the student

Other information

Contact(s)

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Evaluation method(s)

Oral examination

Evaluation method(s) (additional information)

Oral examination

Main language(s) of evaluation

English and French

Programmes

Programmes proposing this course at the Brussels School of Engineering

MA-IREM | Master of science in Electromechanical Engineering | finalité Professional/unit 2 and MS-NATE | Specialized Master in Nanotechnology | unit U