

# Project : Multifunctional materials

## Lecturers

Marie-Paule DELPLANCKE (Coordinator) and Hubert RAHIER

## Course mnemonic

PROJ-H413

## ECTS credits

5 credits

## Language(s) of instruction

English

## Course period

Second term

## Course content

Subjects (modified each year) involving theoretical and practical facets are attributed to groups of 2 or 3 students. They have to investigate (literature survey, propose and carry out experiments...) the problem under the supervision of a senior researcher. The results are presented in a written scientific report.

## Objectives (and/or specific learning outcomes)

Apply the acquired knowledge of the previous years to solve or contribute to solving a specific and original material science problem

## Teaching method and learning activities

Project

### Contribution to the teaching profile

- This teaching unit contributes to the following competences:
  - In-depth knowledge and understanding of exact sciences with the specificity of their application to engineering
  - In-depth knowledge and understanding of the advanced methods and theories to schematize and model complex problems or processes
  - Reformulate complex engineering problems in order to solve them (simplifying assumptions, reducing complexity)
  - Conceive, plan and execute a research project, based on an analysis of its objectives, existing knowledge and the relevant literature, with attention to innovation and valorization in industry and society
  - Correctly report on research or design results in the form of a technical report or in the form of a scientific paper

- Present and defend results in a scientifically sound way, using contemporary communication tools, for a national as well as for an international professional or lay audience
- Collaborate in a (multidisciplinary) team
- Develop, plan, execute and manage engineering projects at the level of a starting professional
- Think critically about and evaluate projects, systems and processes, particularly when based on incomplete, contradictory and/or redundant information
- A creative, problem-solving, result-driven and evidence-based attitude, aiming at innovation and applicability in industry and society
- A critical attitude towards one's own results and those of others
- Consciousness of the ethical, social, environmental and economic context of his/her work and strives for sustainable solutions to engineering problems including safety and quality assurance aspects
- The flexibility and adaptability to work in an international and/or intercultural context
- An attitude of life-long learning as needed for the future development of his/her career
- An integrated insight in chemical process and materials' technology
- Insight in chemistry as a link between process and materials technology

## References, bibliography and recommended reading

The references are specific to each subject.

## Other information

### Contact(s)

Prof. Marie-Paule Delplancke (ULB): phone 02/6502902; email: mpdelpla@ulb.ac.be; office UD1-115; secretary office: phone 02/6502952

Prof. Bruno van Mele (VUB): phone 02/6293276, email: bvmele@vub.ac.be

## Evaluation method(s)

Other

### Evaluation method(s) (additional information)

The written report and an oral presentation of the results (15 min presentation + 15 min questions) are evaluated as well as the work performed in the laboratories during the realization of the project

### Determination of the mark (including the weighting of partial marks)

1/3 lab work + 1/3 written report + 1/3 oral presentation

### Main language(s) of evaluation

English

## Programmes

Programmes proposing this course at the  
Brussels School of Engineering

MA-IRMA | **Master of Science in Chemical and Materials  
Engineering** | finalité Professional/unit 1

