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

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- > 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 evidencebased 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)

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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