LFSAB1507
2013-2014

Project 4 (in Mathematical Engineering)

4.0 credits	22.5 h + 22.5 h	2q

Teacher(s) :	Glineur François (coordinator) ; Nesterov Yurii ; Absil Pierre-Antoine ; Hendrickx Julien ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Bibliographic study and understanding of the problem ; drawing up of the book of specifications Development of an appropriate method allowing to solve the problem Development of algorithms and programming (f.i. MATLAB, C++, etc.) Studies in simulation, performance assessment Drawing up of a final report, final presentation.
Aims :	The skills that « projects 4 » aim to develop are on the one hand transversal skills which are commn to all projects 4, and on the other hand domain-specific skills connected with each specialisation. Transversal skills : Projects 4 aim at providing students with transversal skills close to the practice of engineering jobs within a multi-disciplinary context : -- Analyse and improve existing systems ; -- Analyse experimental data with a critical mind ; -- Make the distinction between reality and models used to describe or modify it ; -- Deal with the notion of uncertainty in the project approach, its conception and the obtained results. The project integrates the right to error notion, which is typical to young engineers starting a career. Technical domain-specific skills : -- Develop by small groups of students a mathematical engineering application -- Apply in a multidisciplinary way the skills acquired during the training in applied mathematics (for example in the fields of optimization, numerical analysis, differential equations, dynamical systems, statistics, etc.) -- Acquire and use new knowledge and advanced skills in applied mathematics in connection with application (consultation of scientific literature and reference books, contacts with experts in the field, etc.) -- Implement and test an algorithmic solution, then validate it with real data -- Communicate in English on a technical theme, orally and/or in writing. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods :	Students present and defend their project in front of a jury composed of all teachers, possibly completed by other tutors having contributed to the project supervision.
Teaching methods :	Work in small groups supervised by a tutor ; regular presentations of progress made. (Students will be strongly encouraged to write their reports or defend their project in English)
Content :	Bibliographic study and understanding of the problem ; drawing up of the book of specifications Development of an appropriate method allowing to solve the problem Development of algorithms and programming (f.i. MATLAB, C++, etc.) Studies in simulation, performance assessment Drawing up of a final report, final presentation.
Other infos :	This course is part of the set of courses « Project 4 » of the programme of bachelor in engineering. Projects 4 share common transversal objectives, but exist under different versions oriented towards specific disciplinary objectives, corresponding to the majors/minors of the programme. Each student chooses either the project related to his/her major or to his/her minor (if available).
Cycle and year of study :	> Bachelor in Engineering
Faculty or entity in charge:	MAP