

5.0 credits	52.5 h	1q
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Teacher(s) :	Gerin Patrick ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	<p>The Project in Industrial Chemistry requires the students to use in a integrated way the knowledge and competence they have acquired through all the courses of their bio-engineer education, 1) to understand and analyse an engineering problem in industrial chemistry or biotechnology, 2) to identify and document the possible ways to solve it, 3) to select the most promising solutions, 4) to develop the latter, ideally up to the dimensioning of the unit operations, 5) and finally to critically review the retained solutions. The problem is submitted to the student with a complexity compatible with both a real professional situation and the possibility to solve it within the course time framework. As much as possible, the problem submitted to the students is relevant to their field of specialisation. The project requires the students to communicate both orally and in written on the problem solving in a way that must be understandable and usable by other engineers without specific specialisation. In addition to the project, the course comprise the visit of industrial enterprises, organised to introduce students on the one hand to the global functioning of these enterprises, and on the other hand on the technological aspects of one specific production line.</p>
Aims :	<p>Know-how and skills</p> <ul style="list-style-type: none"> - Capacity to integrate basic disciplines and industrial technical and economic constraints for solving one problem relevant for industrial chemical engineering and /or bioengineering. - Capacity to present, justify and defend the intellectual approach followed and the solutions developed, with the rigour and technological feeling required from (bio-)engineers. - Capacity to work in a team, which requires initiatives and organisation to take in charge and to carry out the project. <p>Knowledge:</p> <ul style="list-style-type: none"> - Introduction to the functioning of industrial enterprises. <p><i>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".</i></p>
Content :	<p>Real industrial problems in chemistry or biotechnology are submitted to the student by engineers working in industry. The latter provide also some relevant data that they have already gathered. Several types of projects can be proposed:</p> <ol style="list-style-type: none"> 1. dimensioning of the whole or part of an industrial installation which comprises several (2 or 3) unit operations (e.g.. filtration, sedimentation, distillation, drying, shredding...); 2. exploratory study to identify and to assess the feasibility of several possible solutions to an industrial problem; 3. technical (possibly technico-economical) comparison of two or several industrial processes to perform the same production. <p>The students organise themselves as a team of 4-6 students to solve one of the submitted problems. To carry out the project, the students have to share their time between individual work (information search, new theoretical background learning, calculations,...), team work, weekly meeting with the academic supervisor. Around the 7th week, each team has to write, present and discuss with the industrial partner an intermediary report which describes the problem, the possible solutions envisaged, and which justify which solutions will be further developed. Each team presents its whole project during the 13th or 14th week to all the students and the industrial partner. The written report must be finalised by mid-February. The oral and written presentations must be understandable by (bio-)engineers.</p> <p>For the visit of industrial enterprises, the student have to write a short report to present the visited company in its industrial and economical context, as well as a critical analysis on the visited process.</p>
Other infos :	<p>Precursorycourses Knowledge and skills acquired through all the courses in science, engineering and economy of the BIRC program.</p> <p>Evaluation Oral presentation and written report on the subject</p> <p>Support Bibliographic and technical information research with guidance by the teachers</p>
Cycle and year of study :	> Master [120] in Chemistry and Bio-industries
Faculty or entity in charge:	AGRO