

4.0 credits	22.5 h + 22.5 h	2q
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Teacher(s) :	Pardoen Thomas ; Nysten Bernard ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	<p>Selection of a material-type linked to the main constituent of an appealing product</p> <p>Critical analysis of the material choice for the specific application</p> <p>Description of the different steps involved in the synthesis and the forming of the material</p> <p>Study of the match between the materials properties and technological, legal, economic and environmental constraints</p> <p>Unraveling of the link between properties-microstructure-processing</p> <p>Description of experimental techniques allowing to measure the relevant properties</p> <p>Comparison with the properties of competing materials</p> <p>Proposal of an alternative solution which is more performing, more economical and/or more ecological</p>
Aims :	<p>The skills that « projects 4 » aim to develop are on the one hand transversal skills which are common to all projects 4, and on the other hand domain-specific skills connected with each specialisation.</p> <p>Transversal skills :</p> <p>Projects 4 aim at providing students with transversal skills close to the practice of engineering jobs within a multi-disciplinary context :</p> <ul style="list-style-type: none"> <li>-- Analyse and improve existing systems ;</li> <li>-- Analyse experimental data with a critical mind ;</li> <li>-- Make the distinction between reality and models used to describe or modify it ;</li> <li>-- Deal with the notion of uncertainty in the project approach, its conception and the obtained results.</li> </ul> <p>The project also integrates the right to error notion, which is typical to young engineers starting a career.</p> <p>-- technical domain-specific skills:</p> <ul style="list-style-type: none"> <li>-- understand the technological environments in the field of materials and process engineering</li> <li>-- analyse a technological problem or an existing product/process and current solutions</li> <li>-- come up with original alternative solutions for the given problem, product or process</li> <li>-- confront the technological solutions to economic, social and environmental constraints</li> </ul> <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>
Teaching methods :	Students will work in group on a topic related to one of the previously cited technological domains. Some groups, working on different fields, can be encouraged to interact. Intermediate presentations will ensure the appropriate progress of the project.
Content :	<p>Selection of a material-type linked to the main constituent of an appealing product</p> <p>Critical analysis of the material choice for the specific application</p> <p>Description of the different steps involved in the synthesis and the forming of the material</p> <p>Study of the match between the materials properties and technological, legal, economic and environmental constraints</p> <p>Unraveling of the link between properties-microstructure-processing</p> <p>Description of experimental techniques allowing to measure the relevant properties</p> <p>Comparison with the properties of competing materials</p> <p>Proposal of an alternative solution which is more performing, more economical and/or more ecological</p>
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 :	<a href="#">&gt; Bachelor in Engineering</a> <a href="#">&gt; Bachelor in Engineering</a>
Faculty or entity in charge:	FYKI