

6.0 credits	45.0 h + 15.0 h	2q
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Teacher(s) :	Ruiz Barrientos Patricio ; Meurens Marc (coordinator) ;
Language :	Français
Place of the course	Louvain-la-Neuve

<p>Prerequisites :</p>	<p>&amp; bsp;</p> <p>Precursory</p> <p>Courses</p> <p>Ph&amp; acute;nom&amp; grave;nes de transfert ( pour partim A)</p> <p>Chimie physique I. M&amp; acute;canique des fluides (pour partim B).</p> <p>Supplemental courses</p> <p>&amp; bsp;</p> <p>&amp; bsp;</p> <p>Evaluation</p> <p>&amp; bsp;</p> <p>Written and oral examination</p> <p>Support</p> <p>&amp; bsp;</p> <p>Syllabus</p> <p>Teaching team</p> <p>&amp; bsp;</p> <p>2 Professors + 1 Assistant</p>
<p>Main themes :</p>	<p>Diffusion and mass transfer (diffusion theory, mass transfer coefficient, film theory). Absorption, distillation, rectification, humidification, de humidification, drying).Hydrodynamics of liquids through porous particles and membranes (filtration - extraction)</p> <p>Particles in fluids. Mechanical separation. Sedimentation. Decantation. Centrifugation. Cyclones.</p>

	Phase equilibrium (distillation, crystallization)
Aims :	<p>Principles and basic techniques of unit operations: mass and heat transfer, mass conservation, physical equilibrium, phases diagrams and charts, etc.</p> <p>Principles of diffusion and mass transfer between phases.</p> <p>Separation: mechanical, diffusions. Fluid-solid and fluid-fluid separation.</p> <p>Calculation and design of main equipments used in unit operations.</p> <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>Content</p> <p>Phase equilibrium. Distillation. Number of ideal plates. Materials balance in plate columns. Principles of diffusion. Film theory. Experimental determination of mass transfer coefficients. Absorption in plate columns. Absorption with chemical reaction. Mass transfer correlations. Hydrodynamics in packed towers.</p> <p>Liquid- liquid countercurrent extraction. Supercritical extraction. Drying of porous and non-porous solids. Phases equilibrium. Mass and heat transfer. Principles of filtration. Pressure drop. Compressible and incompressible filter cakes. Filter medium resistance cakes. Cross flow filtration. Membranes. &amp; bsp;</p> <p>Particles in fluids. Mechanical separation. Sedimentation. Decantation. Centrifugation, Cyclones.</p> <p>Phase equilibrium. Crystallization</p> <p>Methods</p> <p>Exercises and practical works: calculations and design of equipments.</p> <p>.</p>
Cycle and year of study :	<p>&gt; <a href="#">Master [120] in Chemistry and Bio-industries</a></p> <p>&gt; <a href="#">Master [120] in Environmental Bioengineering</a></p>
Faculty or entity in charge:	AGRO