

5.0 credits

30.0 h + 30.0 h

1q

Teacher(s) :	Jacques Pascal ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Main themes :	Three major themes are covered : non-metallic inorganic solids (ceramics and mineral glasses), physical metallurgy, processes for the production of the main industrial metals and alloys (steel, aluminium, )
Aims :	This course aims at completing the courses of the bachelor program devoted to chemistry and physical-chemistry in such a way that, at the end of the course, the student possesses the necessary bases for being confronted, in his professional life, to problems related to the production processes and properties of inorganic products : metals, ceramics, glasses. <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>
Content :	<ol style="list-style-type: none"> <li>1. Phase equilibria : recall of binary systems ; ternary systems</li> <li>2. Diffusion in solids</li> <li>3. Ceramics and glasses :                             <ul style="list-style-type: none"> <li>- crystalline structure of ceramics</li> <li>- the vitreous state and mineral glasses</li> <li>- crystalline defects in ceramics</li> <li>- mass transport and electrical conduction phenomena</li> <li>- phase equilibria in ceramic synthesis processes</li> </ul> </li> <li>4. Physical metallurgy                             <ul style="list-style-type: none"> <li>- recall : the types of phase transformations</li> <li>- kinetics of phase transformation ; TTT diagrams</li> <li>- application to different metals and alloys (steels, aluminium, )</li> </ul> </li> <li>5. Iron- and steelmaking processes</li> <li>6. The extraction of aluminium</li> </ol>
Other infos :	Nil
Cycle and year of study :	<a href="#">&gt; Master [120] in Chemistry and Bio-industries</a> <a href="#">&gt; Master [120] in Chemical and Materials Engineering</a> <a href="#">&gt; Master [120] in Biomedical Engineering</a> <a href="#">&gt; Master [120] in Physical Engineering</a>
Faculty or entity in charge:	FYKI