

3.0 credits	15.0 h + 15.0 h	1q
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Teacher(s) :	Godard Pierre ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	<p>The course is divided into 3 parts.</p> <p>The first part (0.2 ECTS) deals with the structures and bonds in organic molecules</p> <p>The second part (0.5 ECTS) is devoted to the study of the influence of the electronic structure of organic molecules on some physical properties.</p> <p>The third part (1.8 ECTS) develops the main reactions in organic chemistry.</p>
Aims :	<p>to give the theoretical bases of organic chemistry in view to be able of approaching more specialized fields.</p> <p>to initiate the students to a logical thinking based on some experimental observations and susceptible of generalization.</p> <p>At the end of the module, the students would be able</p> <p>to emphasize the relationships between molecular and spatial structures and some properties, more particularly their behaviour as organic reactant.</p> <p>to understand, on the base of the electron displacements inside molecules, the mechanisms of the different steps intervening in the main organic reactions.</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>Part 1 :</p> <p>Covalent bonds, concept of hybridisation and geometry</p> <p>Functions and functional groups, functionality</p> <p>Concept of isomerism including stereo isomerism</p> <p>Part 2 : Electron displacements inside molecules</p> <p>Inductive effects (permanent polarization) and polarizability (induced polarization)</p> <p>Mesomer effect</p> <p>Relations with some properties (boiling temperature, acid-base character, acid and base strength)</p> <p>Part 3 : Reactivity from some examples chosen between following reactions:</p> <p>Nucleophilic substitution reactions on aliphatic carbon</p> <p>Electrophilic and radical addition reactions on alkenes</p> <p>Elimination reactions of alkyl halides and alcohols</p> <p>Addition and substitution reactions on carbonyl compounds</p> <p>Substitution on aromatic compounds</p> <p>Oxidation and reduction reactions</p> <p>Methods :</p> <p>Ex-cathedra courses and exercises, eventually study developed from problems.</p> <p>Some laboratories would be indicated but are not organized at the present time.</p>
Other infos :	FSAB1301 or an equivalent course
Cycle and year of study :	<p>> Bachelor in Engineering</p> <p>> Master [120] in Biomedical Engineering</p>
Faculty or entity in charge:	FYKI