

3.0 credits	25.0 h + 15.0 h	2q
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Teacher(s) :	Bolly Pierre-Yves ; Sonnet Philippe ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	<p>At the end of the course, the student should be able to :</p> <ul style="list-style-type: none"> - read and provide an interpretation of geological maps - identify the principal minerals and rocks - analyse a geological setting and chose the adequate investigation method to address the geological constraints imposed upon engineering projects - understand and form a critical opinion about geological data and arguments that may be found in technical reports.
Aims :	<p>The course aims at :</p> <ul style="list-style-type: none"> - giving the student in civil engineering or in architecture a theoretical and practical overview of geology and mineralogy - familiarizing the student with the geological phenomena that must be taken into account when designing civil engineering, architecture or land use projects. <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>The course is composed of two parts :</p> <p>The first part is an introduction to mineralogy and general geology. The second part focuses on a series of topics relevant to applied geology in civil engineering and architecture.</p> <p>First part :</p> <ul style="list-style-type: none"> - Internal structure of the Earth, plate tectonics, geological cycles - Minerals, igneous, sedimentary and metamorphic rocks - Weathering, erosion, sedimentation, mass movement - Structure and deformation of rocks : sedimentation, intrusion, folding, faults, thrust - Seismology - Hydrogeology, karstic features - Geology of Belgium <p>Second part :</p> <ul style="list-style-type: none"> - Introduction : the role of the Geologist/Mining Engineer in relation to the customers, project managers and architects - Basics of geological mapping. The geological map as an information resource for Engineers and Architects - Natural geological hazards and geological hazards resulting from human activities - Classical geological prospection methods (fieldwork, drillings, geophysical prospecting) and in-situ geotechnical testing (brief introduction) - Civil engineering structures in their geological context: dams, tunnels, deep foundation works, highways, subways, <ul style="list-style-type: none"> - Geology, production and processing of industrial minerals playing a major role in the construction sector : limestones, dolostones and aggregates - Geology and the environment <p>Practical training :</p> <ul style="list-style-type: none"> - Three sessions on the identification of minerals and rocks - Four sessions on reading geological maps and case studies of applied geology

<p>Other infos :</p>	<p>Practical information :</p> <p>1- There are no pre-requisite for this course.</p> <p>2- If a student has already taken course AUCE117 and is planning on choosing as an option another course in Geology (BIR1130, GEO1251 or GEO1252), he should contact Ph. Sonnet in order to establish a special program in order to take into account any eventual overlap between the different courses in terms of the topics covered in the lectures or in the practical exercises.</p> <p>3- Upon request, the oral exam can be performed in English.</p> <p>4- This course is based on the textbook " Understanding earth " by Grotzinger, Jordan, Press and Siever, 5th edition (Freeman). The purchase of this textbook is mandatory for this course and allows the student to purchase the French translation available at the DUC.</p> <p>5- The PowerPoint slide shows shown during the course are available on the iCampus website. However, the images included in the PowerPoint slide show on iCampus are in a very low resolution as the aim is simply to allow the student who attended the course to review the images that were shown in high resolution during the course. As the slides on iCampus are not suitable for studying the course, it is mandatory to purchase the textbook. A "buy-back" system has been organized by the DUC which makes it possible for students to buy and sell used textbooks at the start of each quadrimester.</p> <p>6- The final evaluation is made up of three parts (all taking place during one exam session) : a written exam, without notes or documents, covering the first part of the course ; a written exam, with notes and documents allowed, covering the second part of the course ; an oral exam for the identification of minerals and rocks with the documents provided by the Assistant in charge of the practical exercises.</p>
<p>Cycle and year of study :</p>	<p>> Bachelor in Engineering > Bachelor in Engineering : Architecture</p>
<p>Faculty or entity in charge:</p>	<p>GC</p>