

5.0 credits	45.0 h + 15.0 h	1q
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Teacher(s) :	Holeyman Alain ; Verástegui Flores Ramiro Daniel ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	<p>Provide engineering students advanced design methods to solve geotechnical problems connected with civil engineering projects.</p> <p>Knowledge:</p> <ul style="list-style-type: none"> <li>- Soil-structure interaction under static conditions</li> <li>- Advanced analysis of slope stability, design of foundations and soil retaining structures</li> <li>- Foundation and soil improvement technologies</li> </ul> <p>Know-how:</p> <ul style="list-style-type: none"> <li>- Integrate basic engineering disciplines (soil mechanics, constitutive modeling, statics of structures) to analyze interactive stability of soil and structures</li> <li>- Assess feasibility and select best available design method to study foundation problems, select appropriate design parameters and most appropriate technology to solve a foundation problem</li> </ul>
Aims :	<p>Give to the students the expertise of knowledge seen in cursus AUCE 1171, 1172 and 1173</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 :	<ul style="list-style-type: none"> <li>- Soil-structure interaction as an advanced method to design spread footings, piled rafts, piles under horizontal loading, diaphragm walls; interest and limitation of finite elements software</li> <li>- Groundwater flow analysis under complex conditions: anisotropy, heterogeneity, free surface groundwater flow, seepage forces, piping, transient conditions, interpretation of pumping tests results</li> <li>- Ultimate states design and soil plasticity</li> <li>- Foundation technology, temporary and permanent soil improvement techniques</li> <li>- Advanced analysis of slope stability: discussion of drained vs. undrained conditions and parameters, connection with laboratory triaxial and other shear testing, advanced slice methods (complete Bishop, Janbu, Morgenstern &amp; Price), use specific software</li> </ul> <p>Lectures are delivered in auditoria. Exercises are administered under a seminar format to solve case studies. Use of the Plaxis® Finite Element and Geo-Slope ® softwares is introduced.</p>
Other infos :	Prerequisite : AUCE 2173, Statics
Cycle and year of study :	<a href="#">&gt; Master [120] in Civil Engineering</a>
Faculty or entity in charge:	GC