


3 credits

20.0 h + 15.0 h

Q2

Teacher(s)	Javaux Mathieu ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	<ul style="list-style-type: none"> <li>- Open-channel hydraulics</li> <li>- stochastic modeling fro hydrology</li> <li>- Model optimization and parameterization</li> </ul>
Aims	<p>a. Contribution to 'Learning Outcomes' program M2.2 ; M2.3 ; M6.5 ; M6.8</p> <p>b . Specific formulation for this activity LO program (maximum 10) At the end of the course and of the practicals, the students will be able:</p> <ul style="list-style-type: none"> <li>- to characterize the type of flow in channels/rivers.</li> </ul> <p>1</p> <ul style="list-style-type: none"> <li>- to understand and be able to apply the theory on gradually varying flow and rapid varying flow;</li> <li>- to measure the river discharge with different techniques</li> <li>- to use modelling approaches to simulate river discharge and design methods to control flood risks.</li> <li>- to estimate hydrological model parameters by different methods</li> <li>- to understand stochastic hydrology concepts</li> <li>- to use stochastic models to calibrate and simulate river discharge</li> </ul> <p>-----</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>
Evaluation methods	<ul style="list-style-type: none"> <li>• 50% on practical reports</li> <li>• 50% on oral evaluation of theory</li> </ul>
Teaching methods	<ul style="list-style-type: none"> <li>- The lectures can be given in English, but illustrated by slights in French. A reference textbook in French supports the lectures.</li> <li>- Field practical work for river discharge measurments</li> <li>- Practical work in the computer room allow students to use advanced methods of hydrological modeling</li> <li>- The practical work and the reports are a executed in teams</li> </ul>
Content	<p><u>Theory :</u></p> <ul style="list-style-type: none"> <li>- Open channel hydraulics (8 hours)</li> <li>- Stochastic modeling in hydrology (8 hours)</li> <li>- Parameter estimation (4 hours)</li> </ul> <p><u>Practicals:</u></p> <ul style="list-style-type: none"> <li>- Flow discharge measurements in situ (3 hours)</li> <li>- Modeling exercises in computer room :</li> </ul> <ul style="list-style-type: none"> <li>• HEC-RAS (6 hours)</li> <li>• Stochastic modeling (6 hours)</li> </ul>
Inline resources	Moodle
Bibliography	<p>Ouvrage de référence : 'manuel technique d'HEC-RAS. Syllabus d'hydraulique- livre Hydrologie fréquentielle - une science prédictive (Meylan et al)</p> <p>Transparents des cours sur Moodle</p>
Other infos	This course can be given in English.
Faculty or entity in charge	AGRO

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Agricultural Bioengineering	BIRA2M	3		
Master [120] in Environmental Bioengineering	BIRE2M	3		