



3.00 credits

22.5 h + 15.0 h

Q1

Teacher(s)	Javaux Mathieu ;
Language :	English > French-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	General Hydrology (LBIR1348)
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>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <ul style="list-style-type: none"> <li>a. Contribution to 'Learning Outcomes' program M2.2 ; M2.3 ; M6.5 ; M6.8</li> <li>b . Specific formulation for this activity LO program (maximum 10)</li> </ul> <p>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>
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	Learning outcomes
Master [120] in Civil Engineering	<a href="#">GCE2M</a>	3		
Master [120] in Environmental Bioengineering	<a href="#">BIRE2M</a>	3		
Master [120] in Agriculture and Bio-industries	<a href="#">SAIV2M</a>	3		