UCL Université catholique de Louvain	LBRES2206 2016-2017	Advanced Hydrology for Engineers

3.0 credits	20.0 h + 15.0 h	2q

Teacher(s) :	Javaux Mathieu ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Inline resources:	Moodle
Prerequisites :	General Hydrology (LBIR1348)
Main themes :	- Open-channel hydraulics - stochastic modeling fro hydrology - Model optimization and parameterization
Aims :	a. Contribution to 'Learning Outcomes' program M2.2 ; M2.3 ; M6.5 ; M6.8 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: - to characterize the type of flow in channels/rivers. - to understand and be able to apply the theory on gradually varying flow and rapid varying flow; - to measure the river discharge with different techniques - to use modelling approaches to simulate river discharge and design methods to control flood risks. - to estimate hydrological model parameters by different methods - to understand stochastic hydrology concepts - to use stochastic models to calibrate and simulate river discharge *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".*
Evaluation methods :	50% on practical reports 50% on oral evaluation of theory
Teaching methods :	- The lectures can be given in English, but illustrated by slights in French. A reference textbook in French supports the lectures. - Field practical work for river discharge measurments - Practical work in the computer room allow students to use advanced methods of hydrological modeling - The practical work and the reports are a executed in teams
Content :	Theory : - Open channel hydraulics (8 hours) - Stochastic modeling in hydrology (8 hours) - Parameter estimation (4 hours) Practicals: - Flow discharge measurements in situ (3 hours) - Modeling exercises in computer room : -- HEC-RAS (6 hours) -- Stochastic modeling (6 hours)
Bibliography :	Reference manuals: 'manuel technique d'HEC-RAS. Syllabus d'hydraulique- livre Hydrologie fréquentielle - une science prédictive (Meylan et al) Slides available on Moodle
Other infos :	This course can be given in English.
Faculty or entity in charge:	AGRO

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Environmental Bioengineering	BIRE2M	3	-	🔍
Master [120] in Agricultural Bioengineering	BIRA2M	3	-	🔍