UCL Université catholique de Louvain

LBIR1305

2015-2016

Introduction to systems analysis

3.0 credits	10.0 h + 20.0 h	1q

Teacher(s) :	Baret Philippe ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	iCampus
Prerequisites :	Background in applied mathematics. *The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes :	Systems analysis: definition, theory and background. Conceptual bases for modeling applied to systems analysis. Designing models for systems analysis: defining objectives, identifying hypotheses, mathematical formulation, programming, parameter estimation, and assessment of the model. Systems analysis examples will initially address different global issues, but a particular focus will be given to the problem food security as an illustratory example throughout the course. Other, different modeling exercises/ projects will be carried out on computers based on a specific modeling tool (Simulink), in order to address different problems/ challenges in the areas of agronomical, biological and environmental engineering.
Aims :	a. Contribution of instruction with regards to the referential of leaning outcomes B2.2, B2.3., B3.2., B3.3, B4.4. b . Specific formulation for this activity AA program (maximum 10) At the end of this activity, the student is able to: ' Understand key steps underlying the modeling work necessary for carrying out the systems analysis and distinguish key differences with a reductionist approach. ' Utilize a systemic approach to effectively address issues dealing with a biological, agronomical and environmental challenges/ problems. *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 :	Written exam and a programming exam.
Teaching methods :	Instructions in a teaching room.
Content :	The course consists of 5 introductory sessions (10hrs) which aim is to familiarize the student with key concepts underlying systems analysis. Another segment of the course (20hrs) will be entirely dedicated to modeling exercises/ projects with the aim of helping the student develop key and basic skills in modeling applied to systems analysis..
Bibliography :	No specific instruction material is requested.
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 Ethics	ETHI2M	3	-	
Master [120] in Philosophy	FILO2M	3	-	
Master [120] in Geography : General	GEOG2M	3	-	
Master [120] in Environmental Science and Management	ENVI2M	3	-	
Minor in Development and Environment	LDENV100I	3	-	
Bachelor in Bioengineering	BIR1BA	3	LBIR1204	