UCLouvain

lbir1351

2022

Introduction to systems analysis

3.00 credits	10.0 h + 20.0 h	Q1

Teacher(s)	Baret Philippe ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	*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.
Learning outcomes	**At the end of this learning unit, the student is able to :** 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: 1 ' 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.
Evaluation methods	Written examination on theory in the form of MCQs (in-session) and computer modelling exercises in the computer room (pre-session and usually in S13). The theory exam counts for one third of the grade and the exercise exam for the remaining two thirds. If the examination is not passed (final grade), the assessment of both parts of the course must be repeated.
Teaching methods	Lectures and practical sessions in computer rooms.
Content	The course consists of lectures (10 hours) that aim to familiarise the student with the key concepts underlying systems analysis. Another segment of the course (20 hours) will be entirely dedicated to practical modelling work with the aim of helping the student to develop key and basic modelling skills applied to systems analysis. This second part of the course is compulsory. Each unjustified absence from a practical session will result in a penalty.
Inline resources	Moodle
Bibliography	Le cours ne fait appel à aucun support particulier qui serait payant et jugé obligatoire. Les ouvrages payants qui seraient éventuellement recommandés le sont à titre facultatif.
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Environmental Science and Management	ENVI2M	3		
Minor in Development and Environment	MINDENV	3		
Interdisciplinary Advanced Master in Science and Management of the Environment and Sustainable Development	ENVI2MC	3		
Master [120] in Geography : General	GEOG2M	3		
Bachelor in Bioengineering	BIR1BA	3	LBIR1271	