

COURSE: MODEL BUILDING
AUTHOR: UOM
THEME: KEEP RELEVANT THEMES: <b>RENEWABLE ENERGY</b> , SUSTAINABLE HOUSING, <b>SUSTAINABLE FOOD SYSTEM</b> , CIRCULAR ECONOMY
MODULE: 4
SESSION:4
LECTURE TOPICS: 1. RECAP OF STOCK AND FLOW DIAGRAMS 2. BUILDING OF QUANTITATIVE MODEL FOR RENEWABLE ENERGY 3. SCENARIO AND SENSITIVITY ANALYSIS 4. BUILDING OF QUANTITATIVE MODEL OF SUSTAINABLE FOOD SYSTEMS
TARGET GROUP: END-USERS OF THE PROJECT (HE STUDENTS)
INTEGRATION INTO CURRICULUM: integration into the school/university curriculum, connection to other disciplines and subjects if applicable
LEARNING OUTCOMES: maximum 5 learning outcomes based on Bloom’s Taxonomy in terms of students’ knowledge, comprehension, application, analysis, synthesis. <ul style="list-style-type: none"> <li>- Knowledge: To understand stock and flow diagrams and the mathematical equations that govern them</li> <li>- Comprehension: To understand the behavior of stocks, flows, delays and non-linearities</li> <li>- Application: To apply the gained knowledge in developing models on renewable energy and sustainable food systems</li> <li>- Analysis: To analyse the behavior of the systems and find commonalities</li> <li>- Synthesis: To transform the insights from the models into actionable recommendations</li> </ul>
LECTURE OBJECTIVES: <ol style="list-style-type: none"> <li>1. LEARN TO UNDERSTAND STOCK AND FLOW DIAGRAMS AND THEIR BEHAVIOR</li> <li>2. BUILD QUANTITATIVE MODEL ON THE ISSUE OF RENEWABLE ENERGY AND ANALYSE ITS BEHAVIOR</li> <li>3. BUILD QUANTITATIVE MODEL ON THE ISSUE OF SUSTAINABLE FOOD SYSTEMS AND ANALYSE ITS BEHAVIOR</li> </ol>
LECTURE DURATION: 60 MIN
GREEN SKILLS ADDRESSED: (KEEP RELEVANT ONES FROM THE LIST) <b>DESIGN SKILLS</b> , LEADERSHIP SKILLS, <b>MANAGEMENT SKILLS</b> , CITY PLANNING SKILLS, LANDSCAPING SKILLS, <b>ENERGY SKILLS</b> , FINANCIAL SKILLS, PROCUREMENT SKILLS, WASTE MANAGEMENT SKILLS, <b>COMMUNICATION SKILLS</b>
SDGS ADDRESSED: GOAL 2, GOAL 7, GOAL 13
LECTURE DEVELOPMENT
BEFORE: preparation prior to the lesson
LECTURES IN PPT FILES, A DOCUMENT CONTAINING ALL THE MATERIAL FOR THE LECTURE, MULTIPLE CHOICE QUESTIONS TO ASSESS THE LEVEL OF UNDERSTANDING



INTRO: ideas for activating the student’s background knowledge or ice breaker			
RECAP OF NOTIONS OF STOCK AND FLOW DIAGRAMS, AND REVISING OF THE CLD OF THE RENEWABLE ENERGY			
DURING:			
TIME	TYPE OF ACTIVITY	LEARNING ACTIVITIES	(VISUAL) AIDS
5 MINUTES	PRESENTATION: RECAP STOCK AND FLOW DIAGRAMS	PRESENTATION ON STOCK AND FLOW DIAGRAMS	PPT FILES
5 MINUTES	PRESENTATION: REVISITING THE CAUSAL LOOP DIAGRAM ON RENEWABLE ENERGY	PRESENTATION OF THE MODEL THAT WAS DEVELOPED IN THE PREVIOUS LESSON	PPT FILES
20 MINUTES	PRACTICE BUILDING THE QUANTITATIVE MODEL	IN COLLABORATION WITH THE STUDENTS BUILDING OF THE MODEL ON RENEWABLE ENERGY	SOFTWARE (VENSIM.COM), PPT FILES
25 MINUTES	SUSTAINABLE FOOD SYSTEMS	PRESENTATION OF: 1) GENERAL INFORMATION ON SUSTAINABLE FOOD SYSTEMS 2) IMPORTANT ELEMENTS IN THE SYSTEM OF SUSTAINABLE FOOD SYSTEMS 3) DEVELOPMENT OF CAUSAL LOOP DIAGRAM OF	PPT FILES, CO-CREATION ACTIVITY



		SYSTEM (CO-CREATION ACTIVITY FOR STUDENTS)	
5 MINUTES	DISCUSSION OF THE RESULTS	DISCUSSION WITH THE STUDENTS ABOUT THE POTENTIAL BEHAVIOR OF THE SYSTEM AND POLICY DESIGN	PPT FILE, CO-CREATION ACTIVITY
<p>BEYOND:</p> <p>Homework: Multiple Choice Questions, Build the quantitative model of the sustainable food system</p> <p>Assessment: 50% MCQ, 50% quantitative model</p> <p>Recommended additional materials: Papers, free textbook, case studies, the ppt files will be provided.</p>			





*SDG LABS – Harnessing the potential of the Social Economy towards a green transformation through the establishment of Socially Driven Green Labs within Universities*

Project number: 2021-1-PL01-KA220-HED-000032077



**Co-funded by  
the European Union**

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the National Agency (NA). Neither the European Union nor NA can be held responsible for them.