

## SYLLABUS

<b>Name of course</b>	<b>INFORMATION AND COMMUNICATION TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT (ICT4SD)</b>		
<b>Code of course</b>			
<b>University</b>			
<b>Faculty</b>			
<b>GENERAL INFORMATION</b>			
<b>Degree level</b>	Master		
<b>Year of Study</b>	1	<b>Semester:</b>	1
<b>Subject of study</b>	The role of information and communication technology in various aspects of sustainable development.		
<b>Language required for the course</b>	English		
<b>List of degree programs</b>	The course can be beneficial for students pursuing various master's programs on sustainability, business, public administration, and information technology.		
<b>ACTIVITIES</b>			
<b>Number of credits, ECTS</b>	3 Credits or 6 ECTS		
<b>Lectures, hours</b>	28	<b>Practices (workshop), hours</b>	-
<b>Per week</b>	1/1	<b>Per course</b>	14/14
<b>COURSE DESCRIPTION</b>			
<p>This course delves into the transformative potential of Information and Communication Technology (ICT) in driving and supporting sustainable development. Development is viewed as the expansion of human freedom and capabilities, as suggested by Amartya Sen (1999), that involves enhancing people's choices, opportunities, and agency to achieve their well-being. The capabilities include the ability to lead to a healthy life, to acquire education, to participate in political processes, to have economic opportunities, and more. Sustainability issues and considerations are to ensure that the actions and choices made for the development do not compromise the ability of future generation to meet their own needs and the health of the planet.</p> <p>ICT emerges as a powerful tool in sustainable development by enhancing accessibility, efficiency, and inclusivity across various sectors. ICT facilitates actions execution and plays a crucial role in informed decision-making. By fostering innovation, ICT stimulates economic growth, reduces barriers to services, and promote collaboration. While leveraging those benefits, it is essential to address associated challenges such as digital divide and cyber threats.</p> <p>This course consists of three main parts: theoretical frameworks (to strengthen the foundations of ICT4SD), real-world case studies (to widen the horizon in ICT4SD), and a mini research project (to dive into the practical cases of ICT4SD). In this course, sustainability issues include, but are not limited to, Sustainability Development Goals (SDGs).</p>			
<b>AIM OF THE COURSE</b>			
<ol style="list-style-type: none"> <li>1. To introduce students to the foundational concepts of ICT4SD.</li> <li>2. To develop students' skill in analyzing the role of ICT in accelerating the realization of SDGs.</li> <li>3. To equip students with skills to design, implement, and evaluate a research project on ICT4SD.</li> </ol>			
<b>CONTENTS</b>			
<p>1: INTRODUCTION TO INFORMATION AND COMMUNICATION TECHNOLOGY FOR SUSTAINABLE DEVELOPMENT</p> <p>2: THEORETICAL FRAMEWORK: ACTOR-NETWORK THEORY</p> <p>3: THEORETICAL FRAMEWORK:</p> <p>4: ICT FOR HUMAN AND WELFARE DEVELOPMENT</p> <p>5: ICT FOR ECONOMIC DEVELOPMENT</p>			



Co-funded by  
the European Union

6: ICT FOR SOCIETY DEVELOPMENT		
7: ICT FOR ENVIRONMENT DEVELOPMENT		
8: CHALLENGES FOR HARNESSING ICT FOR SUSTAINABILITY DEVELOPMENT		
9: CONDUCTING RESEARCH IN ICT FOR SUSTAINABLE DEVELOPMENT		
<b>EVALUATIONS</b> <i>(add lines as needed)</i>		
1	Learning activities (case study analysis, mini research project)	40%
2	Midterm exam	30%
3	Final exam	30%
<b>ASSESSMENT CRITERIA</b>		
<ul style="list-style-type: none"> <li>● Obligatory activities: engagement in classes, weekly assignments (article reviews, presentations, research project).</li> <li>● Midterm exam: covering materials from week #1 to #7 (the form of exam TBC)</li> <li>● Final term exam: covering materials from week #8 to #14 (project report)</li> <li>● Plagiarism is strongly prohibited and may lead to dismissal from the class.</li> </ul>		
<b>PRE-REQUIREMENTS FOR STUDENTS</b>		
None		
<b>LEARNING OUTCOMES</b>		
<b>Competencies:</b>		
Upon the completion of the course, students are expected to understand the relationship between ICTs and sustainable development, its related underlying concepts, theories, and confirmed cases.		
<b>Skills:</b>		
Upon the completion of the course, students will gain the capacity to:		
<ul style="list-style-type: none"> <li>● understand the variety of technologies related to the management of information on sustainable development,</li> <li>● understand the application of ICT in the operation of sustainable development,</li> <li>● critically analyze the role of ICT in accelerating the realization of SDGs,</li> <li>● conduct research on ICT4SD.</li> </ul>		
<b>LEARNING STRATEGIES</b>		
<ul style="list-style-type: none"> <li>● Lectures through interactive presentations.</li> <li>● Case studies, which highlight the application of ICT in sustainable development.</li> <li>● Group discussions and debates to allow the exchange of ideas and to foster critical thinking.</li> <li>● Guest speakers from the industry and entities related to the practice of ICT in sustainable development.</li> <li>● Research project to study the application of ICT4SD in local areas.</li> <li>● Assignments to assess individual learning achievement.</li> </ul>		
<b>RECOMMENDED SOURCES</b>		
<b>Compulsory literature:</b>		
<ol style="list-style-type: none"> <li>1. Sen, A. (1999). Development as freedom. New York: Oxford University Press.</li> <li>2. Marolla, C. (2018). Information and Communication Technology for Sustainable Development. CRC Press.</li> <li>3. Ragnedda, M. and Muschert, G.W. (eds) (2013). The Digital Divide: The Internet and Social Inequality in International Perspective. Routledge.</li> </ol>		
<b>Suggested reading:</b>		
<ol style="list-style-type: none"> <li>1. Choudrie, J. et al. (eds) (2017). <i>Information and Communication Technologies for Development</i>. Proceedings of the 14<sup>th</sup> IFIP WG 9.4 International Conference on Social Implications of Computers in Developing Countries. Springer.</li> </ol>		





**MASUDEM**

MASTER STUDIES IN SUSTAINABLE DEVELOPMENT AND MANAGEMENT

2. Tuba, M., Akashe, S., and Joshi, A. (eds) (2023). *ICT Systems and Sustainability*. Proceedings of ICT4SD 2023. Springer.

***Selected internet sources:***

1. Information and Communication Technology for Sustainable Development: Defining a Global Research Agenda. [https://www.cs.cmu.edu/~rtongia/ICT4SD\\_Full\\_Book.pdf](https://www.cs.cmu.edu/~rtongia/ICT4SD_Full_Book.pdf)
2. ICTs for a Sustainable World. <https://www.un.org/sustainabledevelopment/blog/2015/10/icts-for-a-sustainable-world/>

**GROUP OF COURSE DEVELOPERS**

**Course Leader:**

**Board:**

**Date of approval of the course**



**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 European Education and Culture Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.



**MASUDEM**

MASTER STUDIES IN SUSTAINABLE DEVELOPMENT AND MANAGEMENT

Comments:

No.	Date	Comment	Who
1.			
2.			
3.			
4.			



**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 European Education and Culture Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.