SUSTAIN-CE PROJECT

Module 1 Fundamentals of Sustainable Infrastructure & Circular Economy Syllabus

COMMON SYLLABUS FOR MODULES/ COURSE MATERIALS

Co-funded by the Erasmus+ Programme of the European Union

SUSTAIN-CE Project

Module 1: Sustainable Infrastructure Fundamentals of & Circular Economy Syllabus

Leading Partner:	IYTE/AUTH

Document Revision History

Version	Date	Comment	Author(s)
1.0	14 January 2022	First Draft	IYTE/AUTH/YU/ SEERC/ISQ
2.0	14 October 2022	Second Draft	IYTE/AUTH/YU/ SEERC/ISQ
3.0	31 May 2023	Final Version	IYTE/AUTH/YU/ SEERC/ISQ

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COURSE MATERIAL SYLLABUS

Module Topic	Applicable Civil Engineering Area/Design Course	Module Code	Total Course Hour		University Credit	ECTS
			Theory	**Practice**		
Fundamentals of sustainable infrastructure and circular economy	XXX	SUSTAIN-CE 01	3	0		4

Language of Instruction	English
Level of Course Material/Load Case/Module	☐Associate Degree (Short Cycle) ☒Undergraduate (First Cycle) ☐Graduate (Second Cycle) ☐Doctoral Course (Third Cycle)
Prerequisite Course (s)	N/A
Special Pre-Conditions of the Course	N/A

Course Coordinator		Mail: Web:
Course Instructor(s)		Mail: Web:
Course Assistant(s)/ Tutor (s)		Mail: Web:

Purpose and Background	Sustainable development is promoted by the New Urban Agenda of the United Nations, advising cities to undertake their transformation through planning, development, governance, and administration based on innovations in design, legislation, and economic and urban policies. With urban areas growing exponentially, especially in emerging countries, sustainable infrastructure is showing its worth as a more efficient, productive, and environmentally friendly option. Furthermore, there is evidence that a circular economy is an excellent enabler for achieving sustainable infrastructures, which consume less natural resources and lessen the impact of natural threats to people and the economy.
Module Content	Introduction to sustainability, CE as a sustainability enabler: understanding the CE concept, Sustainable design and construction principles, Introduction to lifecycle assessment, Governing circular economy in the urban context, Innovative construction materials and their sustainability factor, New European Bauhaus framework, and EU regulations and policies.
Learning Outcomes of the Course Material/Case Study/Module	**Participants who complete this module will:** 1. Understand sustainability and how it is interpreted and applied in natural habitats and cities through the provision of selected good examples 2. Be able to conceive in theory the concept of the circular economy going beyond simple waste management 3. Learn tools and methods to apply and assess sustainability in construction projects at different stages (from design to dismantling) 4. Learn about the fundamental aspects of governing circular economy at the urban level as an enabler of sustainability 5. Be acquainted with the European framework that refers to sustainability and circular economy

MODULE OUTLINE/SCHEDULE (In hours)			
Hours	**Topics**	**Preliminary Preparation**	**Methodology and Implementation (theory, practice, assignment, etc.)**
3	Introduction to Sustainability	Recommended readings from the VLE	Theory, practice
3	CE as a sustainability enabler: Understanding the CE concept	Recommended readings from the VLE	Theory, practice
3	Sustainable Design and Construction Principles	Recommended readings from the VLE	Theory, practice
3	Introduction to lifecycle assessment	Recommended readings from the VLE	Theory, practice
3	Governing Circular Economy in the Urban Context	Recommended readings from the VLE	Theory, practice
3	Innovative construction materials and their sustainability factor	Recommended readings from the VLE	Theory, practice
3	New European Bauhaus Framework and EU Regulations and Policies	Recommended readings from the VLE	Theory, practice

Required Material (s) /Reading(s)/Text Book (s)	Recommended readings in the VLE Fundamentals of Sustainable Infrastructure & Circular Economy
Recommended Material (s) /Reading(s) /Other	

ASSESSMENT		
Activities/ Studies	**NUMBER**	**WEIGHT in %**
Quiz	7	30
Assignment (s)	N/A	0
Project/ Final Project/ Dissertation and Preparation	1	35
Laboratory / Practice (Virtual Court, Studio Studies, etc.)	N/A	0
Field Studies (Technical Visits)	N/A	0
Presentation/ Seminar	1	10
Examination/	1	25
Other (Placement/Internship etc.)		
TOTAL		**100**

ECTS (STUDENT/PARTICIPANT WORKLOAD)			
ACTIVITIES	**NUMBER**	**HOURS**	**TOTAL WORKLOAD**
Module Teaching Hours	7	3	21
Preliminary Preparation and finalizing of course notes, further self-study	7	2	14
Quiz and Preparation for the Quiz	7	3	21
Assignment (s)	N/A	N/A	N/A
Final Project/ Dissertation and Preparation	1	25	25
Practice (Laboratory, Virtual Court, Studio Studies, etc.)	N/A	N/A	N/A
Field Studies (Technical Visits, Investigate Visits, etc.)	N/A	N/A	N/A
Presentation/ Seminars	1	10	10
Examinations	1	10	10
Other (Placement/Internship etc.)	N/A	N/A	N/A
Total Workload	N/A	N/A	**101**
Total Workload/ 25	N/A	N/A	**4.04**
ECTS			**4**

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