



SUSTAIN-CE PROJECT

Module 6 Sustainable Water Resources Syllabus

COMMON SYLLABUS FOR MODULES/
COURSE MATERIALS



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SUSTAIN-CE Project

Output name: Module 6 Sustainable Water Resources Syllabus

Leading Partner:	YU
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Document Revision History

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

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COURSE MATERIAL SYLLABUS

Module Topic	Applicable Civil Engineering Area/Design Course	Module Code	Total Course Hour		University Credit	ECTS
Sustainable Water Resources	XXX	SUSTAIN-CE 06	Theory 3	Practice 0		3

Language of Instruction	English
Level of Course Material/Load Case/Module	<input type="checkbox"/> Associate Degree (Short Cycle) <input checked="" type="checkbox"/> Undergraduate (First Cycle) <input type="checkbox"/> Graduate (Second Cycle) <input type="checkbox"/> 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:

<p>Purpose and Background</p>	<p>The module consists of water resources sustainability, discusses challenges and specific examples of water resources systems, as well as examples of water resources unsustainability.</p> <p>Water resources management for sustainability introduces the idea of integrated water resources management, laws related to water resources, methodologies for both arid and semi-arid regions, economics, systems analysis techniques, and uncertainty and risk reliability analysis for sustainable design.</p>
<p>Module Content</p>	<p>Basic Concepts for Sustainable Hydrology, Climate Change, Drought and Sustainable Development, Sustainable Agriculture, Groundwater Sustainability, Water and Sustainable Development, Sustainable Hydraulic Structure Design, Dams and Sustainable Development, Water Resources Management for Sustainability, Water Resources Economics and Life Cycle Assessment</p>
<p>Learning Outcomes of the Course Material/Case Study/Module</p>	<ol style="list-style-type: none"> 1. Students will be able to understand the importance of sustainable water resources management and its impact on human life. 2. Students will be able to design sustainable hydraulic structures based on sustainable development concepts. 3. Students will be able to understand sustainable overland flow, groundwater and other hydrological cycle components for water resources development.

MODULE OUTLINE/SCHEDULE (In hours)			
Hours	Topics	Preliminary Preparation	Methodology and Implementation (theory, practice, assignment etc.)
3	Sustainable hydrology, Precipitation, Climate change, Drought and sustainable development	Recommended readings from the VLE	Theory, practice
3	Evaporation barriers, Infiltration and sustainable drainage system (SUDS) and Sustainable Agriculture	Recommended readings from the VLE	Theory
3	Groundwater sustainability, Streamflow and sustainable development	Recommended readings from the VLE	Theory
3	Water and sustainable development, Sustainable hydraulic structure design	Recommended readings from the VLE	Theory, practice
3	Dams and sustainable development, Sustainable flood protection,	Recommended readings from the VLE	Theory
	Water resources management for sustainability including -Integrated water resources management for sustainability -Water law: Surface and groundwater management aspects -Sustainable water supply methodologies for arid and semi-arid regions -Water resources economics -Water resource systems analysis -Life cycle assessment (LCA)	Recommended readings from the VLE	Theory

Required Material (s) /Reading(s)/Text Book (s)		Recommended readings in the VLE: Sustainable Water Resources Engineering	
Recommended Material (s) /Reading(s) /Other			
ASSESSMENT			
Activities/ Studies	NUMBER	WEIGHT in %	
Quiz	2	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	5	3	15
Preliminary Preparation and finalizing of course notes, further self- study	5	2	10
Quiz and Preparation for the Quiz	2	4	8
Assignment (s)	N/A	N/A	N/A
Final Project/ Dissertation and Preparation	1	20	20
Practice (Laboratory, Virtual Court, Studio Studies etc.)	N/A	N/A	N/A
Field Studies (Technical Visits, Investigate Visit 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	71
Total Workload/ 25	N/A	N/A	2,92
ECTS			3