



SUSTAIN-CE PROJECT

Module 4 The Role of Geotechnical Engineering in a Sustainable World Syllabus

COMMON SYLLABUS FOR MODULES/
COURSE MATERIALS



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SUSTAIN-CE Project

Output name: Module 4 The Role of Geotechnical Engineering in a Sustainable World Syllabus

Leading Partner:	IYTE/AUTH
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Document Revision History

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

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COURSE MATERIAL SYLLABUS

Module Topic	Applicable Civil Engineering Area/Design Course	Module Code	Total Course Hour		University Credit	ECTS
The Role of Geotechnical Engineering in a Sustainable World	XXX	SUSTAIN-CE 04	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:
Purpose and Background	Sustainability is undoubtedly the biggest challenge facing engineering in the 21 st century. Geotechnical engineers have a major impact on the natural environment and water resources by reforming the earth's surface, changing soil properties, and addressing contamination and often are involved in site selection for major infrastructure works, transport services, and buildings which can have a significant impact on the social and economic aspects of the project. This course discusses the relevance of sustainability objectives to geotechnical engineering and how geotechnical engineers may engage with the objectives during the design and construction process.	
Module Content	Environmentally Friendly Geotechnical Design, Long-term Performance of Foundations and Geomaterials, Integration of Sustainability in Geotechnical Practice, Mitigation of Natural Hazards, Infrastructure Development and Rehabilitation, Applications of Recycled and Low-Carbon Energy Materials to Geotechnical Structures, Resource Discovery and Recovery for Sustainable Geotechnical Engineering	
Learning Outcomes of the Course Material/Case Study/Module	Participants who complete this module will <ol style="list-style-type: none"> 1. Identify the importance of sustainable geotechnical design and its social, and environmental impacts. 2. Distinguish geotechnical design in terms of the sustainable development concept and circular economy. 3. Practice geotechnical design applications considering the functionality of geotechnical structure over time. 	

MODULE OUTLINE/SCHEDULE (In hours)			
Hours	Topics	Preliminary Preparation	Methodology and Implementation (theory, practice, assignment etc.)
3	Environmentally Friendly Geotechnical Design	Recommended readings from the VLE	Theory, practice
3	Long-term Performance of Foundations and Geomaterials	Recommended readings from the VLE	Theory, practice
3	Integration of Sustainability in Geotechnical Practice	Recommended readings from the VLE	Theory, practice
3	Applications of Recycled and Low-Carbon Energy Materials to Geotechnical Structures	Recommended readings from the VLE	Theory, practice
3	Resource Discovery and Recovery for Sustainable Geotechnical Engineering	Recommended readings from the VLE	Theory

Required Material (s) /Reading(s)/Text Book (s)	Recommended readings in the VLE: Role of Geotechnical Engineering in a Sustainable World
Recommended Material (s) /Reading(s) /Other	

ASSESSMENT		
Activities/ Studies	NUMBER	WEIGHT in %
Quiz	5	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	5	3	15
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	80
Total Workload/ 25	N/A	N/A	3,20
ECTS			3