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STUDY GUIDE

WATER RESOURCE MANAGEMENT IN AGRICULTURE

Organised by

University of Catania

Brandenburg University of Technology Cottbus - Senftenberg · Universidad de Cantabria · Università di Catania · Université Polytechnique Hauts-de-France · UMONS University of Mons · University of the Peloponnese · Vaasan yliopisto University of Vaasa · Politécnico de Viseu

1. IDENTIFYING DATA.	
· Course Name.	WATER RESOURCE MANAGEMENT IN AGRICULTURE
· Coordinating University.	University of Catania
· Partner Universities Involved.	[Indicate the name of the partner universities participating in the course, if any]
· Course Field(s).	Agricultural science and technology
· Related Study Programme.	Agricultural science and technology-LM69R
· ISCED Code.	081 = Agriculture
· SDG.	6-11-13
· Study Level.	Master (M)
· EUNICE Key Competencies	[Indicate the Key Competencies offered by the course.] • Green – strongly • Orange - moderately • Red – partially • Blank cell - not at all

Problem solving	
Teamworking	
Communication	
Self-management	
Cognitive flexibility	
Digital competence	
Technical competence	

	Global intercultural competence	

· Number of ECTS credits allocated.	6
· Mode of Delivery.	Online live
· Language of Instruction.	English
· Course Dates.	October-January
· Precise Schedule of the Lectures.	2 lectures of 3 hours each week
· Key Words.	Wastewater Treatment, Water Reuse, Sustainable Agriculture, Irrigation Water Quality, Constructed Wetlands, Water Resource Management, Environmental Engineering, Climate Change Adaptation
· Catchy Phrase.	Turning Wastewater into Resources: Sustainable Solutions for Agricultural Reuse

· Prerequisites and co-requisites.	Fundamentals of chemistry, biology, physics, mathematics and hydraulics
· Number of EUNICE students that can attend the Course.	10+10
· Number of EUNICE students that can attend the course per institution	2
· Course inscription procedure(s).	EUNICE Platform

2. CONTACT DETAILS.	
· Department.	Department of Agriculture, Food and Environment
· Name of Lecturer.	Feliciana Licciardello
· E-mail.	feliciana.licciardello@unict.it
· Other Lecturers.	[Indicate the names of other people who take part in lectures]

3. COURSE CONTENT.

Wastewater characteristics

Wastewater sources. Wastewater system network. Quality and quantity characteristics of wastewaters. Legislation on wastewater disposal and treatment.

Treatment and disposal systems

Natural treatment system: constructed wetland, lagooning and wastewater storage reservoir.

Wastewater reuse

Sanitary and agronomic effects of wastewater irrigation on soil and crops. Technological aspects of wastewater irrigation. Legislation on wastewater reuse. Illustration of case studies on disposal and reuse of wastewater by extensive techniques.

4. LEARNING OUTCOMES.

To acquire knowledge on the issues of wastewater natural treatment. The student will acquire knowledge about the regulatory limits for discharge and reuse of wastewater and the most innovative systems of extensive natural wastewater treatment. The student will acquire skills on the design of natural wastewater treatment systems.

5. OBJECTIVES.

To acquire knowledge on the issues of wastewater natural treatment. The student will acquire knowledge about the regulatory limits for discharge and reuse of wastewater and the most innovative systems of extensive natural wastewater treatment.

6. COURSE ORGANISATION.

UNITS

1.	Wastewater characteristics
2.	Traditional wastewater treatment
3.	Nature-based solutions for wastewater treatment
4.	Wastewater reuse

LEARNING RESOURCES AND TOOLS.

Books and course material

PLANNED LEARNING ACTIVITIES AND TEACHING METHODS.

Lectures, written exercises also in groups

7. ASSESSMENT METHODS, CRITERIA AND PERIOD.

Students will have to pass a written test and a final oral exam
The written test lasts 2 hours and is valid for 1 academic year.
During the written and oral tests, you may be asked to solve exercises on the topics covered during the course
Verification of learning can also be carried out electronically, if conditions should require it.
The evaluation of the student's preparation will be carried out on the basis of the following criteria: learning ability and details degree of the topics covered, synthesis and exposition skills, and the student's reasoning ability.

OBSERVATIONS.

8. BIBLIOGRAPHY AND TEACHING MATERIALS.

Treatment wetlands / Robert H. Kadlec and Scott Wallace. -- 2nd ed. p. cm. Sewage--Purification--Biological treatment. 2. Wetlands. I. Wallace, Scott. II. Title. Written by Kadlec, Robert H.
Biological Wastewater Treatment Series- VOLUME SEVEN- Treatment Wetlands. Written by:
IWA Task Group on Mainstreaming the Use of Treatment Wetlands. Gabriela Dotro, Günter Langergraber, Pascal Molle, Jaime Nivala, Jaume Puigagut, Otto Stein, Marcos von Sperling.