

SYLLABUS

1. Information regarding the programme

1.1 Higher education institution	Babes Bolyai University Cluj-Napoca
1.2 Faculty	Geography
1.3 Department	Physical and Technical Geography
1.4 Field of study	Geography
1.5 Study cycle	Master
1.6 Study programme / Qualification	Climate Change and Sustainable Development

2. Information regarding the discipline

2.1 Name of the discipline	Management, Treatment and Recovery of the Waste						
2.2 Course coordinator	Lect. Eng. Cristina Modoi, PhD						
2.3 Seminar coordinator	Lect. Eng. Cristina Modoi, PhD						
2.4. Year of study	2	2.5 Semester	3	2.6. Type of evaluation	Exam	2.7 Type of discipline	Mandatory

3. Total estimated time (hours/semester of didactic activities)

3.1 Hours per week	4	Of which: 3.2 course	2	3.3 seminar/laboratory	1/1
3.4 Total hours in the curriculum	42	Of which: 3.5 course	28	3.6 seminar/laboratory	14/14
Time allotment:					hours
Learning using manual, course support, bibliography, course notes					20
Additional documentation (in libraries, on electronic platforms, field documentation)					24
Preparation for seminars/labs, homework, papers, portfolios and essays					20
Tutorship					2
Evaluations					4
Other activities:					
3.7 Total individual study hours	50				
3.8 Total hours per semester	126				
3.9 Number of ECTS credits	5				

4. Prerequisites (if necessary)

4.1. curriculum	
4.2. competencies	

5. Conditions (if necessary)

5.1. for the course	Laptop, video system
5.2. for the seminar /lab	Laptop, video system

activities	
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6. Specific competencies acquired

Professional competencies	<p>Municipal waste management concepts</p> <p>General principles of the waste management</p> <p>Waste recovery and recycling</p> <p>Energy recovery from the waste</p>
Transversal competencies	<p>Analyzing, assessing and structuring the processes of collection, transport, treatment, recovery, recycling, composting and disposal of waste in order to reduce the environmental impact.</p>

7. Objectives of the discipline (outcome of the acquired competencies)

7.1 General objective of the discipline	<p>Acquire the theoretical and practical knowledge in the field of waste management;</p> <p>Knowledge about waste collection, transport, treatment, recovery, recycling, and landfills</p>
7.2 Specific objective of the discipline	<p>Analysis of the urban waste management process</p> <p>Reduce the environmental impact of the municipal solid waste</p> <p>The emphasis on the importance of efficient waste management in industry and in other economic branches</p>

8. Content

8.1 Course	Teaching methods	Remarks
General. Definitions. Objectives Wastes classification	Lecture Interactive discussions Observations	
General principles of wastes management Collection and transportation of the wastes Health-care wastes management	Lecture Interactive discussions Observations	
Management of the biodegradable wastes. Landfill vs recovery & recycling	Lecture Interactive discussions Observations	
Aerobic composting and anaerobic digestion of the biodegradable wastes.	Lecture Interactive discussions Observations	
Biodiesel from used oil. Paper recycling	Lecture Interactive discussions Observations	
Other wastes recovery and recycling: plastic, rubber, leather	Lecture Interactive discussions Observations	
Recycling of the construction and demolition wastes	Lecture Interactive discussions Observations	

Waste Electrical and Electronic Equipment	Lecture Interactive discussions Observations	
Hazardous wastes in the municipal solid wastes. Health-care wastes	Lecture Interactive discussions Observations	
Thermal treatments of the wastes: Pyrolysis, Gasification, Incineration. Coincineration in the cement industry.	Lecture Interactive discussions Observations	
Industrial wastes management. Hazardous wastes.	Lecture Interactive discussions Observations	

Bibliografie

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8.2 Seminar / laboratory	Teaching methods	Remarks
Analysis of waste management process	Group activities	
Analysis of process biodegradable waste management	Group activities	
Study of biodegradation of the organic waste in aerobic environment	Group activities; experiment	
Study of biodegradation of the organic waste in anaerobic environment	Group activities; experiment	
Analysis of process of solid waste management: plastic waste and textile waste	Group activities	
Analysis of process of solid waste management: metal and paper wastes	Group activities	
Analysis of process of solid waste management: rubber and glass wastes	Group activities	
Analysis of industrial waste management processes, including hazardous wastes	Group activities	

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9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program

The studied subjects aim to bring the master students up to date with the topic of waste processing, and the main waste processing technologies applied in the country and abroad.
The master's students will also acquire the ability to carry out consulting activities, skills appreciated by the representative employers in the field related to the program.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Share in the grade (%)
10.4 Course	Presence		
	Activity	Written exam and theoretical questions.	Exam (Note E) 50%
10.5 Seminar/lab activities	Presence		
	Activity	Problem solving	Laboratory 25% Seminar (Note S) 25%
10.6 Minimum performance standards: N=0,5E+0,25S+0,25P; N>5; S>5; P>5			

Date

Signature of course coordinator

Signature of seminar coordinator

April 2022

Lect.dr.ing. Cristina Modoi

Lect.dr.ing. Cristina Modoi

Date of approval

Signature of the head of department

12.10.2022

