



No. _____ of _____

USAMV form 0107030109

SUBJECT OUTLINE**1. Information on the programme**

1.1. Higher education institution	University of Agricultural Sciences and Veterinary Medicine of Cluj-Napoca
1.2. Faculty	Agriculture
1.3. Department	Environmental and Plant protection
1.4. Field of study	Environmental Engineering
1.5. Cycle of study ¹	Bachelor
1.6. Specialization/ Study programme	Environmental Engineering
1.7. Form of education	Full time

2. Information on the discipline

2.1. Discipline name		Waste management II						
2.2. Course coordinator				PhD Lecturer Brașovean Ioan				
2.3. Seminar / laboratory / project coordinator				PhD Lecturer Brașovean Ioan				
2.4. Year of study	III	2.5. Semester	II	2.6. Evaluation type	summative	2.7. Discipline status	Content ²	DS
							Compulsoriness ³	DI

3. Total estimated time (teaching hours per semester)

3.1. Hours per week – full time programme	4	out of which: 3.2. lecture	2	3.3. seminar / laboratory / project	3
3.4. Total number of hours in the curriculum	56	out of which: 3.5. lecture	28	3.6. seminar / laboratory	28
Distribution of the time allotted					hours
3.4.1. Study based on books, textbooks, bibliography and notes					20
3.4.2. Additional documentation in the library, electronic platforms and field experiences					10
3.4.3. Preparing seminars / laboratories / projects, subjects, reports, portfolios and essays					20
3.4.4. Tutorials					4
3.4.5. Examinations					10
3.4.6. Other activities					
3.7. Total hours of individual study	64				
3.8. Total hours per semester	120				
3.9. Number of credits ⁴	4				

4. Prerequisites (if applicable)

4.1. curriculum-related	Monitoring risk events , General environmental issues
4.2. skills-related	The student must have knowledge on ecology, technological disciplines, renewable energy, industry impact on environment

5. Conditions (if applicable)

5.1. for the course	The course is interactive, students can address questions regarding the exposed content. The university discipline impose respecting the beginning and finalizing hours of the course. Are not tolerated other activities during lecture, mobile phones are to be turned off.
---------------------	---

5.2. for the seminar/ laboratory/ project	The practical work is mandatory the course note and practical work, each student will develop an individual activity with laboratory materials made on. Academic conduit is required during the works.
---	--

6. Cumulated specific competences

Professional competences	Providing integrated environment services. Studies and specialized expertise and consultations to develop plans county / regional waste management. Management and rational use of renewable natural resources. Education and scientific research in the field.
Transversal competences	Knowledge of principles and strategic objectives regarding waste management; Learning the strategies and techniques used in developed economies to recover and reuse of material resources;

7. Discipline objectives (based on the cumulated specific competences)

7.1. General objective	Department of Waste Management aims theoretical and practical training of students in order to seek and retain principles and strategic objectives on waste management, rules and general legislative acts harmonized with the <i>acquis communautaire</i> through the implementation of <i>Community policy</i> in waste management field.
7.2. Specific objectives	It aims at training strategies and techniques used in developed economies to recover and reuse of material resources from the current management recycling reusable materials in Romania, everything in correlation with the principles that influence and ensure quality and protect the environment and human health.

8. Content

8.1. COURSE Number of hours -	Teaching methods	Observation
I. WASTE MANAGEMENT PLANNING IN THE EU MEMBER STATES: 1.1 Legal framework - legislation 1.2 Potential recyclable materials in Europe 1.3 Existing provisions for waste management plans 1.4 Existing rules on the obligation to develop waste management plans 1.5 Division of powers in terms of waste management planning 1.6 Method of implementation of the planned waste management 1.7 Procedures for drawing up waste management plans in some EU countries 1.8 The contents of waste management plans	Lecture and exemplification	2 lecture
II. EU STRATEGY FOR THE MANAGEMENT OF RECYCLING REUSABLE MATERIALS: 2.1 Achievements in the field of recycling reusable materials management 2.1 2.2 Main Guidelines of Community policy on the management of recycling reusable materials	Lecture and exemplification	1 lecture
III. CHARACTERISTICS AND DIRECTIONS OF RECYCLING MANAGEMENT OF REUSED MATERIALS IN EU MEMBER STATES: 3.1 relations and social directions 3.2 Relations and technological directions 3.3 relations and policy directions	Lecture and exemplification	1 lectures
IV. ESTABLISHMENT OF MANAGEMENT RECYCLING PROGRAMS OF REUSABLE MATERIALS: 4.1 Feeds priority recyclable materials and waste 4.2 Preventing and minimizing waste generation 4.3 Disposal of recyclable materials 4.4 Making waste composting 4.5 Units specialized in the management of recyclable materials 4.6 Transport and transfer of recyclable materials 4.7 Means to improve waste management	Lecture and exemplification	2 lectures
V. REUSABLE MATERIALS WASTE MANAGEMENT IN ROMANIA: 5.1 The general framework of work in Central and Eastern Europe	Lecture and exemplification	2 lectures

<p>5.2 The place and role of recycling and reusable materials in the national sustainable development strategy</p> <p>5.3 normative-legislative framework in our country</p> <p>5.4 Organization of recycling</p> <p>5.5 The main streams of recyclable materials and waste</p> <p>5.6 Achievements in the field of recycling reusable materials</p> <p>5.7 Alternatives to increase the recovery rate and recovery of recyclable materials</p> <p>VI. COMPOST – A SOLUTION TO THE WASTE ISSUE :</p> <p>6.1 The importance of composting</p> <p>6.2 Natural Substrates and how to use them</p> <p>6.3 artificial substrates and how to use them</p> <p>6.4 Use of compost in economic and productive activity</p> <p>VII. COMPOSTING TEHNOLOGIES :</p> <p>7.1 Method of Composting</p> <p>7.2 Achievements in domestic composting technology</p> <p>7.3 Modern technologies of composting</p> <p>7.4 Perspectives in composting</p> <p>VIII. COMPOSTING HOUSEHOLD AND GARDEN WASTE</p> <p>8.1 Requirements for operating sites and standards</p> <p>8.2 The activity of regional composting of source separated waste collection</p> <p>8.3 Ecological quality compost</p> <p>8.4 Usage of biocomposturilor</p> <p>8.5 Biocompost residues. Composting Process Control</p>	<p>Lecture and exemplification</p> <p>Lecture and exemplification</p> <p>Lecture and exemplification</p>	<p>2 lectures</p> <p>2 lecture</p> <p>2 lectures</p>
---	--	--

8.2. PRACTICAL WORKS Number of hours -	Teaching methods	Observation
I CASE STUDY: HAZARDOUS WASTE LANDFILLS (HCM) IN THE TURDA AREA	Exemplification	2 seminar
II. CASE STUDY: ENVIRONMENTAL IMPACT ASSESMENT DUE TO LANDFILL HOUSEHOLD WASTE IN PATA RAT FOR ESTABLISHING REMEDIATION MEASURES	Exemplification	1 seminar
III. CASE STUDY: DANGEROUS WASTE MANAGEMENT S.C. TERAPIA S.A. , JUDEȚUL CLUJ	Exemplification	1 seminar
IV. CASE STUDY : COMPOSTING HOUSEHOLD AND GARDEN WASTE, BIHOR COUNTY	Exemplification	2 seminar
ELABORARE PROIECT	Exemplification	2 seminar
I. PRODUCER'S CHOICE (GENERATOR) OF WASTE:		
1.1 Overview	Exemplification	2 seminar
II. WASTE MANAGEMENT:		
2.1 Description of the waste producer	Exemplification	2 seminar
2.2 Objectives of waste management		
2.3 Generated and their evolution over the period 1995-2005		
2.4 The obligations of the waste producer		
2.5 Composition of waste generated		
2.1 2.6 Separate collection - selective collection targets		
III. WASTE TREATMENT:	Exemplification	2 seminar
3.1 Composting (biodegradable)		
3.2 Crushing		
Other methods		
IV. Recyclers	Exemplification	
4.1 Waste Recycling - Chemical - mechanical	Exemplification	
V. WASTE DISPOSAL:		
5.1 Methods of disposal		
VI. WASTE INCINERATION	Exemplification	
• The purpose of incineration		
•Advantages and disadvantages		
VII. TRANSPORT OF GENERATED WASTE:	Exemplification	
7.1 Obligations of waste transporters		
VIII. WASTE LANDFILLED:	Exemplification	
8.1 Types of deposits and proper classification of waste at landfills		
8.2 Provisions and obligations on waste disposal		
8.3 General requirements for landfill		

<ul style="list-style-type: none"> - Siting - Analysis sites - Requirements for design and development <p>8.4 Storage in ecological conditions 8.5 Rehabilitation of the existing landfill IX. METHODS, SYSTEMS AND TECHNOLOGY FOR TREATMENT, REUSE AND STORAGE X. MEASURES TO ELIMINATE THE IMPACT OF THE CURRENT SYSTEM OF WASTE MANAGEMENT XI. SUPPORTING THE PROJECT</p>		
<p><i>Compulsory bibliography: Compulsory references:</i></p> <p>1. Dorobanțu Michaela, Ernő Domokos, 2001 – <i>Reciclarea deșeurilor – resursă materială importantă și cale fezabilă de protecție a mediului înconjurător</i>, Ed. Presa Universitară Clujeană, Cluj-Napoca 2. Sima C și colegii, 1998 – <i>Managementul materialelor re folosibile</i>, Ed. Științifică și Enciclopedică, București 3. Oroian Ioan – <i>Note de curs</i> 4. Prorocu Marian, 2005 – <i>Gestionarea deșeurilor</i>, Ed. Napoca Star, Cluj-Napoca 5. Răducanu V. și colegii, 1999 – <i>Promovarea reciclării materialelor re folosibile – factor al dezvoltării durabile a României</i>, Ed. Politică, București 6. Sărac I., 2002 – <i>Compostul, o soluție la problematica deșeurilor</i>, Ed. Treirea, Oradea</p> <p><i>Optional references:</i></p> <p>1. <i>Monitorul Oficial al României</i>, nr.954/2004 ; 304/1995 ; 70/2000 ; 411/2001; 066/2001; 148/2004 ; 160/2004 ; 659/2002 ; 446/2001 ; 715/2003 ; 700/2001 ; 164/2002 ; 150/2003 ; 160/2002 ; 269/2002 ; 002/2003 ; 131/2000 ; 459/2002 ; 893/2002 ; 386/2002; 211/2011</p>		

9. Corroborating the discipline content with the expectations of the epistemic community representatives, of the professional associations and of the relevant employers in the corresponding field

In order to identify ways of modernization and continuous improvement of teaching and course content with the current issues and practical problems, teachers participate in establishing and sustaining relations of cooperation, with a view to exchanging experience, conducting demonstrations and internships for students with economic society state and / or private, where NGOs will be discussed current and future issues in terms of human health and the environment

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation type	10.3. Percentage of the final grade
10.4. Course	<ul style="list-style-type: none"> -knowledge principles and strategic objectives regarding waste management; -knowledge the strategies and techniques used in developed economies to recover and reuse of material resources; -the change of mentality and attitude shaping of future specialists in engineering and environmental protection on the "ecological crisis" and the current so-called "diseases of civilization" 	summative(E)	50%
10.5. Seminar/Laboratory	<ul style="list-style-type: none"> - Case studies "in situ" - Creating plans for waste management - practical demonstration 	<ul style="list-style-type: none"> -Case studies; - Developing individual plans for waste management at the county level - project 	30% 20%
10.6. Minimum performance standards			
Mastering the scientific information transmitted through lectures and practical work at an acceptable level. Obtaining the pass mark on continuous assessment is the condition of graduation.			

¹ Cycle of studies - choose one of the three options: Bachelor/Master/Ph.D.

² according to the educational plan

³ Discipline status (compulsoriness) - choose one of the options - DI (compulsory discipline) DO (optional discipline) DFac (facultative discipline).

One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on
04.09.2019

Course coordinator
PhD Lecturer Braşovean Ioan

Laboratory work/seminar coordinator
PhD Lecturer Braşovean Ioan

Approved by the
department on
05.09.2019

Head of the Department
Prof. PhD. Ioan Oroian