



No. _____ of _____

USAMV form 0107030106

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	Environmental impact assessment							
2.2. Course coordinator	Associate Professor PhD Tania MIHĂIESCU							
2.3. Seminar/ laboratory/ project coordinator	Associate Professor PhD Tania MIHĂIESCU							
2.4. Year of study	III	2.5. Semester	I	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	2
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					15
3.4.2. Additional documentation in the library, electronic platforms and field experiences					8
3.4.3. Preparing seminars/ laboratories/ projects, subjects, reports, portfolios and essays					15
3.4.4. Tutorials					2
3.4.5. Examinations					4
3.4.6. Other activities					
3.7. Total hours of individual study	44				
3.8. Total hours per semester	100				
3.9. Number of credits ⁴	4				

4. Prerequisites (if applicable)

4.1. curriculum-related	Soil science, Ecology 1 and 2, Biodiversity management, Ecological management, Environmental chemistry
4.2. skills-related	Team communication skills, organization, and use of the internet as a resource.

5. Conditions (if applicable)

5.1. for the course	The course is interactive, students can ask questions about the content of the exhibition. Academic conduct is required for the entire duration of the lecture. No other activities are tolerated during the lecture, mobile phones must be switched off. Room equipped with computer, video projector, Internet access, blackboard.
5.2. for the project	Room equipped with computer, video projector, Internet access, blackboard. Academic conduct is required for the entire duration of the work.

6. Cumulated specific competences

Professional competences	<p>Defining the fundamental concepts necessary for applying environmental impact assessment theories and methodology;</p> <p>Applying the basic scientific knowledge in defining and explaining the specific concepts for environmental impact assessment;</p> <p>Qualitative and quantitative analysis of natural phenomena and technological processes to prevent and reduce the impact on the environment;</p> <p>Explaining and interpreting the basic concepts, methods and models in environmental impact assessment problems;</p> <p>Appropriate application of environmental impact assessment methods to reduce pollution;</p> <p>Knowledge and application of methods to reduce the impact on the environment</p> <p>Establish criteria for comparative evaluation of activities with potential pollutants</p> <p>Use of concepts, theories and calculation methods for the elaboration of professional projects (impact studies, environmental assessment reports etc.);</p> <p>Defining elementary concepts related to impact and risk assessment and developing technological solutions for pollution prevention and control;</p> <p>Use of environmental engineering knowledge to assess the performance of an industrial technological process in accordance with environmental legislation;</p> <p>Development of projects, formation of several institutional teams to identify and implement appropriate solutions for specific environmental problems.</p>
Transversal competences	<p>Identifying and observing the rules of professional ethics and deontology, taking responsibility for the decisions taken and the risks involved;</p> <p>Defining and respecting the competences of the team, distributing responsibilities to the team members and solidarity in assuming responsibilities;</p> <p>Efficient use of information sources and resources for communication and assisted professional training (portals, Internet, specialized software applications, databases, online courses, etc.) both in Romanian and in a language of international circulation.</p>

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

7.1. General objective	<p>Formation of the knowledge, skills and skills needed to evaluate the impact in the current socio-economic context.</p> <p>Assimilation the methodology of investigating the environmental impact, carrying out impact studies / environmental assessment / strategic environmental assessment.</p>
7.2. Specific objectives	<p>Acquiring knowledge regarding the general notions related to environmental impact assessment; anthropic impact and effects on environmental components; the common methods and techniques of evaluation and investigation of environmental impact; the characteristics of the environmental impact assessment (EIA) process and the methodological stages of the EIA and ESM procedure; obtaining useful information for drawing up and writing an impact study; operational and legislative principles regarding environmental impact assessment; the process of public participation and consultation; environmental legislation related to the environmental impact assessment procedure;</p> <p>Obtaining theoretical and practical knowledge for investigating real or potential environmental events, evaluating their significance.</p> <p>Familiarization with and acquiring of the working protocol specific to each stage within the evaluation methodologies: identification, evaluation of the probability of production and the magnitude of an environmental event, ranking and significance level, management of the procedures (general and specific), information / evidence environment.</p> <p>Acquiring working techniques, acquiring knowledge of the use of computer programs for analysis, data processing and presentation of results; interpretation of the ecological significance of the results obtained.</p>

8. Content

8.1. COURSE Number of hours – 28	Teaching methods	Observation
1. The concept of environmental impact	oral lectures with interactive sections	2 hours
2. Legislative framework for environmental impact assessment		2 hours
3. The process of environmental impact assessment for an investment project (impact study)		4 hours
4. The process of environmental impact assessment for existing activities with significant environmental impact (environmental assessment)		2 hours
5. The process of environmental impact assessment under the conditions of the Industrial Emissions Directive (FDI Directive)		2 hours
6. Strategic Environmental Assessment (ESM)		4 hours

7. Public participation in the Environmental Impact Assessment Procedure	2 hours
8. Environmental indicators	4 hours
9. Methods for environmental impact assessment	6 hours

8.2. PRACTICAL WORKS Number of hours – 28	Teaching methods	Observation
1. Organizing the working groups and choosing the project themes. - Impact assessment study for an investment objective with significant impact on the environment. - Level I environmental report - Level II environmental report.	Oral lecture with interactive sections. Debate	2 hours
2. Reference norms with reference to the procedure for evaluating the anthropic impact and the methodology for conducting the impact studies.	Oral lecture with interactive sections	2 hours
3. Authorization methodology; procedures for carrying out the environmental study with / without the compliance program and the impact study	Oral lecture with interactive sections.	2 hours
4. Documentation on the activities that are carried out within the investment objective selected for the project theme. Making the necessary materials for the impact study.	Practical application. Individual study. Teamwork.	4 hours
5. Methods of qualitative assessment of the environmental impact: Checklist, identification matrix. Preparation of the checklist and the matrix of identification of the critical points for the chosen topics.	Presentation, Case study. Practical application. Brainstorming. Teamwork. Debate	4 hours
6. Use of Leopold's Matrix for impact assessment. Preparation of the matrix for the chosen topics. Quantifying the probability of production and the magnitude of an environmental event; issue of impact notes. Analysis of the significance of the impact based on the impact notes.	Presentation, Case study. Practical application. Brainstorming. Teamwork. Debate	2 hours
7. Environmental evaluation criteria - evaluation of technologies in relation to the technologies recommended by BAT. Work in a group on the chosen project theme.	Presentation, Case study. Practical application. Brainstorming. Teamwork. Debate	2 hours
8. Assessment of cumulative environmental impacts - Rojanschi method. Teamwork on the chosen project theme.	Presentation, Case study. Practical application.	2 hours
9. Methodology of preparing the Declaration file for environmental agreement or authorization / Impact assessment report / Environmental study / Site report. Framework content. Teamwork on the chosen project theme.	Presentation, Case study. Practical application. Brainstorming. Teamwork. Debate	2 hours
10. Simulation of a public support and debate of the report on the impact study. The students present a report on the impact study, with role involvement (evaluator, environmental protection authority, project holder, NGO, etc.).	Role play. Debate	2 hours
11. Evaluation of projects	Project presentation	4 hours
Compulsory bibliography:		
1. Mihălescu Tania, 2019, <i>Environmental impact assessment, Course notes</i>		
Optional bibliography:		
1. Barrow, C., J. W, 1997, <i>Environmental and Social Impact Assessment</i> , John Wiley&Sons, New York.		
2. Glasson, J., Therivel, R. and Chadwick, A. 1994. <i>Introduction to Environmental Impact Assessment</i> . UCL Press Ltd, London, ISSN 1-85728-118-7 PB.		
3. Muntean, D. L, 2005, <i>Evaluarea Impactului antropic asupra mediului</i> , Ed. Casa Cărții de Știință Cluj-Napoca		
4. Rojanschi, V., Bran, F., Diaconu, S., Grigore, F., 2004, <i>Evaluarea Impactului Ecologic și Auditul de Mediu</i> , Editura ASE, București.		
5. Rusănescu, C. O., Rusănescu, M., 2016, <i>Evaluarea impactului ecologic</i> , Ed. Matrix, București.		
6. Therivel, R., Wilson, E., Thompson, S., 1992, <i>Strategic Environmental Assessment RSPB/Earthscan.</i>		

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

By acquiring the theoretical-methodological concepts and approaching the practical aspects included in the discipline The environmental impact assessment students acquire a consistent knowledge bag, in accordance with the partial competences required for the possible occupations provided in Grid 1 - RNCIS. The activities carried out by the students will follow the development of the individual work capacities, of analysis and interpretation of the results, of the capacity to offer solutions to practical problems. The discipline responds concretely to the current requirements of development and evolution at national and international level of the higher education, as well as of the economic environment in the field of environmental

engineering.

The discipline sheet is related to similar study programs of other universities in Romania and Europe that apply the Bologna system.

The fields of activity concerned are practically unlimited, the possible employers targeted being both from the educational environment, public institutions at central (ministries) and local (county and municipal councils), Environmental Agencies, Romanian Water Administration, Environmental Guard, research-development environment, but also organizations / associations / societies certified for the elaboration of Impact studies etc. or providing consulting in the field of engineering and environmental protection or national / international / multinational companies.

The skills acquired will be needed for the employees who carry out their activity in the field of environmental engineering, in all the phases of design, execution, operation and monitoring of environmental factors. The implications of the topics addressed during the course relate to the profoundly engineering-applied side of the engineering profession.

The students are provided with adequate competences with the needs of current qualifications, an adequate scientific and technical training, which will allow them to quickly enter the labor market after graduation, but also the possibility of continuing their studies through masters and doctoral programs.

The study program is part of USAMV Cluj policy and strategy, both in terms of content and structure, as well as in terms of international aptitude and openness offered to students.

10. Evaluation

Type of activity	10.1. Evaluation criteria	10.2. Evaluation type	10.3. Percentage of the final grade
10.4. Course	The correctness of the answers, the learning and understanding of the problems dealt with in the course.	summative(E) Written exam (multiple choice test)	60%
10.5. Project	Scientific content, Compliance with the content of the framework and the drafting criteria. Vocabulary and coherence in expression; framing the presentation in time; originality of the presentation mode	Project oral presentation	40%

10.6. Minimum performance standards

Course

Fulfillment of at least 50% of the evaluation criteria for the course.

Definition of concepts: impact on the environment; environmental agreement / integrated environmental agreement; environmental impact assessment; strategic environmental assessment; public participation. Stages of the environmental impact assessment procedure; Enumeration: participants in the EIA and ESM procedure; principles of public involvement; the means of informing the public; advantages of public participation in the EIA and ESM procedure; EIM methods; environmental indicators air, water, soil.

Project

Developing an individual project, in accordance with the chosen theme (impact assessment study, environmental study/report) regarding the identification of pollution sources, impact and risk assessment and proposing a technological solution in accordance with BAT / BREF requirements. The project must be delivered on time and presented.

Obtaining the mark of at least 5 in the project is a condition for entering the exam.

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).

⁴ One credit is equivalent to 25-30 hours of study (teaching activities and individual study).

Filled in on
04.09.2019

Course coordinator
Associate Professor PhD Tania MIHĂIESCU

Laboratory work/seminar coordinator
Associate Professor PhD Tania
MIHĂIESCU

Approved by the
department on
05.09.2019

Head of the Department
Professor PhD Ioan OROIAN