

SYLLABUS ¹

1. Information about the program

1.1 Higher education institution	Politehnica University Timisoara
1.2 Faculty ² / Department ³	Civil Engineering Faculty/Department of Land Communication Ways, Foundations and Cadastre
1.3 Chair	—
1.4 Field of study (name/code ⁴)	Civil Engineering/80
1.5 Study cycle	Bachelor
1.6 Study program (name/code/qualification)	Civil Engineering (in English)/10/Engineer

2. Information about the discipline

2.1 Name of discipline/ formative category ⁵	Introduction to Environmental Engineering/DD						
2.2 Coordinator (holder) of course activities	Lecturer PhD. Eng. Ciopec Alexandra						
2.3 Coordinator (holder) of applied activities ⁶	Lecturer PhD. Eng. Ciopec Alexandra						
2.4 Year of study ⁷	II	2.5 Semester	4	2.6 Type of evaluation	D	2.7 Type of discipline ⁸	DI

3. Total estimated time – hours / semester: direct teaching activities (fully assisted or partly assisted) and individual training activities (unassisted) ⁹

3.1 Number of fully assisted hours / week	2 of which:	3.2 course	2	3.3 seminar / laboratory / project	
3.1* Total number of fully assisted hours / semester	28 of which:	3.2* course	28	3.3* seminar / laboratory / project	
3.4 Number of hours partially assisted / week	of which:	3.5 training		3.6 hours for diploma project elaboration	
3.4* Total number of hours partially assisted / semester	of which:	3.5* training		3.6* hours for diploma project elaboration	
3.7 Number of hours of unassisted activities / week	1 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			
		hours of individual study after manual, course support, bibliography and notes			0.5
		training seminars / laboratories, homework and papers, portfolios and essays			0.5
3.7* Number of hours of unassisted activities / semester	14 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			
		hours of individual study after manual, course support, bibliography and notes			7
		training seminars / laboratories, homework and papers, portfolios and essays			7
3.8 Total hours / week ¹⁰	3				
3.8* Total hours /semester	42				
3.9 Number of credits	2				

4. Prerequisites (where applicable)

4.1 Curriculum	• Biology, Chemistry, Geography, Soil Mechanics, Surveying
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¹ The form corresponds to the Discipline File promoted by OMECTS 5703 / 18.12.2011 and to the requirements of the ARACIS Specific Standards valid from 01.10.2017.

² The name of the faculty which manages the educational curriculum to which the discipline belongs

³ The name of the department entrusted with the discipline, and to which the course coordinator/holder belongs.

⁴ The code provided in HG no.140 / 16.03.2017 or similar HGs updated annually shall be entered.

⁵ Discipline falls under the educational curriculum in one of the following formative disciplines: Basic Discipline (DF), Domain Discipline (DD), Specialist Discipline (DS) or Complementary Discipline (DC).

⁶ Application activities refer to: seminar (S) / laboratory (L) / project (P) / practice/training (Pr).

⁷ Year of studies in which the discipline is provided in the curriculum.

⁸ Discipline may have one of the following regimes: imposed discipline (DI), optional discipline (DO) or optional discipline (Df).

⁹ The number of hours in the headings 3.1 *, 3.2 *, ..., 3.8 * is obtained by multiplying by 14 (weeks) the number of hours in headings 3.1, 3.2, ..., 3.8. The information in sections 3.1, 3.4 and 3.7 is the verification keys used by ARACIS as: (3.1) + (3.4) ≥ 28 hours / wk. and (3.8) ≤ 40 hours / wk.

¹⁰ The total number of hours / week is obtained by summing up the number of hours in points 3.1, 3.4 and 3.7.

4.2 Competencies	<ul style="list-style-type: none"> Using the scientific engineering fundamentals
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5. Conditions (where applicable)

5.1 of the course	<ul style="list-style-type: none"> Amphitheatre and support materials: laptop, projector, screen, blackboard
5.2 to conduct practical activities	<ul style="list-style-type: none">

6. Specific competencies acquired through this discipline

Specific competencies	<ul style="list-style-type: none"> Understand fundamental concepts to the major areas of environmental engineering
Professional competencies ascribed to the specific competencies	<ul style="list-style-type: none"> Technological and economical design for the erection, operation and maintenance works in civil engineering, specific to graduated study programme Organization and management of the execution, operation and maintenance procedures for civil, industrial and agricultural constructions Complying to quality and sustainable requirements for civil, industrial and agricultural constructions
Transversal competencies ascribed to the specific competencies	<ul style="list-style-type: none"> Documentation in Romanian and foreign language, in view of professional and personal development, via continuous learning and efficient adaptation to the new technical specifications

7. Objectives of the discipline (based on the grid of specific competencies acquired - pct.6)

7.1 The general objective of the discipline	<ul style="list-style-type: none"> The lecture's objective is to initiate the student in the environmental engineering. It aims to provide a brief look at the history and future of environmental engineering and presents examples of the complex issues that surround identifying and solving environmental problems. Also, the lecture presents a review of an introduction to basic concepts: dimensions and units, density, concentration, flow rate, retention time and approximations.
7.2 Specific objectives	<ul style="list-style-type: none"> Environmental engineering applies the fundamental concepts to the major areas of environmental engineering. After completion of the lecture students should be able to recognize some of the most fascinating reactions that occur in ecosystems, to define ecosystems, to know the types and sources of air and water pollutants and the students have basis elements for designing a landfill.

8. Content ¹¹

8.1 Course	Number of hours	Teaching methods ¹²
Natural Environment (Terminology and Concept, Earth's Components, Ecosystems, Biomes, Wilderness, Environmental Protection)	4	Lecturing, conversation, explanation
Managing the Environment and the Resources (Major Environmental and Resource Challenges, Integrated Pollution Control, Changes	6	

¹¹ It details all the didactic activities foreseen in the curriculum (lectures and seminar themes, the list of laboratory works, the content of the stages of project preparation, the theme of each practice stage). The titles of the laboratory work carried out on the stands shall be accompanied by the notation "(*)".

¹² Presentation of the teaching methods will include the use of new technologies (e-mail, personalized web page, electronic resources etc.).

in Energy Supply, Adapting to Climate Change, Air and Atmosphere, Freshwater, Seas, Oceans and Coasts, Soil, Landscape and Wilderness, Minerals, The Kyoto Protocol)		
Ecosystems (Ecosystem Types, Components of an Ecosystem, The Raw Materials of an Ecosystem, Biodiversity of an Ecosystem)	6	
Air Pollution (Pollutants, The Air Quality Index, Monitoring the Air Quality, Indoor Air Quality, Legal Regulations)	4	
Water Pollution (Water Pollution Categories, Materials and Phenomena Contributing to Water Pollution, Water Treatment, Sewage Treatment, Ocean Pollution)	4	
Solid Waste Management (Modern Landfills and Environmental Protection, Regulations for Waste Landfill Design)	4	
Bibliography ¹³		
<ol style="list-style-type: none"> 1. B. Cososschi-Impactul transporturilor asupra mediului, Cermi Publishing House, Iasi, Romania, 1998 2. V. Arad, I. Bogdan-Constructii geotehnice de protectia mediului, Focus Publishing House, Petrosani, Romania, 2002 3. M.L. Davis, S.J. Masten-Principles of Environmental Engineering and Science, McGraw-Hill Publishing House, New York, USA, 2004 4. St.N. Iosip-Mot-Protectia mediului, Marineasa Publishing House, Timisoara, Romania, 2005 5. P.A. Vesilind, S.M. Morgan, L.G. Heine- Introduction to Environmental Engineering, CENGAGE Learning, USA, 2010 6. A. Ciopec-Introduction to Environmental Engineering, Politehnica Publishing House, Timisoara, Romania, 2012 		
8.2 Applied activities ¹⁴	Number of hours	Teaching methods
Bibliography ¹⁵		

9. Corroboration of the content of the discipline with the expectations of the main representatives of the epistemic community, professional associations and employers in the field afferent to the program

¹³ At least one title must belong to the discipline team and at least one title should refer to a reference work for discipline, national and international circulation, existing in the UPT library.

¹⁴ Types of application activities are those specified in footnote 5. If the discipline contains several types of applicative activities then they are sequentially in the lines of the table below. The type of activity will be in a distinct line as: "Seminar:", "Laboratory:", "Project:" and / or "Practice/training".

¹⁵ At least one title must belong to the discipline team.

- The discipline is in accordance with the ability of the civil engineers required by the civil engineering management and design companies.
- The content of the discipline was adapted to the requirements of the labor market, following the discussions in professional meetings or scientific conferences organized by engineering companies.

10. Evaluation

Type of activity	10.1 Evaluation criteria ¹⁶	10.2 Evaluation methods	10.3 Share of the final grade
10.4 Course	Answer to subjects from lecture	Written exam and a homework from the lecture content.	100%
10.5 Applied activities	S:		
	L:		
	P¹⁷:		
	Pr:		
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified ¹⁸)			
<ul style="list-style-type: none"> • To pass the exam it is necessary to obtain a minimum 5 (five) grade to the written exam, to deliver the homework and it is necessary to prove knowledge learned during the semester. 			

Date of completion

January 2018

**Head of Department
(signature)**

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**Course coordinator
(signature)**

**Date of approval in the Faculty
Council ¹⁹**

12.02.2018

**Coordinator of applied activities
(signature)**

**Dean
(signature)**

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¹⁶ Syllabus must contain the procedure for assessing the discipline, specifying the criteria, methods and forms of assessment, as well as specifying the weightings assigned to them in the final grade. The evaluation criteria shall be formulated separately for each activity foreseen in the curriculum (course, seminar, laboratory, project). They will also refer to the forms of verification (homework, papers, etc.)

¹⁷ In the case where the project is not a distinct discipline, this section also specifies how the outcome of the project evaluation makes the admission of the student conditional on the final assessment within the discipline.

¹⁸ It will not explain how the promotion mark is awarded.

¹⁹ The endorsement is preceded by the discussion of the board's view of the study program on the discipline record.