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]	Special Techniques in Foundation Engineering/DS						
2.2 Coordinator (holder) of course activities	Sl. PhD. Eng. Ciopec Alexandra						
2.3 Coordinator (holder) of applied activities[6]	Sl. PhD. Eng. Ciopec Alexandra						
2.4 Year of study[7]	IV	**2.5** Semester	8	**2.6** Type of evaluation	E	**2.7** Type of discipline[8]	DO

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	3 of which:	**3.2** course	2	**3.3** seminar / laboratory / project	1
3.1* Total number of fully assisted hours / semester	42 of which:	**3.2*** course	28	**3.3*** seminar / laboratory / project	14
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	2 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			0,5
		hours of individual study after manual, course support, bibliography and notes			1
		training seminars / laboratories, homework and papers, portfolios and essays			0,5
3.7* Number of hours of unassisted activities / semester	28 of which:	additional documentary hours in the library, on the specialized electronic platforms and on the field			7
		hours of individual study after manual, course support, bibliography and notes			14
		training seminars / laboratories, homework and papers, portfolios and essays			7
3.8 Total hours / week [10]	5				
3.8* Total hours /semester	70				
3.9 Number of credits	4				

4. Prerequisites (where applicable)

4.1 Curriculum	• Soil Mechanics, Foundations, Concrete
4.2 Competencies	• Using the scientific engineering and IT fundamentals

[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.

5. Conditions (where applicable)

5.1 of the course	• Classroom having 35 seats. Support materials: laptop, projector, screen, blackboard
5.2 to conduct practical activities	• Soil and Rock Mechanics Laboratory, blackboard, laptop, screen

6. Specific competencies acquired through this discipline

Specific competencies	• Acquire theoretical and practical knowledge in the field of execution technologies for infrastructure works
Professional competencies ascribed to the specific competencies	• Recognizing typical structures and structural elements, specific to the graduated study programme • Design of structural elements in civil engineering, specific to graduated study programme
Transversal competencies ascribed to the specific competencies	• 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	• It is pursued to get theoretical and practical knowledge for students in the field of execution technologies for infrastructure works. • There are presented technologies of carrying out deep cuts and of sheet pile walls, secant piles or moulded walls and also are presented solutions of realizing reinforced earth structures with geogrids. • Another important chapter of the lectures is that of analyzing the systems and technologies for improvement of weak foundation grounds. • These technologies are presented by their applicability function of the physical and mechanical properties of grounds that must be improved.
7.2 Specific objectives	• After completion of the course students should be able to have the ability of recognizing and designing deep cuts, sheet pile walls, secant piles, reinforced earth structures with geogrids. • Also, the students must be able to analyze systems and technologies for improving weak foundation grounds.

8. Content [11]

8.1 Course	Number of hours	Teaching methods [12]
Sheet Pile Walls (Constructive Solutions and Calculus Method)	8	Lecturing,

[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.).

Reinforced Earth Structures (Constructive Solutions and Calculus Method)	8	conversation, explanation
Dewatering Works for Deep Cuts (Positioning and Dimensioning the pumping Equipment)	6	
Mechanical Procedures for Weak Soils Improvement (Technologies and Geotechnical Characteristics)	6	

Bibliography [13]

1. D.A. Greenwood, G.H. Thompson – Ground Stabilization: Deep Compaction and Grouting, ICE Works Construction Guides, Thomas Telford Ltd, London, UK, 1994
2. I. Smith – Smith's Elements of Soil Mechanics, 8th Edition, Blackwell Publishing, Oxford, UK, 2006
3. B.M. Das - Principles of Foundation Engineering, PWS-Kent, Boston, USA, 1990
4. L. Abramson, T. Lee, S. Sharma, G. Boyce – Slope Stability and Stabilization Methods, John Wiley & Sons, Inc., New York, USA, 2002

8.2 Applied activities [14]	Number of hours	Teaching methods
Design of the Sheet Pile Walls Systems	4	Explanation, example, test, questions, discussion
Reinforced Earth Structures (Technologies and Design Methods)	4	
Design of the Dewatering Works for Deep Cuts and Pumping Systems	4	
Methods for the Improvement of Weak Soils	2	

Bibliography [15]

1. D.A. Greenwood, G.H. Thompson – Ground Stabilization: Deep Compaction and Grouting, ICE Works Construction Guides, Thomas Telford Ltd, London, UK, 1994
2. I. Smith – Smith's Elements of Soil Mechanics, 8th Edition, Blackwell Publishing, Oxford, UK, 2006
3. B.M. Das - Principles of Foundation Engineering, PWS-Kent, Boston, USA, 1990
4. L. Abramson, T. Lee, S. Sharma, G. Boyce – Slope Stability and Stabilization Methods, John Wiley & Sons, Inc., New York, USA, 2002

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 civil 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 and application area	Written exam. There must be treated two subjects from the discipline content.	60%
10.5 Applied activities	**S:**		
	L:		
	P[17]**:** Solving problems corresponding to the project hours during semester time	Homework, class evaluation during the semester and project delivery	40%
	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])			
• To pass the exam it is necessary to obtain a minimum 5 (five) grade for each of the exam subjects, a minimum of 75% presence to lecture and project hours and it is necessary to prove knowledge learned during laboratory hours.			

Date of completion January 2018	**Course coordinator (signature)** ……	**Coordinator of applied activities (signature)** ……
Head of Department (signature) ……	**Date of approval in the Faculty Council** [19] 12.02.2018	**Dean (signature)** ……

[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.