

# SYLLABUS <sup>1</sup>

## 1. Information about the program

1.1 Higher education institution	Politehnica University Timisoara
1.2 Faculty <sup>2</sup> / Department <sup>3</sup>	Civil Engineering Faculty/Department of Land Communication Ways, Foundations and Cadastre
1.3 Chair	—
1.4 Field of study (name/code <sup>4</sup> )	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 <sup>5</sup>	Surveying (Geodesy)/DD						
2.2 Coordinator (holder) of course activities	Prof. PhD. Eng. Grecea Carmen						
2.3 Coordinator (holder) of applied activities <sup>6</sup>	Lecturer PhD. Eng. Bala Alina						
2.4 Year of study <sup>7</sup>	I	2.5 Semester	1	2.6 Type of evaluation	E	2.7 Type of discipline <sup>8</sup>	DI

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

3.1 Number of fully assisted hours / week	4 of which:	3.2 course	2	3.3 seminar / laboratory / project	2
3.1* Total number of fully assisted hours / semester	56 of which:	3.2* course	28	3.3* seminar / laboratory / project	28
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 <sup>10</sup>	6				
3.8* Total hours /semester	84				
3.9 Number of credits	4				

## 4. Prerequisites (where applicable)

4.1 Curriculum	<ul style="list-style-type: none"> <li>General notions from Mathematics; elements from Physical Geography</li> </ul>
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<sup>1</sup> 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.

<sup>2</sup> The name of the faculty which manages the educational curriculum to which the discipline belongs

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

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

<sup>5</sup> 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).

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

<sup>7</sup> Year of studies in which the discipline is provided in the curriculum.

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

<sup>9</sup> 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.

<sup>10</sup> 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	•
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### 5. Conditions (where applicable)

5.1 of the course	•
5.2 to conduct practical activities	• The existence of specialized laboratory of Land Measurements and Cadastre equipped with classical and modern technology

### 6. Specific competencies acquired through this discipline

Specific competencies	<ul style="list-style-type: none"> <li>• Learning basic concepts referring to topographic elements of the field and improving practical skills for understanding surveying engineering projects</li> </ul>
Professional competencies ascribed to the specific competencies	<ul style="list-style-type: none"> <li>• Technological and economical design for the erection, operation and maintenance works in civil engineering, specific to graduated study programme</li> <li>• Complying to quality and sustainable requirements for civil, industrial and agricultural constructions</li> </ul>
Transversal competencies ascribed to the specific competencies	<ul style="list-style-type: none"> <li>• Documentation in Romanian and foreign language, in view of professional and personal development, via continuous learning and efficient adaptation to the new technical specifications</li> </ul>

### 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"> <li>• Learning basic concepts referring to topographic elements of the field, the use of plans and maps, materialization of points into the geodetic networks, measuring and processing topographic observations, the use of technical equipments, methods for plotting topographic plans, setting out engineering projects.</li> </ul>
7.2 Specific objectives	<ul style="list-style-type: none"> <li>• Improving practical skills for understanding surveying engineering projects.</li> </ul>

### 8. Content <sup>11</sup>

8.1 Course	Number of hours	Teaching methods <sup>12</sup>
<b>Introduction. history. Relation with other disciplines:</b> <ul style="list-style-type: none"> <li>- Shape and dimensions of the Earth</li> <li>- Land measurements - basics</li> <li>- Trigonometric circle, Topographic circle, particularities</li> <li>- Units</li> </ul>	4	Lecture, Debate, Explanation
<b>Topographic elements of the field</b> <ul style="list-style-type: none"> <li>- Topographic points</li> <li>- Elements in Hz plane</li> <li>- Elements in V plane; sketch and relationship</li> </ul>	4	

<sup>11</sup> 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 "(\*)".

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

- Examples		
<b>The use of topographic plans and maps:</b> - Definition; numerical scale; Standard scales in RO - Conventional signs - Representation of the relief - Problems solved on plans and maps - Evaluation of areas	6	
<b>Materialization of topographic points</b>	2	
<b>Instruments and methods for planimetric works</b> - Theodolites: classic & modern - Planimetric traverses - Radiation method	4	
<b>Instruments and methods for levelling works</b> - Level: classic & digital - Levelling traverse - Radiation method - Topographic profiles	4	
<b>Setting out engineering works</b>	4	
<b>Bibliography</b> <sup>13</sup>		
<ol style="list-style-type: none"> <li>William Irvine - Surveying for Construction, University Press – Cambridge, UK</li> <li>N. Zegheru, M.G. Albota – Dictionar de Geodezie, Topografie, Cartografie si Cadastru, En-RO; RO-EN, Ed. Nemira, Bucuresti 2008</li> <li>Gh. Tămăioagă – Surveying, UTCB, București, 2000</li> <li>D. Onose – Topografie, Ed. Matrix, București, 2004</li> <li>C. Grecea, M. Sturza, C. Mușat – Elemente de Măsurători Terestre, Ed. Politehnica, Timișoara 2009</li> <li>C. Mușat, Gh. Belea, M. R. Gridan, D. Pinte, C. Grecea, B. Vilceanu – Măsurători terestre - Concepte – vol.1, Editura Politehnica, Timișoara, 2012</li> </ol>		
<b>8.2 Applied activities</b> <sup>14</sup>	<b>Number of hours</b>	<b>Teaching methods</b>
Trigonometric circle-Topographic circle, exercises Computation of sexagesimal and centesimal angles	2	Lectures, exercises, homework, periodical evaluation
Topographic elements of the field- relationships and numerical examples;	4	Exercises, homeworks
Measurements on plans and maps	2	Lectures, exercises, team building, homework
Topographic instruments: theodolite, level, total station Measurements and processing	14	Practical activities in the field and office work, team building
Engineering topographical projects: setting out angles, distances	6	Practical activities in

<sup>13</sup> 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.

<sup>14</sup> 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".

topographic profiles; Field operations, office computations and plotting		the field and office work, team building
Bibliography <sup>15</sup>		
<ol style="list-style-type: none"> <li>1. William Irvine - Surveying for Construction, University Press – Cambridge, UK</li> <li>2. Gh. Tămăioagă – Surveying, UTCB, București, 2000</li> <li>3. M.R. Gridan – Topografie, Aplicații și exerciții practice, Ed. Politehnica, Timisoara 2015</li> <li>4. Atlas de semne convenționale, București</li> <li>5. www.leica.com</li> </ol>		

**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**

<ul style="list-style-type: none"> <li>• Skills for planimetric &amp; levelling survey; ability to use topographic instruments for civil engineering projects.</li> </ul>
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**10. Evaluation**

Type of activity	10.1 Evaluation criteria <sup>16</sup>	10.2 Evaluation methods	10.3 Share of the final grade
<b>10.4 Course</b>	Answer to subjects from lecture and application area	Written exam: will be treated two subjects from the lecture content and one subject from the application area.	50%
<b>10.5 Applied activities</b>	<b>S:</b>		
	<b>L:</b> Solving problems corresponding to the laboratory works during semester time	Answer to questions regarding semester activities	50%
	<b>P<sup>17</sup>:</b>		
	<b>Pr:</b>		
<b>10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified <sup>18</sup>)</b>			
<ul style="list-style-type: none"> <li>• To pass the exam it is necessary to obtain a minimum 5 (five) grade for each of the exam subjects, the presence is compulsory to the laboratory works and it is necessary to prove knowledge learned during laboratory hours.</li> </ul>			

**Date of completion**

January 2018

**Head of Department  
(signature)**

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**Course coordinator  
(signature)**

**Date of approval in the Faculty  
Council <sup>19</sup>**

**Coordinator of applied activities  
(signature)**

**Dean  
(signature)**

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<sup>15</sup> At least one title must belong to the discipline team.

<sup>16</sup> 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.)

<sup>17</sup> 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.

<sup>18</sup> It will not explain how the promotion mark is awarded.

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