

# CURRICULUM PLAN

Valid since the academic year 2012-2013

UNIVERSITY OF ORADEA

<i>FACULTY:</i>	<b><u>CIVIL ENGINEERING AND ARCHITECTURE</u></b>
<i>Bachelor degree study program:</i>	<b><u>TERRESTRIAL SURVEYS AND CADASTRE</u></b>
<i>Fundamental field of study:</i>	<b><u>ENGINEERING SCIENCE</u></b>
<i>Bachelor field of study:</i>	<b><u>GEODESIC ENGINEERING</u></b>
<i>Duration of studies / number of credits:</i>	<b><u>4 YEARS / 240 CREDITS</u></b>
<i>Type of studies:</i>	<b><u>full-time (FT)</u></b>

- 1. Mission of study program / specialization**
- 2. Objectives of study program / specialization**
- 3. Competences that will be acquired at the end of the studies:**
  - **Professional;**
  - **Transversal.**
- 4. Finalities**

## **1. Mission of study program / specialization**

Bachelor degree study program Terrestrial Survey and Cadastre, form of attendance full time (FT), is organized at the Faculty of Civil Engineering and Architecture, under the patronage of the Department of Cadastre and Architecture.

The study program falls within the bachelor degree program Geodesic Engineering, according to Government Order 966/2011 and operates according to Law 288/2004, with subsequent changes and amendments of Law of National Education no. 1/2011.

The primary mission of the study program Terrestrial Survey and Cadastre is a complex, rigorous and interdisciplinary training, meant to confer the graduates the theoretical and applicative knowledge necessary for solving problems specific to the domain.

## **2. The objectives of the study program / specialization**

The objectives of the study program Terrestrial Survey and Cadastre within the Faculty of Civil Engineering and Architecture, University of Oradea are:

- build up theoretical skills so that the graduate can acquire basic knowledge that subsequent he can apply correctly according to the needs
- graduates' familiarity with specific tools and technologies, including those of recent generation (total stations, laser scanner, GNSS technologies, etc)
- acquiring increased skills in the use of automated analysis of processing data taken from the field programs
- developing graduates skills to work in a team and entrepreneurship by improving marketing, management, land law, real estate advertising knowledge, etc.
- Perfecting a foreign language
- Pedagogic training by graduating the optional psycho-pedagogical module.

## **3. Competences acquired upon finalization of studies**

Bachelor degree study program Terrestrial Survey and Cadastre offers their graduates the possibility to develop the following competencies (according to RNCIS grid):

### **Professional competences:**

**C1:** Design and elaboration of spatial geodesic networks for topographic, cadastral and other engineering surveys.

**C2:** Making specific topographic surveys necessary for the elaboration of topographic and thematic plans and maps.

**C3:** Leveling of technical-urban networks by angular surveys, distance surveys, level difference surveys for geodesic purposes and reducing them to the surface of reference.

**C4:** Implementation on the field projects from urbanism and land planning, civil and industrial engineering, means of communication and artworks, hydro-technical constructions and land improvement, etc.

**C5:** Determination of displacements and deformations of buildings and land.

**C6:** Completing information systems in cadastral survey and in related areas, as well as using them for real estate advertising works and property valuation.

### **Transversal competences:**

**CT1:** Efficient solving of average degree problems of difficulty, taking into account the principles and rules of professional ethics and promoting a responsible attitude towards geodesic engineering area.

**CT2:** Efficient application of communication and relationships techniques at the organizational or professional group level considering the specific roles for different hierarchical levels.

**CT3:** Auto-evaluation need of professional formation, professional evolution, development of skills acquired and adaptation to new requirements of a dynamic society.

#### **4. Finalities**

The graduates of bachelor degree's diploma of undergraduate study program Terrestrial Surveys and Cadastre will have access to the following possible jobs according to the "Classification of Occupations in Romania" – ISCO – 08: appraiser, expert real estate appraiser, cartographer, geodesist engineer, junior geodesist engineer, topographic surveyor, mining topographic surveyor, geodesist engineer designer, astronomy researcher, research assistant in astronomy, researcher in mining topography, research engineer in mining topography, research assistant in mining topography, researcher in geodesy, research engineer in geodesy, research assistant in geodesy, researcher in cadastre, research engineer in cadastre, research assistant in cadastre.

<b>UNIVERSITY OF ORADEA</b> <b>FACULTY OF CIVIL ENGINEERING AND ARCHITECTURE</b> University study program degree: Terrestrial Survey and Cadastre Fundamental field of study: Engineering Science Bachelor field of study: Geodesic Engineering Duration of studies / no. of credits: 4 years/240 credits Type of studies: full-time (FT)	Valid from the academic year 2012/2013 Beginning with First Year of Study
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## CURRICULUM PLAN

### Year of study I

Code	Disciplines	Type	Semester I				Total no of hours	Type of evaluation	Credits	SI [hours]	Prerequisites
			C	P	S	L					
	<b>COMPULSORY DISCIPLINES (IMPOSED)</b>										
UO-A.C.CD.01.01	Mathematical analysis	DF	2	-	2	-	56	Ex.	4	56	-
UO-A.C.CD.01.02	Linear algebra, analytical and differential geometry	DF	2	-	2	-	56	Ex.	4	56	-
UO-A.C.CD.01.03	Topography I	DD	2	-	-	2	56	Ex.	5	84	-
UO-A.C.CD.01.04	Technical Drawing I	DF	-	-	-	2	28	Vp.	3	56	-
UO-A.C.CD.01.05	Computer programming and programming languages	DF	2	-	-	2	56	Cv.	4	56	-
UO-A.C.CD.01.06	Optical instruments physics I	DF	2	-	-	2	56	Ex.	4	56	-
UO-A.C.CD.01.07	Descriptive geometry	DF	2	-	-	2	56	Ex.	4	56	-
UO-A.C.CD.01.08	Foreign language I	DC	-	-	1	-	14	Vp.	2	42	-
	<b>TOTAL</b>		<b>27</b>	<b>12</b>	<b>-</b>	<b>5</b>	<b>10</b>		<b>30</b>	<b>462</b>	<b>-</b>
UO-A.C.CD.01.09	Physical education and sports I	DC	-	-	-	1	14	A/R	1	14	-
	<b>FACULTATIVE DISCIPLINES</b>										-
UO-A.C.CD.01.10	European integration	DC	2	-	-	1	42	Vp.	2	14	-
UO-A.C.CD.01.11	European culture and civilization	DC	1	-	1	-	28	Vp.	2	28	-
<b>Pedagogic Seminar</b>											
UO-D.P.P.D.01.01	Educational psychology	DC	2	-	2	-	56	Vp.	5	84	-

Code	Disciplines	Type	Semester II				Total no of hours	Type of evaluation	Credits	SI [hours]	Prerequisites
			C	P	S	L					
<b>COMPULSORY DISCIPLINES (IMPOSED)</b>											
UO-A.C.CD.02.01	Topography II	DD	2	-	-	2	56	Ex.	5	84	UO-A.C.CD.01.03
UO-A.C.CD.02.02	Geodesic instruments and surveying methods I	DD	2	-	-	2	56	Ex.	5	84	-
UO-A.C.CD.02.03	Technical Drawing II	DF	-	-	-	2	28	Vp.	3	56	UO-A.C.CD.01.04
UO-A.C.CD.02.04	Landscaping and urbanism	DD	2	-	-	1	42	Vp.	3	42	-
UO-A.C.CD.02.05	Special mathematics	DF	2	-	2	-	56	Ex.	4	56	-
UO-A.C.CD.02.06	Optical instruments physics II	DF	2	-	-	1	42	Ex.	3	42	UO-A.C.CD.01.06
UO-A.C.CD.02.07	Infographics I	DF	-	-	-	2	28	Cv.	2	28	-
UO-A.C.CD.02.08	General course in civil engineering	DD	2	-	-	1	42	Ex.	3	42	-
UO-A.C.CD.01.09	Foreign language II	DC	-	-	2	-	28	Vp.	2	28	-
<b>TOTAL</b>			<b>27</b>	<b>12</b>	<b>-</b>	<b>4</b>	<b>11</b>	<b>378</b>	<b>30</b>	<b>462</b>	<b>-</b>
UO-A.C.CD.01.10	Physical education and sports II	DC	-	-	-	1	14	A/R	1	14	-
<b>FACULTATIVE DISCIPLINES</b>											
<b>Pedagogic Seminar</b>											
UO-D.P.P.P.D.02.01	Pedagogy I – Bases of Pedagogy + Curriculum theory and methodology	DC	2	-	2	-	56	VP	5	84	UO-D.P.P.P.D.01.01

Legend: DF – fundamental discipline; DS – specialty discipline; DC – complementary discipline; DD – domain discipline; SI – Individual study; C – course; S - Seminar; L – Laboratory; P – Project, Practical works

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## CURRICULUM PLAN

### Year of study II

Code	Disciplines	Type	Semester III				Total no. of hours	Type of evaluation	Credits	SI [hours]	Prerequisites
			C	P	S	L					
	<b>COMPULSORY DISCIPLINES (IMPOSED)</b>										
UO-A.C.CD.03.01	General land cadastre I	DD	2	-	-	2	56	Ex.	5	84	-
UO-A.C.CD.03.02	Topography III	DD	2	-	-	2	56	Ex.	5	84	-
UO-A.C.CD.03.03	Geodesic instruments and surveying methods II	DD	2	-	-	2	56	Ex.	4	56	UO-A.C.CD.02.02
UO-A.C.CD.03.04	Physical geodesy	DD	2	-	-	-	28	Ex.	3	56	-
UO-A.C.CD.03.05	Geodetic data compensation I	DD	2	-	-	2	56	Ex.	4	56	-
UO-A.C.CD.03.06	Geodesic astronomy	DD	1	-	-	-	14	Vp.	2	42	-
UO-A.C.CD.03.07	Infographics II	DF	-	-	-	2	28	Cv.	2	28	UO-A.C.CD.02.07
UO-A.C.CD.03.08	Foreign language III	DC	-	-	2	-	28	Vp.	2	28	-
	<b>TOTAL</b>	<b>23</b>	<b>11</b>	<b>-</b>	<b>2</b>	<b>10</b>	<b>322</b>		<b>27</b>	<b>434</b>	-
UO-A.C.CD.03.09	Physical education and sports III	DC	-	-	-	1	14	A/R	1	14	-
	<b>COMPULSORY DISCIPLINES (OPTIONAL)</b>		(to choose one from each set)								
UO-A.C.CD.03.10	Technology of taking over terrestrial information (O1)	DD	-	-	-	1	14	Vp.	1	14	-
UO-A.C.CD.03.11	Statistical analysis of geodetic data (O1)	DD	-	-	-	1	14	Vp.	1	14	-
UO-A.C.CD.03.12	Urban planning (O2)	DD	2	-	-	-	28	Cv.	2	28	-
UO-A.C.CD.03.13	Underground surveys (O2)	DD	2	-	-	-	28	Cv.	2	28	-
	<b>TOTAL</b>	<b>3</b>	<b>2</b>			<b>1</b>	<b>42</b>		<b>3</b>	<b>42</b>	
	<b>FACULTATIVE DISCIPLINES</b>										
<b>Pedagogic seminar</b>											
UO-D.P.P.P.D.03.01	Pedagogy II – Theory and methodology of training + Theory and methodology of evaluation	DC	2	2	-	-	56	Vp.	5	84	UO-D.P.P.P.D.02.01

Code	Disciplines	Type	Semester IV				Total no. of hours	Type of evaluation	Credits	SI [hours]	Prerequisites
			C	P	S	L					
	<b>COMPULSORY DISCIPLINES (IMPOSED)</b>										
UO-A.C.CD.04.01	General land cadastre II	DD	2	-	-	2	56	Ex.	4	56	UO-A.C.CD.03.01
UO-A.C.CD.04.02	Cartographic projections	DD	2	-	-	2	56	Ex.	3	28	UO-A.C.CD.03.04
UO-A.C.CD.04.03	Topography IV	DD	2	2	-	-	56	Ex.	5	84	UO-A.C.CD.03.02
UO-A.C.CD.04.04	Topographic works automation	DD	2	-	-	2	56	Ex.	4	56	-
UO-A.C.CD.04.05	Geodetic data compensation II	DD	2	-	-	2	56	Ex.	4	56	UO-A.C.CD.03.05
UO-A.C.CD.04.06	Hydro technical constructions and complex facilities	DD	2	-	-	1	42	Vp.	3	42	-
UO-A.C.CD.04.07	Foreign language IV	DC	-	-	1	-	14	Vp.	1	14	-
UO-A.C.CD.04.08	Practice I	DD	-	-	-	-	90	Cv.	3	-	-
	<b>TOTAL</b>	<b>24</b>	<b>12</b>	<b>2</b>	<b>1</b>	<b>9</b>	<b>426</b>		<b>27</b>	<b>336</b>	
UO-A.C.CD.01.09	Physical education and sports III	DC	-	-	-	1	14	A/R	1	14	-
	<b>COMPULSORY DISCIPLINES (OPTIONAL)</b>		(to choose one from each set)								
UO-A.C.CD.04.10	Engineering graphics (O3)	DF	1	-	-	1	28	Vp.	2	28	-
UO-A.C.CD.04.11	Chemistry (O3)	DF	1	-	-	1	28	Vp.	2	28	-
UO-A.C.CD.04.12	Software for topography and cadastre (O4)	DD	-	-	-	1	14	Vp.	1	14	-
UO-A.C.CD.04.13	Environmental protection (O4)	DD	-	-	-	1	14	Vp.	1	14	-
	<b>TOTAL</b>	<b>3</b>	<b>1</b>			<b>2</b>	<b>42</b>		<b>3</b>	<b>42</b>	
	<b>FACULTATIVE DISCIPLINES</b>										
<b>Pedagogic seminar</b>											
UO-D.P.P.P.D.04.01	Specialty didactics	DC	2	-	2		56	Vp.	5	84	UO-D.P.P.P.D.03.01

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## CURRICULUM PLAN

### Year of study III

Cod	Disciplines	Type	Semester V				Total no. of hours	Type of evaluation	Credits	SI [hours]	Prerequisites
			C	P	S	L					
	<b>COMPULSORY DISCIPLINES (IMPOSED)</b>										
UO-A.C.CD.05.01	Mathematical geodesy	DD	2	2	-	-	56	Ex.	5	84	UO-A.C.CD.04.02
UO-A.C.CD.05.02	Cadastral land legislation	DD	2	-	2	-	56	Ex.	4	56	-
UO-A.C.CD.05.03	Means of communication	DD	2	-	-	1	42	Vp.	3	42	-
UO-A.C.CD.05.04	Geometric bases of photogrammetry	DF	2	-	-	1	42	Vp.	3	42	-
UO-A.C.CD.05.05	Specialty cadastre I	DS	2	-	-	2	56	Ex.	5	84	-
UO-A.C.CD.05.06	Engineering surveys in construction and industry I	DD	2	-	-	2	56	Ex.	5	84	-
	<b>TOTAL</b>	<b>22</b>	<b>12</b>	<b>2</b>	<b>2</b>	<b>6</b>	<b>308</b>		<b>25</b>	<b>392</b>	
	<b>COMPULSORY DISCIPLINES (OPTIONAL)</b>		(to choose one from each set)								
UO-A.C.CD.05.07	Spatial data base (O5)	DS	1	-	1	-	28	Vp.	2	28	-
UO-A.C.CD.05.08	GIS spatial analysis (O5)	DS	1	-	1	-	28	Vp.	2	28	-
UO-A.C.CD.05.09	Land systematization (O6)	DD	2	-	-	1	42	Vp.	3	42	-
UO-A.C.CD.05.10	Land administration (O6)	DD	2	-	-	1	42	Vp.	3	42	-
	<b>TOTAL</b>	<b>5</b>	<b>3</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>70</b>		<b>5</b>	<b>70</b>	
	<b>FACULTATIVE DISCIPLINES</b>										
UO-A.C.CD.05.11	Second foreign language I	DC	-	-	2	-	28	Vp.	2	28	-
<b>Pedagogic seminar</b>											
UO/D.P.P.P.D.05.01	Deontology and school legislation	DC	1	2	-	-	42	VP	5	84	UO-D.P.P.P.D.04.01
UO/D.P.P.P.D.05.05	Educational management										
UO/D.P.P.P.D.05.04	Educational communication										
UO/D.P.P.P.D.05.08	Pedagogical Practice I										

Code	Disciplines	Type	Semester VI				Total no. of hours	Type of evaluation	Credits	SI [hours]	Disciplines
			C	P	S	L					
	<b>COMPULSORY DISCIPLINES (IMPOSED)</b>										
UO-A.C.CD.06.01	Soil protection	DD	2	-	-	1	42	Ex.	3	42	-
UO-A.C.CD.06.02	Engineering surveys in construction and industry II	DD	2	-	-	2	56	Ex.	4	56	UO-A.C.CD.05.06
UO-A.C.CD.06.03	Specialty cadastre II	DS	2	2	-	-	56	Ex.	5	84	UO-A.C.CD.05.05
UO-A.C.CD.06.04	Photogrammetry and photo interpretation	DD	2	-	-	2	56	Ex.	4	56	UO-A.C.CD.05.04
UO-A.C.CD.06.05	Spatial geodesic technologies I	DS	2	-	-	2	56	Ex.	4	56	-
UO-A.C.CD.06.06	Buildings evaluation	DS	1	-	-	1	28	Cv.	2	28	-
UO-A.C.CD.06.07	Practice II	DS	-	-	-	-	90	Cv.	4	-	-
	<b>TOTAL</b>		<b>21</b>	<b>11</b>	<b>2</b>	<b>-</b>	<b>8</b>	<b>384</b>		<b>26</b>	<b>322</b>
	<b>COMPULSORY DISCIPLINES (OPTIONAL)</b>		(to choose one from each set)								
UO-A.C.CD.06.08	Assessment in geodesy and geoinformatics (O7)	DD	2	-	1	-	42	Vp.	2	14	-
UO-A.C.CD.06.09	GPS network design and optimization (O7)	DD	2	-	1	-	42	Vp.	2	14	-
UO-A.C.CD.06.10	Preparation of technical expertise (O8)	DD	-	-	-	2	28	Vp.	2	28	-
UO-A.C.CD.06.11	Traditional and modern materials for constructions (O8)	DD	-	-	-	2	28	Vp.	2	28	-
	<b>TOTAL</b>		<b>5</b>	<b>2</b>	<b>-</b>	<b>1</b>	<b>2</b>	<b>70</b>		<b>4</b>	<b>42</b>
	<b>FACULTATIVE DISCIPLINES</b>										
UO-A.C.CD.06.12	Second foreign language II	DC	-	-	2	-	28	Vp.	2	28	UO-A.C.CD.05.11
<b>Seminar pedagogic</b>											
UO/D.P.P.D.06.01	Pedagogical practice II	DC	-	3	-	-	42	Cv.	3	42	
UO/D.P.P.D.06.03	Final evaluation of didactic portfolio	DC	-	1	-	-	14	Cv.	1	14	UO/D.P.P.D.06.01

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## CURRICULUM PLAN

### Year of study IV

Code	Disciplines	Type	Semester VII				Total no. of hours	Type of evaluation	Credits	SI [hours]	Prerequisites	
			C	P	S	L						
	<b>COMPULSORY DISCIPLINES (IMPOSED)</b>											
UO-A.C.CD.07.01	Analytical photogrammetry	DD	2	2	-	-	56	Ex.	5	84	-	
UO-A.C.CD.07.02	Geographical information systems	DD	2	-	-	1	42	Vp.	3	42	-	
UO-A.C.CD.07.03	Special topographic surveys I	DS	2	-	-	1	42	Ex.	4	70	-	
UO-A.C.CD.07.04	Work automation in cadastre	DS	2	-	-	2	56	Ex.	4	56	-	
UO-A.C.CD.07.05	Behaviour of land and buildings	DS	2	-	-	2	56	Ex.	4	56	-	
UO-A.C.CD.07.06	Spatial geodesic technologies II	DS	2	2	-	-	56	Ex.	5	84	UO-A.C.CD.06.05	
	<b>TOTAL</b>		<b>22</b>	<b>12</b>	<b>4</b>	<b>-</b>	<b>6</b>		<b>308</b>		<b>25</b>	<b>392</b>
	<b>COMPULSORY DISCIPLINES (OPTIONAL)</b>		(to choose one from each set)									
UO-A.C.CD.07.07	Urban networks (O9)	DD	2	-	-	-	28	Vp.	2	28		
UO-A.C.CD.07.08	Elements of architecture (O9)	DD	2	-	-	-	28	Vp.	2	28		
UO-A.C.CD.07.09	Land organization and appraisal (O10)	DD	2	-	1	-	42	Cv.	3	42		
UO-A.C.CD.07.10	Construction depreciation and inspection (O10)	DD	2	-	1	-	42	Cv.	3	42		
	<b>TOTAL</b>		<b>5</b>	<b>4</b>	<b>-</b>	<b>1</b>	<b>-</b>		<b>70</b>		<b>4</b>	<b>70</b>
	<b>FACULTATIVE DISCIPLINES</b>											
UO-A.C.CD.07.11	Second foreign language III	DC	-	2	-	-	28	Vp.	2	28		

Code	Disciplines	Type	Semester VIII				Total no. of hours	Type of evaluation	Credits	SI [hours]	Prerequisites
			C	P	S	L					
	<b>COMPULSORY DISCIPLINES (IMPOSED)</b>										
UO-A.C.CD.08.01	Land informatics systems	DS	2	-	-	2	48	Ex.	4	64	
UO-A.C.CD.08.02	Special topographic surveys II	DS	2	-	-	1	36	Ex.	3	48	UO-A.C.CD.07.03
UO-A.C.CD.08.03	Land evaluation	DS	2	-	1	-	36	Ex.	3	48	
UO-A.C.CD.08.04	Digital photogrammetry	DD	2	-	-	1	36	Ex.	3	48	
UO-A.C.CD.08.05	Management of topographic works	DD	2	-	-	-	24	Vp.	3	60	
UO-A.C.CD.08.06	Cartographic modeling	DS	2	2	-	-	48	Vp.	3	36	
UO-A.C.CD.08.07	Graduation paper drawing up	DS	-	4	-	-	48	Vp.	4	64	
UO-A.C.CD.08.08	Practice for drawing up the graduation diploma	DS	2 weeks x 30 hours				60	-	4	-	
	<b>TOTAL</b>	<b>23</b>	<b>12</b>	<b>6</b>	<b>1</b>	<b>4</b>	<b>336</b>		<b>27</b>	<b>368</b>	
	<b>COMPULSORY DISCIPLINES (OPTIONAL)</b>	(to choose one from each set)									
UO-A.C.CD.08.09	Remote sensing (O11)	DS	1	-	-	1	24	Vp.	2	32	
UO-A.C.CD.08.10	Methods and techniques of projects presentation (O11)	DS	1	-	-	1	24	Vp.	2	32	
UO-A.C.CD.08.11	Integration and international relations (O12)	DC	-	-	1	-	12	Vp.	1	16	
UO-A.C.CD.08.12	Professional counseling in career (O12)	DC	-	-	1	-	12	Vp.	1	16	
	<b>TOTAL</b>	<b>3</b>	<b>1</b>	<b>-</b>	<b>1</b>	<b>1</b>	<b>36</b>		<b>3</b>	<b>48</b>	

Legend: DF – fundamental discipline; DS – specialty discipline; DC – complementary discipline; DD – domain discipline; SI – Individual study; C – course; S - Seminar; L – Laboratory; P – Project, Practical works

**RECTOR**

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**COORDINATOR OF STUDY PROGRAM**

PhD Assistant prof. eng. Ștefan Suba

<b>UNIVERSITY OF ORADEA</b> <b>FACULTY OF CIVIL ENGINEERING AND ARCHITECTURE</b> University study program degree: Terrestrial Survey and Cadastre Fundamental field of study: Engineering Science Bachelor field of study: Geodesic Engineering Duration of studies / no. of credits: 4 years/240 credits Type of studies: full-time (FT)	Valid from the academic year 2012/2013 Beginning with First Year of Study
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### I. BACHELOR DIPLOMA REQUIREMENTS

**Number of credits, according to legislation: (240; 180) – bachelor’s degree;**

- 1) **217** credits for compulsory disciplines
- 2) **23** credits for optional disciplines
- 3) **7+4** credits for Practice [from 1 and 2]
- 4) **10** credits **allotted to the bachelor’s degree examination**

**In case of Bachelor’s degree examination, it is awarded:**

**N<sub>1</sub> credits for „Fundamental and specialty knowledge”.**

**N<sub>2</sub> credits for „Presentation of Diploma project”.**

**N<sub>1</sub> + N<sub>2</sub> = 10**

### II. ACADEMIC YEAR SCHEDULE (in number of weeks)

Year	Academic activities		Sessions of exams					Practice *	Holiday		
	sem. I	sem. II	Winter	Winter failed exams	Summer	Summer failed exams	Autumn failed exams		Winter	Spring	Summer
I	14	14	3	1	3	1	2	-	2	1	13
II	14	14	3	1	3	1	2	3	2	1	10
III	14	14	3	1	3	1	2	3	2	1	10
IV	14	12	3	1	3	1	1	2	2	1	-

\* Practice is organized based on syllabi drafted by departments and adopted by the Council of the Faculty. Practice takes place in the laboratories of the faculty and specialised economic entities, based on practice conventions/agreements.

### III. NUMBER OF HOURS PER WEEK FOR COMPULSORY AND OPTIONAL DISCIPLINES

YEAR	SEMESTER I	SEMESTER II
I	28	28
II	27	28
III	27	26
IV	27	26

No.	Discipline	Nr. of hours				Total		ARACIS RAQAHE Standard [min / max. %]
		Year I	Year II	Year III	Year IV	Hours	%	
1.	Compulsory	784	776	692	644	2894	89.7	
2.	Optional	-	84	140	106	330	10.2	min 10%
<b>TOTAL</b>		<b>784</b>	<b>860</b>	<b>832</b>	<b>750</b>	<b>3226</b>	<b>100</b>	
3	Facultative	182	112	154	28	476	14.7	min 10%

No.	Discipline	Nr. of hours				Total		ARACIS RAQAHE Standard
		Year I	Year II	Year III	Year IV	Hours	%	[min / max. %]
1.	Fundamental	462	56	42	-	560	17.4	min 17%
2.	In the field/area	252	734	476	228	1690	52.4	min 38%
3.	Specialty	-	-	314	510	824	25.5	min 25%
4.	Complementary	70	70	-	12	152	4.7	max 8%
<b>TOTAL</b>						<b>3226</b>	<b>100</b>	

#### IV. RATIO OF DISCIPLINES FROM COMPULSORY+OPTIONAL CATEGORIES:

##### For bachelor's degree:

- Compulsory disciplines: 89.7 %, number of hours: 2894;
- Optional disciplines: 10.2 %, number of hours 330;
- Fundamental disciplines: 17.4 %, number of hours: 560;
- Disciplines from the field/area: 52,4 %, number of hours: 1690;
- Specialty disciplines: 25.5 %, number of hours: 824;
- Complementary disciplines: 4.7 % number of hours: 152;
- Course / field application ratio:  $1472/1754 = 0,84$ .

**Total of compulsory hours/disciplines (imposed +optional): 3226 hours**

#### V. FLEXIBILITY OF EDUCATIONAL PROCESS

The flexibility of the study program is ensured by optional and facultative disciplines. The optional disciplines are proposed for semesters 3 ÷ 8 and are grouped in optional sets. From each set of optional disciplines, the student chooses one that becomes compulsory. This activity takes place before the beginning of the academic year which includes semesters containing sets of optional disciplines.

#### VI. BACHELOR DEGREE'S EXAM (DIPLOMA)

- 1) Communication of the topic of the diploma project: semester VII;
- 2) Diploma project writing:  $48+60 = 108$  ore, semester VIII
- 3) Presentation of the diploma project: month July/September.

#### VII. A CREDIT POINT REQUIRES A TOTAL NUMBER OF 28 HOURS/SEMESTER OF DIDACTIC AND INDIVIDUAL ACTIVITY

**VIII DISTRIBUTION OF CREDITS ACCORDING TO COMPETENCES (TABELS RNCIS (NRQHE) – Grid 1)**

**Study program: TERRESTRIAL SURVEYS AND CADASTRE**

No.	Discipline**	Sem.	No. of credits	Professional competences						Transversal competences		
				C1	C2	C3	C4	C5	C6	CT1	CT2	CT3
1.	Mathematical analysis	I	4	2				2				
2.	Linear algebra, analytical and differential geometry	I	4	2		2						
3.	Topography I	I	5	1	3	1						
4.	Technical Drawing I	I	3		2	1						
5.	Computer programming and programming languages	I	4		2				2			
6.	Optical instruments physics I	I	4	3		1						
7.	Descriptive geometry	I	4	3				1				
8.	Foreign language I	I	2									2
9.	Topography II	II	5	1	3	1						
10.	Geodesic instruments and surveying methods I	II	5		3		2					
11.	Technical Drawing II	II	3		2		1					
12.	Landscaping and urbanism	II	3						3			
13.	Special mathematics	II	4	4								
14.	Optical instruments physics II	II	3	1		2						
15.	Infographics I	II	2		2							
16.	General course in civil engineering	II	3				2	1				
17.	Foreign language II	II	2									2
18.	General land cadastre I	III	5						5			
19.	Topography III	III	5	1	3	1						
20.	Geodesic instruments and surveying methods II	III	4		3			1				
21.	Physical geodesy	III	3	2		1						
22.	Geodetic data compensation I	III	4	4								
23.	Geodesic astronomy	III	2		1			1				
24.	Infographics II	III	2		1				1			
25.	Foreign language III	III	2									2
26.	Technology of taking over terrestrial information (O1)	III	1			1						
27.	Statistical analysis of geodetic data (O1)	III										
28.	Urban planning (O2)	III	2		2							
29.	Underground surveys (O2)	III										
30.	General land cadastre II	IV	4						4			
31.	Cartographic projections	IV	3	1	2							
32.	Topography IV	IV	5	1	3	1						
33.	Topographic works automation	IV	4						4			
34.	Geodetic data compensation II	IV	4	3		1						
35.	Hydro technical constructions and complex facilities	IV	3				2	1				
36.	Foreign language IV	IV	1									1
37.	Practice I	IV	3				3					
38.	Engineering graphics (O3)	IV	2	1	1							





	relations (O12)											
84.	Professional counseling in career (O12)	VIII										

Legend: C1 ÷ C6 – Professional competences; CT1 ÷ CT3 – Transversal competences

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