



## SYLLABUS

### 1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Railways, Roads and Bridges
1.3	Department	Civil Engineering
1.4	Field of study	Bachelor of Science
1.5	Cycle of study	C.I.A.C. (in English) / engineer
1.6	Program of study/Qualification	Full time
1.7	Form of education	Railways, Roads and Bridges
1.8	Subject code	31.00

### 2. Data about the subject

2.1	Subject name	Technical Drawing and Infographics									
2.2	Subject area	Civil Engineering									
2.3	Course responsible/lecturer	Discipline without course									
2.4	Teachers in charge of seminars	Assist. Prof. PhD. Eng. Nerișanu Raluca, Assist. PhD Student Eng. Tudoreanu Adrian									
2.5	Year of study	II	2.6	Semester	2	2.7	Assessment	Final exam	2.8	Subject category	FD/CD

### 3. Estimated total time

3.1	Number of hours per week	3	3.2	of which, course:	0	3.3	applications:	3
3.4	Total hours in the curriculum	78	3.5	of which, course:	0	3.6	applications:	42
Individual study								36 hours
Manual, lecture material and notes, bibliography								14
Supplementary study in the library, online and in the field								8
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								14
Tutoring								2
Exams and tests								3
Other activities								-
3.7	Total hours of individual study			36				
3.8	Total hours per semester			78				
3.9	Number of credit points			3				

### 4. Pre-requisites (where appropriate)

4.1	Curriculum	"Descriptive Geometry" and "Technical Drawing" classes passed; Computer programming classes passed.
4.2	Competence	N/A

### 5. Requirements (where appropriate)

5.1	For the course	N/A
5.2	For the applications	Cluj-Napoca, Observatorului Street No. 72-74 – Classrooms equipped with drawing tables: O207, O208, O209.



## 6. Specific competences

Professional competences	Theoretical knowledge (what to know)	<ul style="list-style-type: none"> <li>to possess knowledge on plane and space projection;</li> <li>to know the norms and the conventions for representation of structures used in civil engineering;</li> <li>to make drawings using various software programmes for civil engineering graphics, complying with the norms and the rules stipulated in the current standards;</li> </ul>
	Gained skills	<p>After completing the discipline, the students will be able to:</p> <ul style="list-style-type: none"> <li>graphically express themselves, by making free hand sketches, drawings with geometry tools and with computer based graphical software (AUTOCAD);</li> <li>represent various structural units and sections through projections (plane, elevations).</li> </ul>
	Acquired skills	<p>After completing the discipline, the students will be able to:</p> <ul style="list-style-type: none"> <li>to draw specific drawings with computer graphics software help (AUTOCAD);</li> <li>to read and understand all forms of graphical representations.</li> </ul>
Cross competences	<ul style="list-style-type: none"> <li>applying effective strategies and responsible work, punctuality, responsibility and personal accountability based on principles, norms and values of professional ethics;</li> <li>to produce the drawing part and the technical documentation required;</li> <li>acquainting with specific roles and teamwork activities;</li> <li>to make accurate and correct graphical works according to the representation norms in force;</li> <li>discussing about the applications with the teacher who leads the classes and with the colleagues; disseminate the results.</li> </ul>	

## 7. Discipline objectives (as results from the key competences gained)

7.1	General objective	Recognition of the elements and structures of civil engineering constructions, specific for the program of study graduated
7.2	Specific objectives	Graphical representation at the scale for the designed or existing building elements (survey-based) using software for engineering graphics (AutoCAD)

## 8. Contents

8.1. Lecture (syllabus)		Teaching methods	Notes
Bibliography			
8.2. Applications/Seminars		Teaching methods	Notes
1.	Representation and dimensioning of metal constructions. Presenting the standards in effect. Representation of rolled sections and types of joints. Freehand sketches in the sketchbook.	Graphical, interactive solution of applications, presentation of the theoretical basis	Videoprojector
2.	Representation and dimensioning of metal constructions. Bolted joint. Base of a steel column. Sections.		
3.	Base of a steel column. Sections.		
4.	Representation and dimensioning of metal constructions. Welded joint. Joint detail metal girder. Sections.		
5.	Design drawing. Building B+GF+1F. Ground floor plan.		
6.	Design drawing. Building B+GF+1F. Ground floor plan – continuation.		
7.	Design drawing. Building B+GF+1F. Foundation plan. Foundation details.		
8.	Design drawing. Building B+GF+1F. Terrace plan. Attic		



	detail.		
9.	Design drawing. Building B+GF+1F. Longitudinal section.		
10.	Design drawing. Building B+GF+1F. Cross section.		
11.	Design drawing. Reinforced concrete bridge.		
12.	Design drawing. Reinforced concrete bridge.		
13.	Design drawing. Reinforced concrete bridge.		
14.	Final exam.		
<b>Bibliography</b> In the TUC-N library: 1. Delia Drăgan, Raluca Nerișanu: Civil Engineering Graphics-Grafică inginerescă pentru Construcții, ediție bilingvă, Editura U.T.Press Cluj-Napoca, 2014. 2. Delia Drăgan, Radu Dardai, Dorin Bărbîntă, Claudia Alb, Raluca Nerișanu: Desen Tehnic și Infografică pentru Construcții, Civil Engineering Technical Drawing and Infographics, Editura U.T. Press Cluj-Napoca, 2011. 3. Vasile Iancău, Elena Zetea, ș.a. - Reprezentări geometrice și desen tehnic, București E.D.P., 1982. 4. *** Current Standards.			

### 9. Bridging course contents with the expectations of the representatives of the community, professional associations and employers in the field

Acquired skills will be required for employees who will work in design offices and for those who will work in execution.

### 10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
Course	N/A	N/A	N/A
Applications	The drawings made during the semester are corrected and scored (L).	Attendance and participation in the classes. Presentation of the album of drawings (portfolio of drawings).	40%
	Freehand sketchbook (S)		10%
	The final exam consists in solving some applications closely related with the topics tackled during the semester (C).	Final oral and written exam, with a duration of 3 hours	50%
10.4 Minimum standard of performance			
The eligibility conditions for taking part to the exam: <b>(a) The grade for the portfolio of drawings</b> (inscribed in the E-Classbook): <b>(L): min. 5 (five)</b> <b>(b) The grade for the sketchbook (S): min. 5 (five)</b> <b>(c) The grade for the exam (C): min. 5 (five)</b>			
The formula for obtaining the grade (N)	<b><math>N=0,1S+0,4L+0,5C</math>;</b> Condition for obtaining the credits: $N \geq 5$ , if $L \geq 5$ and $S \geq 5$ .		

Date of filling in  
October, 2017

Teachers in charge of seminars  
Assist. Prof. PhD. Eng. Nerișanu Raluca

Assist. PhD Student Eng. Tudoreanu  
Adrian

Date of approval in the department  
October, 2017

Head of department  
Assoc. Prof. PhD. Eng. Gavril HODA