



SYLLABUS

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Civil Engineering
1.3	Department	Railways, Roads and Bridges
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	C.I.A.C. (in English) / engineer
1.7	Form of education	Full time
1.8	Subject code	23.00

2. Data about the subject

2.1	Subject name	Technical Drawing									
2.2	Subject area	Civil Engineering									
2.3	Course responsible/lecturer	N/A									
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	1	2.7	Assessment	Final exam	2.8	Subject category	FD/CD

3. Estimated total time

3.1	Number of hours per week	2	3.2	of which, course:	0	3.3	applications:	2
3.4	Total hours in the curriculum	104	3.5	of which, course:	0	3.6	applications:	28
Individual study								76 hours
Manual, lecture material and notes, bibliography								28
Supplementary study in the library, online and in the field								16
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								28
Tutoring								2
Exams and tests								2
Other activities								-
3.7	Total hours of individual study			76				
3.8	Total hours per semester			104				
3.9	Number of credit points			4				

4. Pre-requisites (where appropriate)

4.1	Curriculum	“Descriptive Geometry” classes passed.
4.2	Competence	<ul style="list-style-type: none"> to visualise the object or the assembly of objects in space (3D), based on plan representation (2D); to “read” different kinds (systems) of representations.

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)	To know the fundamentals (basic elements) on the representation of the objects: the arrangement of the views, sections, dimensioning, representation scales, conventional signs used in civil engineering technical drawing.
	Gained skills	<p>After completing the discipline, the students will be able to:</p> <ul style="list-style-type: none"> represent the volumes from the 3D space through 2D projections, complying with the norms for the arrangement of the views; cut the solids and the construction elements; to place correctly this sections on the assembly drawing; dimension the projections of the solids; use the reduction and the magnifying scales; use the conventional signs for the building materials; represent the different construction elements.
	Acquired skills	<p>After completing the discipline, the students will be able to:</p> <ul style="list-style-type: none"> draw freehand (sketches) for views and sections for objects having different degrees of difficulty, construction elements and simple structural subassemblies; draw with drawing tools, at scale, the different construction elements.
Cross competences	<ul style="list-style-type: none"> achieving of some correct graphical works, considering the representation norms in effect; drafting and presenting a portfolio of drawings; discussing about the applications with the teacher who leads the classes and with the colleagues; disseminate the results; applying effective strategies and responsible work, punctuality, responsibility and personal accountability based on principles, norms and values of professional ethics; acquainting with specific roles and teamwork activities. 	

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).

8. Contents

8.1. Lecture (syllabus) – N/A		Teaching methods	Notes
	-	-	-
Bibliography			
8.2. Applications/Seminars		Teaching methods	Notes
1.	Presenting the main provisions of the standards relating to: formats, lines used in civil engineering drawing, information boxes, scales, the conventional representation of materials, dimensioning, the arrangement of the views.	Conventional lecture graphical, interactive solution of applications.	
2.	Layout of orthographic projections. Views. Solids having various degrees of difficulty. Freehand sketches followed by drawings at scale.		



3.	Presenting the main provisions of the standards relating to the sections and their placement on the drawing.		
4.	Representation of the views and solving the sections. Freehand sketches followed by drawings at scale.		
5.	Layout of orthographic projections. Views. Sections. Solids having various degrees of difficulty. Freehand sketches followed by drawings at scale.		
6.	Layout of orthographic projections. Views. Sections. Solids having various degrees of difficulty. Freehand sketches followed by drawings at scale.		
7.	Representation and dimensioning of wooden constructions. Framework.		
8.	Representation and dimensioning of wooden constructions. Framework. Sections.		
9.	Joints details.		
10.	Representation and dimensioning of masonry constructions.		
11.	Representation and dimensioning of concrete constructions. Slab reinforcement and formwork plan.		
12.	Representation and dimensioning of concrete constructions. Beam reinforcement.		
13.	Beam reinforcement. Drafting the list of reinforcement.		
14.	Final exam.		
Bibliography In the TUC-N library: 1. Delia Drăgan, Raluca Nerișanu: Civil Engineering Graphics-Grafică inginerească 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 (WS).	Assessment and correction of drawings. Presentation of the album of drawings (portfolio of drawings).	40%
	Freehand sketchbook (S)		10%
	Final exam consists in solving some applications closely related with the topics tackled during the semester (C)	Final exam, oral and written, with a duration of two hours.	50%

**10.4 Minimum standard of performance**

The finalising of the portfolio of drawings is the condition for take part to the final exam. The average of the grades for the portfolio of drawings has to be minimum 5 (five).

Final exam (grade C); workshops (grade WS); sketchbook (grade S) $N=0,1S+0,4WS+0,5C$

Condition for obtaining the credit points: $C \geq 5$; $WS \geq 5$; $S \geq 5$

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