

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	14.00

2. Data about the subject

2.1	Subject name	Technical drawing and Infographics I									
2.2	Subject area	Civil Engineering									
2.3	Course responsible/lecturer	N/A									
2.4	Teachers in charge of seminars	Assist. Prof. PhD. Eng. Nerişanu Raluca – Raluca.Nerisanu@cfdp.utcluj.ro									
2.5	Year of study	I	2.6	Semester	2	2.7	Assessment	Exam	2.8	Subject category	FD/ID

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	42	3.5	of which, course:	0	3.6	applications:	42
Individual study								58 hours
Manual, lecture material and notes, bibliography								20
Supplementary study in the library, online and in the field								14
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								20
Tutoring								2
Exams and tests								2
Other activities								-
3.7	Total hours of individual study			58				
3.8	Total hours per semester			100				
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.

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.		
2.	Layout of orthographic projections. Views. Solids having various degrees of difficulty. The arrangement of the views for solids with low difficulty level.		
3.	Presenting the main provisions of the standards relating to the sections and their placement on the drawing.		

4.	Layout of orthographic projections. Views. Sections. Solids having various degrees of difficulty. Solids with medium difficulty level.	Conventional lecture graphical, interactive solution of applications.			
5.	Layout of orthographic projections. Views. Sections. Solids having various degrees of difficulty. Solids with high difficulty level.				
6.	Representation and dimensioning of the masonry constructions.				
7.	Representation and dimensioning of wooden elements and constructions. Timber roof structure.				
8.	Representation and dimensioning of wooden elements and constructions. Timber roof structure. Sections.				
9.	Representation and dimensioning of wooden elements and constructions. Timber roof structure. Joint details.				
10.	Representation and dimensioning of concrete elements and constructions. Slab reinforcement and formwork plan.				
11.	Representation and dimensioning of concrete elements and constructions. Beam reinforcement. Drafting the list of reinforcement.				
12.	Representation of steel elements and constructions. Presenting the main provisions of the standards relating to: lines used in industrial drawing, scales, the conventional representation of materials, dimensioning. Representation of rolled sections and types of joints.				
13.	Representation and dimensioning of steel constructions. Bolted joint. Base of a steel column. Sections.				
14.	Representation and dimensioning of steel constructions. Welded joint. Joint detail metal girder. Sections.				
<p>Bibliography In the TUC-N library:</p> <ol style="list-style-type: none"> 1. Delia Drăgan, Raluca Nerişanu, Adrian Tudoreanu: Civil Engineering Graphics-Grafică inginerască pentru Construcții, 2nd Edition, bilingual edition, Publisher U.T.Press Cluj-Napoca, 2017. 2. Delia Drăgan, Raluca Nerişanu: Civil Engineering Graphics-Grafică inginerască pentru Construcții, bilingual edition, Publisher U.T.Press Cluj-Napoca, 2014. 3. Delia Drăgan, Radu Dardai, Dorin Bărbîntă, Claudia Alb, Raluca Nerişanu: Desen Tehnic și Infografică pentru Construcții, Civil Engineering Technical Drawing and Infographics, bilingual edition, Publisher U.T. Press Cluj-Napoca, 2011. 4. Vasile Iancău, Elena Zetea, ș.a.: Reprezentări geometrice și desen tehnic, București E.D.P., 1982. 5. *** 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 eligibility conditions for taking part to the exam:

- (a) The grade for the portfolio of drawings** (inscribed in the E-Classbook): **(WS): min. 5 (five)**
- (b) The grade for the sketchbook (S): min. 5 (five)**
- (c) The grade for the exam (E): min. 5 (five)**

The average of the grades for the portfolio of drawings has to be minimum 5 (five). Each problem from the final exam have to be correctly solved, at least 50%.

The formula for obtaining the grade (G)

$$G=0,1S+0,4WS+0,5E;$$

Condition for obtaining the credits: $G \geq 5$, if $WS \geq 5$ and $S \geq 5$.

Date of filling in	Persons in charge of	Title Surname NAME	Signature
18.09.2018	Course	N/A	
	Applications	Assist. Prof. PhD. Eng. Nerişanu Raluca	

Date of approval in the department

Head of Department

Assoc. Prof. PhD. Eng. Gavril HODA

Date of approval in the Faculty Council

Dean

Assoc. Prof. PhD. Eng. Nicolae CHIRA