

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	Master of Science
1.6	Program of study/Qualification	Transportation Infrastructure Engineering/MSc
1.7	Form of education	Full time
1.8	Subject code	14.00

2. Data about the subject

2.1	Subject name				MOTORWAYS						
2.2	Subject area				Civil Engineering						
2.3	Course responsible/lecturer				Assist. prof. Ciont Nicolae, PhD - nicolae.ciont@cfdp.utcluj.ro						
2.4	Teachers in charge of seminars				Assist. prof. Ciont Nicolae, PhD - nicolae.ciont@cfdp.utcluj.ro						
2.5	Year of study	II	2.6	Semester	1	2.7	Assessment	E	2.8	Subject category	DA DI

3. Estimated total time

3.1	Number of hours per week	4	3.2	of which, course:	2	3.3	applications:	2
3.4	Total hours in the curriculum	56	3.5	of which, course:	28	3.6	applications:	28
Individual study								hours
Manual, lecture material and notes, bibliography								16
Supplementary study in the library, online and in the field								30
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								16
Tutoring								4
Exams and tests								3
Other activities								-
3.7	Total hours of individual study	69						
3.8	Total hours per semester	125						
3.9	Number of credit points	5						

4. Pre-requisites (where appropriate)

4.1	Curriculum	Roads I / II / III, Traffic Engineering
4.2	Competence	Not necessary

5. Requirements (where appropriate)

5.1	For the course	<ul style="list-style-type: none"> Students will attend class with their mobile phones turned off; Late arrival is unacceptable.
5.2	For the applications	<ul style="list-style-type: none"> Terms and deadlines are commonly set; Delays are only acceptable based on solid, justified reasons.

6. Specific competences

Professional competences	<p>Knowledge on motorways infrastructure and superstructure:</p> <ul style="list-style-type: none"> • geometrical elements; • traffic and controlled-access; • road structures; • drainage; <p>Auxilliary works:</p> <ul style="list-style-type: none"> • buildings; • road safety; • environmental issues; • maintenance; <p>Upon completion, students would be capable of:</p> <ul style="list-style-type: none"> • choosing an optimum motorway location; • evaluating a road structure; • designing additional works; • approaching the main issues associated with designing and building of a motorway.
Cross competences	<ul style="list-style-type: none"> • using efficient and responsible work strategies, punctuality, integrity and responsibility, based on principles, norms and ethical values; • bibliographical study for personal and professional development, through continuous formation and efficient adaptation; • work as part of a team, on different hierarchical clustering.

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

7.1	General objective	Acquiring knowledge about designing and building motorways.
7.2	Specific objectives	<ul style="list-style-type: none"> • Developing theoretical and practical skills; • Acquiring the habit to consult specific standards and norms.

8. Contents

8.1. Lecture (syllabus)	Teaching methods	Notes
Introduction	exposure, conversation	
Horizontal alignment, vertical alignment, cross sections, visibility		
Vertical alignment		
Cross sections		
Intersections, bridges, tunnels		
Flexible road structures		
Rigid road structures		
Overlays		
Drainage		
Additional works		
Exploitation		
Environmental impact		
Traffic safety		
Maintenance		
Bibliography		
Iliescu M.: Trafic și autostrăzi, UTCN, 1993;		
Iliescu M., Săvoiu F.: Autostrăzi. UT Press, Cluj-Napoca, 2013;		

Iliescu M.: Proiectarea drumurilor. Teorie și practică. UT Press, Cluj-Napoca, 2011; Boicu M., Dorobanțu S., Nicoară L., Zarojanu H.: Autostrăzi, Ed. Tehnică, 1983; Zarojanu H., Boboc V., Zarojanu D.: Autostrăzi, Ed. Societății Academice Mateiu-Teiu Botez, Iași, 2008; Hoda G., Iliescu M.: Căi de comunicație. UT Press, Cluj-Napoca, 2009; *** Normativ pentru proiectarea autostrăzilor extraurbane PD 162-2002.		
8.2. Applications/Seminars	Teaching methods	Notes
Introduction	applications, discussion, calculations	
Road structure design		
Road structure design		
Overlay design		
Overlay design		
General motorway design		
General motorway design		
Cross section design		
Cross section design		
Drainage		
Drainage		
Checks and evaluation		
Checks and evaluation		
Design statement		
Bibliography *** standards and norms.		

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

The gained competencies will be used by engineers working in the field of motorway design or construction.

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Theoretical questions	1 hr. written test 5 mins. interview	80 %
10.5 Applications	Project evaluation	onsite/online: Project presentation	20 %
10.6 Minimum standard of performance			
Exam grade ≥ 5 ; Project ≥ 5			

Date of filling in: 18.06.2025		Title Surname Name	Signature
	Lecturer	Assist. prof. Ciont Nicolae, eng., PhD	
	Teachers in charge of application	Assist. prof. Ciont Nicolae, eng., PhD	

Date of approval in the department Railways, Roads and Bridges	Head of department
19.06.2025	Assist. prof. Mihai-Liviu DRAGOMIR, eng., PhD
Date of approval in the faculty of Civil Engineering	Dean
25.06.2025	Prof. Daniela-Lucia MANEA, eng., PhD