

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 and Management
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Civil Engineering/Engineer
1.7	Form of education	Full time
1.8	Subject code	40.10

2. Data about the subject

2.1	Subject name	Roads and Motorways									
2.2	Subject area	Design and construction of roads									
2.3	Course responsible/lecturer	Assoc. lect. eng Săvoiu Filomela PhD									
2.4	Teachers in charge of seminars	Assistant eng. Ciont Nicolae PhD									
2.5	Year of study	III	2.6	Semester	1	2.7	Assessment	Colocviu	2.8	Subject category	DS/ DO

3. Estimated total time

3.1	Number of hours per week	3	3.2	of which, course:	2	3.3	applications:	1
3.4	Total hours in the curriculum	75	3.5	of which, course:	28	3.6	applications:	14
Individual study								hours
Manual, lecture material and notes, bibliography								12
Supplementary study in the library, online and in the field								7
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								8
Tutoring								3
Exams and tests								3
Other activities								
3.7	Total hours of individual study			33				
3.8	Total hours per semester			75				
3.9	Number of credit points			3				

4. Pre-requisites (where appropriate)

4.1	Curriculum	Not necessary
4.2	Competence	Not necessary

5. Requirements (where appropriate)

5.1	For the course	Class attendance not mandatory, but is a plus
5.2	For the applications	Class attendance mandatory 80%

6. Specific competences

Professional competences	<p>To know general notions about roads and motorways</p> <p>To know the legal steps in order to build a road</p> <p>To use maps and layouts</p> <p>To design a road on layouts</p> <p>To perform calculation of the road structures</p> <p>To identify construction materials used at roads and motorways</p> <p>To recognize the execution technologies and machinery for roads</p> <p>To present a project</p> <p>To use national standards and norms from the field of roads and railways</p>
Cross competences	<p>To use work strategies to complete a project with responsibility</p> <p>To improve personal abilities, in order to present personal work and to research</p> <p>The gained knowledge will be applied in writing a design statement</p>

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

7.1	General objective	Acquiring knowledge about roads and motorways and recognizing their importance
7.2	Specific objectives	Developing skills regarding the design of roads Acquiring the habit to consult specific standards and norms

8. Contents

8.1.Lecture (syllabus)	Teaching methods	Notes
Short history. Categories of roads. Traffic notions.	Exposure, conversation	Video projector
Horizontal alignment. Circular curves. Transitional Curves		
Vertical alignment. Design criteria and elements. Vertical curves.		
Cross sections. Road width.		
Road structure. Design. Frost checking.		
Embankment strengthening. Water drainage		
Machinery used at road construction		
Earthwork execution. Road structure execution.		
Motorways -Typical cross section. Water drainage		
Motorways -Service spaces. Safety.		
Motorways - Maintenance. Environment impact.		
Maintenance of the roads.		
Junctions. Parkings. Streets		
Generalities about bridges		
Bibliography		
UTC-N library + online references		
1. G.Hoda, M.Iliescu – Căi de comunicație, Edit. UTPress, Cluj-Napoca, 2009		
2. M. Iliescu – Proiectarea drumurilor, Edit. UTPress, Cluj-Napoca, 2011		
3. M. Iliescu. F. Savoiu - Autostrăzi, Edit. UTPress, Cluj-Napoca, 2013		
Standards collection		
8.2.Applications/Seminars	Teaching methods	Notes


Horizontal alignment for a short road. Circular curves.	Exposure, demonstration, conversation	Standards, norms
Vertical alignment. Ground line. Design line		
Road structure design		
Cross sections. Details.		
Quantities assesement		
Design statement		

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 employees working in the field of building and roads design and execution

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Theoretical questions	Written test 2h	70%
10.5 Applications	Evaluation of the project	Presentation of the project 1h	30%
10.6 Minimum standard of performance			
Exam ≥ 5 ; Project ≥ 5			

Date of filling in:		Title Surname Name	Signature
27.09.2019	Lecturer	Dr. ing. Filomela Săvoiu	
	Teachers in charge of application	Dr. ing. Ciont Nicolae	

Date of approval in the department	Head of department Conf. Dr. Ing. Gavril Hoda

Date of approval in the faculty	Dean Conf. Dr. Ing. Nicolae Chira
