

# 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	Civil Engineering/Engineer
1.7	Form of education	Full time
1.8	Subject code	32.10

## 2. Data about the subject

2.1	Subject name	<b>MODES OF LAND TRANSPORT</b>									
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	2	2.7	Assessment	C	2.8	Subject category	DD 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	42	3.5	of which, course:	28	3.6	applications:	14
Individual study								hours
Manual, lecture material and notes, bibliography								10
Supplementary study in the library, online and in the field								9
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								10
Tutoring								2
Exams and tests								2
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	<ul style="list-style-type: none"> <li>Students will attend class with their mobile phones turned off;</li> <li>Late arrival is unacceptable.</li> </ul>
5.2	For the applications	<ul style="list-style-type: none"> <li>Terms and deadlines are commonly set;</li> <li>Delays are only acceptable based on solid, justified reasons.</li> </ul>

## 6. Specific competences

Professional competences	<ul style="list-style-type: none"> <li>• To classify modes of transport;</li> <li>• To know general notions about roads, railways and bridges;</li> <li>• To know the legal steps in order to build a road;</li> <li>• To use maps and layouts;</li> <li>• To design a road based on layouts;</li> <li>• To perform calculation of road structures;</li> <li>• To identify construction materials used at roads, railways and bridges;</li> <li>• To recognize the execution technologies and machinery for land transport;</li> <li>• To use national standards and norms from the field of roads and railways.</li> </ul>
Cross competences	<ul style="list-style-type: none"> <li>• To use work strategies to complete a project with responsibility;</li> <li>• To improve personal abilities, in order to present personal work;</li> <li>• The gained knowledge will be applied in writing a design statement.</li> </ul>

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

7.1	General objective	Acquiring knowledge about roads, railways, bridges and recognising their importance.
7.2	Specific objectives	<ul style="list-style-type: none"> <li>• Developing skills regarding the design of roads;</li> <li>• Acquiring the habit to consult specific standards and norms.</li> </ul>

## 8. Contents

8.1. Lecture (syllabus)	Teaching methods	Notes
Short history. Transportation categories. Traffic	Exposure, conversation	Video projector
Horizontal alignment. Circular curves. Transitional curves		
Vertical alignment & curves. Design criteria and elements		
Cross sections. Road width		
Road materials		
Road structure. Design. Calculation methods		
Embankment strengthening. Water drainage		
Substructure. Earthwork execution and assessment		
Road construction machinery		
Road maintenance. Damage		
Junctions. Parkings. Motorways. Specific elements		
Railways. Characteristic elements. Rails. Sleepers. Ballast		
Bridges		
Design statement		
Bibliography Beuran M. – Proiectarea și Construcția Drumurilor, curs, partea I, Institutul Politehnic Cluj Napoca, 1977; G.Hoda, M.Iliescu – Căi de comunicație, Edit. UTPress, Cluj-Napoca, 2009; M. Iliescu – Proiectarea drumurilor, Edit. UTPress, Cluj-Napoca, 2011; S. Dorobanțu, C. Pauca – Trasee și terasamente, EDP, Bucuresti, 1979; G. Hoda, S. Naș, A. Clitan - Dimensionarea și ranforsarea structurilor rutiere – teorie și exemple de calcul, UTPress 2012; *** STAS 863-85 Elemente geometrice ale traseelor.		

8.2. Applications/Seminars	Teaching methods	Notes
Horizontal alignment for a short road. Circular curves	Applications	Standards, norms, software
Vertical alignment. Ground line. Design line		
Road structure design		
Cross sections		
Details		
Quantities assessment		
Design statement		
Bibliography		
<p>Beuran M. – Proiectarea și Construcția Drumurilor, curs, partea I, Institutul Politehnic Cluj Napoca, 1977;  G.Hoda, M.Iliescu – Căi de comunicație, Edit. UTPress, Cluj-Napoca, 2009;  M. Iliescu – Proiectarea drumurilor, Edit. UTPress, Cluj-Napoca, 2011;  S. Dorobanțu, C. Pauca – Trasee și terasamente, EDP, Bucuresti, 1979;  G. Hoda, S. Naș, A. Clitan - Dimensionarea și ranforsarea structurilor rutiere – teorie și exemple de calcul, UTPress 2012;  *** STAS 863-85 Elemente geometrice ale traseelor.</p>		

**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 roads, bridges and/or railway 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	2 hrs. written test	70 %
10.5 Applications	Project evaluation	Project presentation	30 %
10.6 Minimum standard of performance			
Exam grade $\geq 5$ ; Project $\geq 5$			

Date of filling in:		Title Surname Name	Signature
30.09.2019	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

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Head of department

Assoc. prof. Gavril HODA, eng., PhD

Date of approval in the faculty of Civil Engineering

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Dean

Assoc. prof. Nicolae CHIRA, eng., PhD