

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	Roads, Bridges and Railways
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	IIT
1.7	Form of education	Full time
1.8	Subject code	10.30

2. Data about the subject

2.1	Subject name	Performant Road Structures						
2.2	Subject area	Civil Engineering						
2.3	Course responsible/lecturer	PhD eng.Mihai Liviu DRAGOMIR						
2.4	Teachers in charge of seminars	PhD student Marta Csillag						
2.5	Year of study	1	2.6 Semester	2	2.7 Assessment	C	2.8 Subject category	DA DO

3. Estimated total time

3.1	Number of hours per week	3	3.2 of which, course:	1	3.3 applications:	2
3.4	Total hours in the curriculum	100	3.5 of which, course:	14	3.6 applications:	28
Individual study						hours
Manual, lecture material and notes, bibliography						24
Supplementary study in the library, online and in the field						18
Preparation for seminars/laboratory works, homework, reports, portfolios, essays						14
Tutoring						-
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	-
4.2	Competence	-

5. Requirements (where appropriate)

5.1	For the course	Cluj-Napoca, str.Observatorului, Nr. 72-74
5.2	For the applications	Cluj-Napoca, str.Observatorului, Nr. 72-74

6. Specific competences

Professional competences	Project elements, road traffic, calculation of road structures, software design, in site determinations. After this semester the students will be able to apply national codes, the European design codes that have like objective road design and a better economy on road infrastructure design. Is very important also to recycling all the existing road superstructure.
Cross competences	Appling work strategies, responsibility, punctuality, personal assumption, professional ethic.

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

7.1	General objective	Competence in designing performing road structures, aviation track, carting.
7.2	Specific objectives	Knowing specialized terms, synthetic thinking, the possibility in taking care of big infrastructure work of art.

8. Contents

8.1. Lecture (syllabus)	Teaching methods	Notes
1. Introduction	Interactive teaching, discussions, exposure	Projector, books, project s studies, ISI Articles etc.
2. Design elements: materials, laboratory determinations etc.		
3. Reinforcement of supple, semi-rigid and rigid road structures: norms, technical solutions;		
4. New raw materials		
5. Recycling old road super-structures		
6. Special road design: cycling tracks, carting, urban areas, streets		
7. Geosynthetics and performing road structures solutions (materials and new technologies)		
Bibliography:		
1. Iliescu, M., Dragomir M.L. , Clitan A.: Drumuri. Volumul II.Structuri rutiere. Infrastructura drumurilor. UTPRESS, Cluj, 2011;		
2. H.Zarojanu, V.Boboc – Drumuri-Trasee, Ed.Soc.Acad.M.T.Botez, Iași, 2015		
3. Ghe.Lucaci, I.Costescu, F.Belc, Construcția drumurilor, Ed.Tehnică, București, 2000		
4. Ciocan R., Iliescu M. - Tehnologii performante aplicate la drumuri – Curs, Cluj-Napoca, 2015.		
5. R.Cadar, M.Boitor, Întreținerea și reabilitarea drumurilor, ediția 2-a, UTPress, Cluj-Napoca 2017		
6. Normativele indicate cu ocazia fiecărui curs – în vigoare la data prelegerii.		
7. F.Belc, Tehnologii pentru întreținerea drumurilor, Ed.Solness Timișoara, 2012		
8. ISI- Articles		

8.2. Applications/Seminars	Teaching methods	Notes
1. situation plan	Application	Design guide, norms, ISI Articles
2. vertical signalling- residential areas		
3. vertical signalling- industrial areas		
4. Supple and semirigid road structure design		
5. Rigid road structure design		
6. Laboratory test on performing asphalt mixtures		
7. in site test		
8. comparative study		
9. draining and coloured structures		
10. bridge deck- materials, design, examples.		
11. reinforcing rigid road structures		
12. cost price of infrastructure works		
13. Technical project		
14. alternative solutions on infrastructure domain		
Bibliography <ol style="list-style-type: none"> 1. M.Iliescu, M.L.Dragomir, A.Clitan – Structuri rutiere Infrastructura drumurilor, UTPress, 2015 2. G. Hoda, Naş S., Clitan A - Dimensionarea și ranforsarea structurilor rutiere – teorie și exemple de calcul, UT Press 2012 3. *** STAS 863-85 Elemente geometrice ale traseelor 4. *** Ordinul 1296/2017 – viteze de proiectare 5. M.Iliescu, M.Pop, Îndrumător pentru lucrările de laborator de drumuri, UTPress, 2011 6. Articole ISI- selection for each theme 		

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

The acquired competences are necessary in the field of design and execution of road infrastructures. This were claimed by all the employers from this domain and have been checked in time (design and exploitation).

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Written test	1hour	80%
10.5 Applications	Project evaluation	1hour	20%
10.6 Minimum standard of performance			
Min.5 (five)grade for each activity (Course and Applications).			

Date of filling in: 01.10.2019		Title Surname Name	Signature
	Lecturer	Şef lucrări dr.ing. Mihai Liviu DRAGOMIR	
	Teachers in charge of application	Drd.ing.Marta Csillag	

Date of approval in the department CFDP <hr/>	Head of department Conf.dr.ing. Hoda Gavril
Date of approval in the faculty of Civil Engineering <hr/>	Dean Conf.dr.ing. Chira Nicolae