SYLLABUS

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Construction
1.3	Department	Civil Construction and Management
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Structural Engineering
1.7	Form of education	Full time
1.8	Subject code	5.20

2. Data about the subject

2.1	Subject name			Damages and defects in construction work			
2.2	Subject area			Civil engineering			
2.3	Course responsible/lecturer			lecturer Ph.D.eng Dorina Sucală - dorina.sucala@ccm.utcluj.ro			
2.4	Teachers in charge of seminars			lecturer Ph.D.eng. Dorina Sucală -dorina.sucala@ccm.utcluj.ro			
2.5Year of study	I	2.6 Semester	1	2.7Assessment	colloquy	2.8 Subject category	DA DO

3. Estimated total time

3.1 Number of hours per week	2	3.2 of which, course:	1	3.3 applications:	1
3.4 Total hours in the curriculum	28	3.5 of which, course:	14	3.6 applications:	14
Individual study					hours
Manual, lecture material and notes, bibliography					24
Supplementary study in the library, online and in the field					28
Preparation for seminars/laboratory works, homework, reports, portfolios, essays					20
Tutoring					-
Exams and tests					4
Other activities					4

3.7	Total hours of individual study	72
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	Use of scientific and engineering knowledge and computer science

5. Requirements (where appropriate)

5.1	For the course	Classroom with video projector, blackboard
5.2	For the applications	Classroom with computers, video projector, blackboard

6. Specific competences

Professional competences	Knowledge of the disciplines in the field and specialty (resistance of materials, foundations, metal, reinforced concrete, civil constructions); Qualitative assessment of the technical state of the constructions. Organization of the design and execution activity; To evaluate qualitatively the effects of the various degradations on the constructions; To be able to design a solution to remedy the degradation occurring on the structural or non-structural elements of the constructions. A positive attitude towards individual and team work; Analysis of a situation from the perspective of a specialist engineer; Be able to decide if the construction elements are suitable in terms of strength.
Cross competences	Collaboration with team members of which it is part in establishing tasks and responsibilities; Application of rigorous and efficient work rules; Demonstration of responsible attitudes towards the scientific field, respecting the principles and norms of professional ethics.

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

7.1	General objective	The discipline "Damages and Defects in Construction Works" aims to provide specific information for preparing students for the correct management of problems arising both in the design, execution and especially in monitoring the behavior in time of the construction. The aim is to develop the capacity to identify the failures and the cause of their occurrence at a constitution, as well as the possibility to control and manage its correction in execution.
7.2	Specific objectives	Understanding the need for the correct preparation of a project, as well as the techniques necessary for the elaboration of a project plan and its application in practice. Control of the project from the initial phase to the completion, applying specific methods

8. Contents

8.1.Lecture (syllabus)	Teaching methods	Notes
1. Damages and defects of the constructions. General notions. Defects and degradation.	Exposure, discussions	video projector
2. Damages to buildings from exceptional actions: earthquakes, explosions, fire, water.		
3. Damages and defects to the building infrastructure due to the land and foundations. Causes of foundation and basement degradation.		
4. Construction accidents and damages due to temporary actions:		

quasi-permanent and variable.		
5. Structural and non-structural deterioration of constructions.		
6. Degradation of wood constructions. Causes of occurrence. Remediation methods.		
7. Damages and defects in masonry. Characteristics.		

Bibliography

1. Tologea Sebastian, Construction accidents and damages, Ed. Tehnică, Bucureşti, 1980
2. Normative regarding the behavior in time of the constructions, Indicativ P130-1999.
3. Osztroluczky, M., Degradation and defects in construction, Ed. Casa, 2015.
4. Nicolae Socaciu, Construction pathology and therapeutics, UTCN, Fac.de Arhitectură şi Urbanism, 1999.
5. Crişan M., Structural restoration of Orthodox worship buildings in the Romanian Country and Moldova, ed. Universitară ‚Ion Micu", Bucureşti, 2003;
6. Nistor C., Building consolidation and maintenance, ed.Tehnică, Bucureşti, 1991;
7. Florea M., Damian T., Masonry, reinforcement and formwork techniques, ed. M.A.S.T., Bucureşti, 2008;
8. Moraru S., Earthquakes and their action on constructions, ed. Tehnică, Bucureşti, 1984;
9. Niculiţă M., Groll L., Consolidation of heritage buildings, ed. Societăţii Academice „ Matei-Teiu Botez", Iaşi ,2007;
10. Bălan S., Cristescu V., Cornea I., Earthquake in Romania, ed. Academiei Republicii Socialiste România, Bucureşti, 1982;
11. Brocklebank I., Building Limes in Conservation, The Building Limes Forum Donhead Publishing, 2012;

http://www.revistaconstructiilor.

8.2.Applications/Seminars	Teaching methods	Notes
1. Documentation for the approval of the intervention works according to the GD no. 907 of November 29, 2016 Earthquake in Romania	Exposure, discussions	video projector
2. Content comparative analysis SF-DALI-Project Complex; Example of documentation of approval of the intervention works		
3. Preparation of documentation of approval of the intervention works for an existing construction object (D.A.L.I.). Project (3 sessions).		
4. Grid for analyzing SF compliance with DALI elements - based on GD no. 907/2016. The importance of achieving the SF or DALI correctly and completely. Content, projects, financing.		
5. Teaching and project support in PowerPoint.		

Bibliography

1. HG nr. 907-2016;
2. NRS 01-04:2014, Ministry of Economy, Technical research module for the causes of damage, Anexa 1, 2014;
3. The conformity analysis grid of the DALI elements feasibility study, according to the HG no. 907/2016 (anexa 3.2.3.e);
4. Daniel Stoica, Civil constructions - Modern problems and solutions, Bucureşti, 2014.
5. Sebastian Tologea, Problems regarding the pathology and therapeutics of constructions, Ed. Tehnică, 1976.

http://www. constructionmagazine

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

The proposed competences resulted from the discussions with the specialists in the field

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Theory questions (topics)	Written test: duration of evaluation 1 hour (1 subject)	50%
10.5 Applications	Questions from the project - oral presentation	Oral test - presentation of the project in PowerPoint, 3 hours	40%
	Interest in individual training	Active participation in the course and applications	10%
10.6 Minimum standard of performance			

Date of filling in:		**Title Surname Name**	**Signature**
20.10.2019	Lecturer	lecturer Ph.D.eng Dorina Sucală -dorina.sucala@ccm.utcluj.ro	
	Teachers in charge of application	lecturer Ph.D.eng Dorina Sucală -dorina.sucala@ccm.utcluj.ro	

Date of approval in the department ……..

Head of department,
Prof.dr.ing. Claudiu ACIU

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Date of approval in the faculty ……

Dean,
Prof.dr.ing. Nicolae CHIRA

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