



TECHNICAL UNIVERSITY
OF CLUJ-NAPOCA, ROMANIA

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	Civil Engineering and Management
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Civil Engineering /Civil Engineer
1.7	Form of education	Full time
1.8	Subject code	36.00

2. Data about the subject

2.1	Subject name			Buildings (I)				
2.2	Subject area			Civil Engineering				
2.3	Course responsible/lecturer			Lecturer Ph.D.Eng. Tamas-Gavrea Daniela-Roxana				
2.4	Teachers in charge of seminars			Lecturer Ph.D.Eng. Tamas-Gavrea Daniela-Roxana				
2.5	Year of study	III	2.6 Semester	1	2.7 Assessment	Exam	2.8 Subject category	DS/DOB

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						50
Supplementary study in the library, online and in the field						15
Preparation for seminars/laboratory works, homework, reports, portfolios, essays						25
Tutoring						6
Exams and tests						2
Other activities						2
3.7	Total hours of individual study			100		
3.8	Total hours per semester			156		
3.9	Number of credit points			6		

4. Pre-requisites (where appropriate)

4.1	Curriculum	Knowledge of descriptive geometry, technical drawing, building materials, thermotechnics.
4.2	Competence	N/A



5. Requirements (where appropriate)

5.1	For the course	N/A
5.2	For the applications	N/A

6. Specific competences

Professional competence	<ul style="list-style-type: none"> - Principles of functional and constructive design of buildings. - Knowledge of structural and non-structural building elements. - Hygrothermal, acoustical and daylighting design principles of buildings. - Assessment of actions on structures.
Cross competences	<ul style="list-style-type: none"> - Residential building permit procedures. - Knowledge in technical calculation.

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

7.1	General objective	Development of skills and competencies needed for a civil engineer in the construction industry.
7.2	Specific objectives	<p>Correct implementation of building design principles. Assimilation of theoretical knowledge in terms of hygrothermal and acoustical conformation of building components and buildings.</p> <p>Application of norms concerning actions in constructions.</p>

8. Contents

8.1. Lecture (syllabus)		Teaching methods	Notes
1.	General conformation and classification of constructions. Technical conditions. Technical prescriptions. The concept of performance. Building design. Structures for civil constructions.	Interactive exposure Explanation	Video projector
2.	Modular coordination in constructions. Tolerances.		
3.	Building Elements – Walls.		
4.	Building Elements – Floors.		
5.	Building Elements – Stairs.		
6.	Building Elements – Roofs.		
7.	Building Elements – Foundations, Basements, Waterproofings.		
8.	Finishing elements.		
9.	Building Physics. Thermal comfort. Hygrothermics. Performance exigencies specific to the hygrothermal design of the buildings. Thermal transfer through the building envelope.		



TECHNICAL UNIVERSITY
OF CLUJ-NAPOCA, ROMANIA

10.	Performance exigencies specific to the hygrothermal design of the buildings. Humidity transfer through the building envelope. Building air quality. Natural ventilation.		
11.	Building acoustics.		
12.	Daylight in buildings.		
13.	Actions on structures. Definition. Classification. Permanent actions.		
14.	Variable actions. Accidental loads.		
Bibliography <ul style="list-style-type: none"> • N. Cobirzan, M.Brumaru – <i>BUILDINGS: STRUCTURAL AND NONSTRUCTURAL ELEMENTS</i>, Ed. U.T. PRESS, 2012. • Brumaru M. – <i>HANDBOOK OF CIVIL ENGINEERING. MASONRY BUILDINGS</i>, Ed. Dacia, 1997. • S. S. Bhavikatti – <i>BASIC CIVIL ENGINEERING</i>, New Age International Limited Publishers, 2010. • Chanakya Arya – <i>DESIGN OF STRUCTURAL ELEMENTS: CONCRETE, STEELWORK, MASONRY AND TIMBER DESIGNS TO BRITISH STANDARDS AND EUROCODES</i>, CRC Press, 2009. • Andreica, H.-A., Munteanu, C., Muresanu, I., Moga, L., M., Tamas-Gavrea, R. – <i>CONSTRUCȚII CIVILE</i>, Ed. U.T. PRESS, 2009. • Andreica, H.-A. – <i>CONSTRUCȚII. ALCĂTUIREA ȘI CALCULUL ELEMENTELOR DE CONSTRUCȚIE</i>, Ed. U.T. PRESS, 2002. • Andreica, H.-A. ș.a. – <i>PROIECTAREA CONSTRUCȚIILOR</i>, vol I și II, U.T.C.-N., Cluj-Napoca, 1996. • Comșa, E. ș.a. – <i>CONSTRUCȚII CIVILE</i>, vol.I și II, U.T.C.-N., Cluj-Napoca, 1992. • Comșa, E. ș.a. – <i>PROIECTAREA FUNCȚIONALĂ ȘI CONSTRUCTIVĂ A CLĂDIRILOR DE LOCUIT</i>, vol I si II, I.P.C.-N, Cluj-Napoca, 1986-1987. • Standards, norms, technical requirements. 			
8.2. Applications/Seminars		Teaching methods	Notes
1.	Presentation of the design topic. Functional and constructive design of a building: B.+ G.F.+ 1L. Design stages.	Interactive exposure Explanation	Blackboard
2.	Presentation of principles regarding building design according to “The design code for masonry structures”, indicative CR6-2013. Functional layout for the ground floor and first floor/attic.		
3.	Dwelling functions. Rules in dwelling conformation. Functional elements in dwelling buildings. Surfaces and furniture. Technical and economic indices in dwellings. Modular coordination. Thickness and types of bearing and non-bearing walls. Ground floor and first floor/attic.		
4.	Plan dimensioning. Openings for doors and windows. Lighting indices. Cross section. Roof plan.		
5.	Functional and constructive design of staircases. Solution of the access in the building. Basement plan.		
6.	Foundation plan. Details.		
7.	Plan for location in the environment. Site plan. Facades.		
8.	Verification of the project. Partial evaluation.		
9.	Presentation of the calculation principles for the global thermal insulation coefficient of the designed dwelling.		



TECHNICAL UNIVERSITY
OF CLUJ-NAPOCA, ROMANIA

10.	Determination of the geometrical features of the building.		
11.	Determination of the corrected average thermal resistances as per type of member belonging to building envelope.		
12.	Determination of the global thermal insulation coefficient (G).		
13.	Comparison of the global thermal insulation coefficient (G) to norm values (GN). Partial notation for the calculation of global thermal insulation coefficient		
14.	Verification of the project. Final evaluation.		
Bibliography <ul style="list-style-type: none"> • N. Cobirzan, M.Brumaru – <i>BUILDINGS: STRUCTURAL AND NONSTRUCTURAL ELEMENTS</i>, Ed. U.T. PRESS, 2012. • Brumaru M. – <i>HANDBOOK OF CIVIL ENGINEERING. MASONRY BUILDINGS</i>, Ed. Dacia, 1997. • Andreica, H.-A., Munteanu, C., Muresanu, I., Moga, L., M., Tamas-Gavrea, R. – <i>CONSTRUCȚII CIVILE</i>, Ed. U.T. PRESS, 2009. • Standards, norms, technical requirements. 			

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

The discipline meets the current requirements regarding the development and progress of the education in the civil engineering field.

The students are provided with adequate competencies associated with the current qualification requirements in order to ensure a fast insertion on the labor market and the possibility to continue studies through Master and PhD Programs after graduation.

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
Course	Civil engineering questions	Written test	66%
Applications	Verification of the project	Project presentation	33%
10.4 Minimum standard of performance			
The minimum grade required (written test) ≥ 5			
The minimum grade required (project) ≥ 5			

Date of filling in
09.10.2017

Teachers in charge of lectures/seminars
Lecturer Ph.D.Eng. Tamas-Gavrea Daniela-Roxana

Date of approval in the department

Head of department
Associate Professor Ph.D.Eng. Aciu Claudiu