

Course/studio syllabi

1. Data on the study programme

1.1 Institution	Technical University of Cluj-Napoca
1.2 Faculty	of Architecture and Urban Planning
1.3 Department	Urban Planning and Technical Sciences
1.4 Domain	Architecture
1.5 University level	Licence and master's degree
1.6 Study programme/Qualification	Architecture
1.7 Form of studies	IF – on-site full-time studies
1.8 Course / studio code	23.00

2. Data on the course

2.1 Name of the course	CONSTRUCTION ELEMENTS				
2.2 Course/ Studio Head	Lecturer Daniel Lucian ȘERBAN				
2.3 Head of seminary/ laboratory/ studio	-				
2.4 Study year	2	2.5 Semester	1	2.6 Type of evaluation	Exam
2.7 Course /studio regime	Formative category: fundamental (DF)/ linked to the domain (DD)/ specific (DS)/ complementary (DC)				DD
	Compulsory (DI)/ Optional/ (DOp)/ Voluntary (DFac)				DI

3. Total estimated time

3.1 Number of hours /week	2	out of which:	3.2 Course	2	3.3 Seminary	0	3.3 Laboratory	0	3.3 Project	0
3.4 Number of hours /semester	28	out of which:	3.5 Course	28	3.6 Seminary	0	3.6 Laboratory	0	3.6 Project	0
3.7 Distribution of time (hours)/ semester for:										
(a) Individual study supported by course textbook, course text, bibliography, and notes										10
(b) Supplementary study in the library, online, and on site										11
(c) Preparation for seminars/ laboratories/ assignments, reports, portfolios, and essays										-
(d) Tutoring										-
(e) Examination										1
(f) Other activities										-
3.8 Total hours of individual study (sum (3.7(a)...3.7(f)))					22					
3.9 Total semestrial hours (3.4+3.8)					50					
3.10 Number of credits					2					

4. Preconditions (where applicable)

4.1 curriculum preconditions	-
4.2 competence preconditions	Competences and knowledge acquired in the fundamental course of <i>Construction Materials</i> , as well as basic knowledge of Construction Statics, Construction Mechanics and of making up of a building may constitute a basis for a good understanding of notions and information discussed in the present course.

5. Conditions (where applicable)

5.1. for the course	On site, in the allocated classroom (according to the faculty
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	schedule). Attendance is a condition for examination. See also „10. Assessment method“.
5.2. for the seminary	-

6. Specific competencies

	<ul style="list-style-type: none"> • Technical knowledge of structure, materials, and construction. • Awareness of the impact of geotechnical conditions on construction. • Understanding of the impact of climate on urban and architectural design and construction. • Ability to act with innovative technical competence in the use of building techniques and the understanding of their evolution. • Understanding of the processes of technical design and the integration of structure, construction technologies and services systems into a functionally effective whole. • Understanding of services systems as well as systems of transportation, communication, maintenance, and safety. • Awareness of the role of technical documentation and specifications in design realisation, and of the processes of construction, cost, planning and control.
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7. Objectives of the discipline

7.1 General objective of the discipline	<ul style="list-style-type: none"> • Understanding of the structural design, construction and engineering problems associated with building design.
7.2 Specific objectives	<ul style="list-style-type: none"> • Ability to create architectural designs that satisfy both aesthetic and technical requirements • Ability to demonstrate a creative competence in building techniques, founded on a comprehensive understanding of the disciplines and construction methods related to architecture • Adequate knowledge of physical problems and technologies and of the function of buildings so as to provide them with internal conditions of comfort and protection against the climate. • Design skills necessary to meet building users' requirements within the constraints imposed by cost factors and building regulations. • Understanding of professional and disciplinary responsibilities toward human, social, cultural, urban, architectural, and environmental values as well as architectural heritage --including the health, safety, and welfare of the public; and the physiological and psychological aspects of public health and well-being. These responsibilities also include a commitment to equity, diversity, and inclusivity in both the content and the context of architectural instruction.

8. Content/Syllabi

8.1 Course	No. of hours	Teaching methods	Notes
C1 INTRODUCTION. Construction Elements in	2	Lectures supported	Students are

relation to complementary disciplines. Construction subsystems, preview of structural systems.		by projections. Discussions on the presented information, images and graphics used	encouraged to engage in talks throughout the course and offer their insight on matters discussed
C2 FOUNDATIONS	2		
C3 STRUCTURAL WALLS – BEARING MASONRY	2		
C4 STRUCTURAL WALLS – CONCRETE WALLS AND WOODEN SYSTEMS (LOG BUILDING, WOOD PANELS, TRANSITION TO COMPLEX ASSEMBLIES)	2		
C5 NON-STRUCTURAL WALLS	2		
C6 FRAMEWORK SYSTEMS – CONCRETE FRAME	2		
C7 FRAMEWORK SYSTEMS – STEEL AND ALUMINIUM FRAME	2		
C8 FRAMEWORK SYSTEMS – WOODEN FRAME	2		
C9 FLOOR SYSTEMS – MASONRY VAULTS, CONCRETE SLABS	2		
C10 FLOOR SYSTEMS – METAL AND WOODEN FLOORS	2		
C11 ROOF SYSTEMS – FLAT ROOFS, SLOPED ROOFS	2		
C12 ROOF SYSTEMS – ROOF CARPENTRY SYSTEMS	2		
C13 STAIRS	2		
C14 PRINCIPLES OF BUILDING INSULATION	2		
NOTE: the permanent actualization of the course matter might lead to minor changes in its structure			

Bibliography:

- Ching, F. D. K., 2008, *Building Construction Illustrated*, John Wiley & Sons, Inc., Hoboken, New Jersey, no. 541.415 (3 specimens)
- Herzog, T., Natterer, J., Schweitzer, R., Volz, M., Winter, W., 2004, *Timber Construction Manual*, Birkhauser Basel, no. 522.005 (2 specimens)
- Kind-Barkauskas, F., Kauhsen, B., Polonyi, S., Brandt, J., 2002, *Concrete Construction Manual*, Birkhauser, Basel, no. 522.010 (1 specimen)
- Pfeifer, G., Ramcke, R., Achtziger, J., Zilch, K., Schatz, M., 2001, *Masonry Construction Manual*, Birkhauser Basel, no. 522.008 (1 specimen)
- Schunck, E, Oster, H J, Barthel, R, Kiessl, K, 2003, *Roof Construction Manual, Pitched Roofs*, Birkhauser Basel, no. 522.009 (3 specimens)

Other titles:

- Baurmann, H., Dilling, J., Euler, C., Niederwohrmeier, J., Reichel, A., Schultz, K., 2013, *Support / Materialize Wall, Column, Slab, Roof*, Birkhauser Basel
- Crisan, R., 2001, *Construcții din oțel*, Ed.Universitara „Ion Mincu”, Bucharest
- Crisan, R., 2012, *Construcții de lemn: publicații de uz didactic*, ediția a 4a revizuită, Editura Universitară "Ion Mincu", Bucharest
- Crisan, R., 2012, *Construcții din zidărie și beton armat*, Ed.Universitara „Ion Mincu”, Bucharest
- Kaufmann, S., Krotsch, H., Winter, S., 2018, *Manual of Multistorey Timber Construction*, Birkhauser, Basel
- Kolb, J., 2008, *Systems in Timber Engineering, Loadbearing Structures and Component Layers*, BIRKHAUSER, Basel
- Koolhaas, R., 2018, *Elements of Architecture*, Taschen
- Peck, M. (Editor), Dauberschmidt, C., Engelsmann, S., Peters, S., Spalding, V., Forstlechner, F., Förtschler, U., Lieblang, P., Wallisser T., 2014, *Modern Concrete Construction*, Birkhauser Basel
- Sandaker, B., Eggen, A., Cruvellier, M., 2019, *The Structural Basis of Architecture*, Third Edition, Routledge, Taylor & Francis Group, London&New York
- Schulitz, H. C., Sobek, W., Habermann, K. J., 2000, *Steel Construction Manual*, Birkhauser Basel

<ul style="list-style-type: none"> • Staib, G., Dörrhöfer, A., Rosenthal, M., 2008, <i>Components and systems, modular building, design, construction, new technologies</i>, Edition DETAIL – Institut für internationale Architektur-Dokumentation GmbH & Co. KG München, Birkhäuser Basel 			
8.2 Seminary / laboratory / project	No. of hours	Teaching methods	Notes
-	-	-	-
Bibliography			

9. Harmonizing the content of the discipline with the expectations of the epistemic community, the professional associations, and representative employers

The competencies achieved across the course contribute to the consolidation of the professional culture necessary for the profession and to the integrated use of theory and practice.

10. Assessment

Type of activity	10.1 Evaluation criteria	10.2 Assessment method	10.3 Calculation of final grade
10.4 Course	-	-	1 point by default
	Relevance and quality of answers	Written exam: Exam based on the course materials and further imagery. This exam will assess the knowledge assimilated, the capacity to make connections and recognize examples of built work from the point of view of classifications and technical data presented during the course.	max. 9 points
	Calculus of the final grade: sum of the points obtained through the evaluation methods described above.		
	According to the ECTS/UTCN Regulations, art. 6.4, the Faculty Council has decided that attending courses is compulsory in a percentage of at least 50%. The situation of attendance will be updated weekly on the Teams channel dedicated to the course. Students who have not attended 50% of the courses will not be able to participate in the final exam and will need to recontract the course.		
10.5 Seminary/Laboratory	-	-	-
10.6 Minimal standard for passing			
• a grade of minimum 5			

Date:	Head of course	Title, Name, Surname	Signature
14.07.2023	Course	Lecturer. PhD. arch. Daniel Lucian ȘERBAN	
	Seminary/Lab	-	-

Date of validation by the Department Council:

Chief of Department
Associate professor. PhD. arch. Vlad
Sebastian RUSU

Data of approval in the Faculty Council:

Dean
Associate professor. PhD. arch. Dragoş Şerban
Ion ȚIGĂNAȘ