

SYLLABUS

Academic year 2026–2027

1. Data about the programme of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Building Services Engineering
1.3	Department	Building Services Engineering
1.4	Field of study	Civil Engineering and Building Services
1.5	Cycle of study	Master
1.6	Program of study/Qualification	Building Services for Regenerative Cities / MS Engineer
1.7	Form of education	Full time

2. Data about the subject

2.1	Subject name			Advanced Architecture			Subject code	4.00	
2.2	Course responsible/lecturer			Lecturer PhD Arch. Silviu Virgil ALDEA					
2.3	Teachers in charge of laboratory			Lecturer PhD Arch. Silviu Virgil ALDEA					
2.4	Year of study		1	2.5 Semester		1	2.6 Assessment		Exam
2.7 Subject category		Formative category							DC
		Optionality							DOB

3. Estimated total time

3.1 Number of hours per week	2	of which	3.2 Course	1	3.3 Seminar	–	3.3 Laboratory	1	3.3 Project	–
3.4 Total hours in the curriculum	28	of which	3.5 Course	14	3.6 Seminar	–	3.6 Laboratory	14	3.6 Project	–
3.7 Individual study:										
(a) Exams and tests										2
(b) Manual, lecture material and notes, bibliography										24
(c) Supplementary study in the library, online and in the field										7
(d) Preparation for seminars/laboratory works, homework, reports, portfolios, essays										14
(e) Tutoring										–
(f) Other activities										–
3.8 Total hours of individual study (sum (3.7(a))...3.7(f))					47					
3.9 Total hours per semester (3.4+3.8)					75					
3.10 Number of credit points					3					

4. Prerequisites

4.1	Curriculum	Bachelor's degree; basic knowledge of buildings and building services.
4.2	Competence	Basic technical drawing literacy; comprehension and communication in English.

5. Requirements

5.1	For the course	Room with projector, audio system and access to documentaries and drawings. Teaching is delivered in English.
5.2	For the laboratory	Room for discussion and drawing analysis; sketching materials or digital tools. Activities are conducted in English.

6. Specific competences

Professional competences	CP14 – Integrates measures into architectural design. CP21 – Combines knowledge from different fields.
Transversal competences	CT2 – Applies holistic thinking. CT4 – Respects diverse values and cultural norms.

7. Expected learning outcomes

Knowledge	CP21 – Explains major developments in twentieth- and twenty-first-century architecture and relationships between context, spatial concepts, structure and technology. CP14 – Describes how services affect proportions, light, acoustics, comfort and the expression of interior and exterior spaces. CT2, CT4 – Understands relationships between human experience, user diversity and ecological responsibility.
Skills	CP21 – Interprets plans, sections and documentaries; compares buildings through spatial, technical and cultural arguments. CP14 – Identifies interfaces between architecture and building services and proposes integration principles through sketches and explanatory texts. CT2, CT4 – Formulates and discusses a shared design brief, considering users and the contributions of different disciplines.
Responsibility and autonomy	CP14 – Responsibly explains the effects of technical proposals on spatial quality and comfort; distinguishes documented evidence from assumptions. CP21, CT2 – Independently develops a comparative analysis and participates constructively in interdisciplinary debate. CT4 – Respects cultural perspectives and diverse user needs; acknowledges sources and incorporates feedback.

8. Subject objectives

8.1	General objective	To develop sensitivity to architectural space and the capacity for interdisciplinary collaboration by understanding architectural developments and the contribution of building services to memorable, efficient, environmentally responsible and beautiful buildings centred on human experience.
8.2	Specific objectives	• Understand twentieth- and twenty-first-century architecture through case studies and their cultural and technological context (CP21). • Read space through plans, sections, light, materiality and movement (CP21, CT4). • Evaluate the impact of services on interiors, envelopes and public space (CP14). • Identify decisions requiring coordination from the concept stage (CP14, CP21). • Relate comfort and spatial quality to resources, maintenance and adaptability (CT2). • Argue and communicate shared design principles in English (CP21, CT4).

9. Contents

9.1 Lectures — total 14 hours	Hrs	Methods	Notes
1. Introduction. Architecture as human experience. Space, structure, envelope and services; vocabulary for reading plans and sections.	1	Interactive lecture	
2. Modern space. Barcelona Pavilion — Mies van der Rohe and Lilly Reich. Free plan, proportion, materiality and indoor–outdoor relationships.	1		
3. Architecture as assembly. Jean Prouvé House, Nancy. Prefabrication, components, assembly, maintenance and adaptability.	1		
4. Light and the architecture of learning. Exeter Library — Louis Kahn. Spatial hierarchy, daylight and served and servant spaces.	1		
5. Services as architectural expression. Centre Pompidou — Piano and Rogers. Infrastructure, flexibility and public space.	1		
6. Movement and human agency. Maison à Bordeaux — OMA / Rem Koolhaas. Accessibility and technical mechanisms as generators of space.	1		
7. Complex form and integrated design. Guggenheim Bilbao — Frank Gehry. Geometry, structure, envelope and interdisciplinary coordination.	1		
8. Atmosphere and bodily experience. Vals Baths — Peter Zumthor. Temperature, water, light, sound and materiality.	1		
9. Open institutions and integrated systems. Sendai Mediatheque — Toyo Ito. Floor plates, structural tubes and infrastructure distribution.	1		
10. Learning within an interior landscape. Rolex Learning Center — SANAA. Topography, spatial continuity and comfort strategies.	1		
11. Community and regenerative responsibility. House for All, Rikuzentakata. Participation, resources and appropriate technical complexity.	1		
12. Comparative analysis. Exeter, Sendai and Rolex: learning environments, hierarchy, openness and integration of technical systems.	1		
13. Buildings over time. Adaptive reuse, replacement of services and effects on facades and interiors; efficiency and sufficiency.	1		
14. Synthesis. Spatial quality, beauty, comfort and ecological responsibility. A shared design brief and interdisciplinary collaboration.	1		
Bibliography			
1. Banham, Reyner. The Architecture of the Well-Tempered Environment. University of Chicago Press, 2nd ed., 1984.			
2. Frampton, Kenneth. Modern Architecture: A Critical History. Thames & Hudson, 5th ed., 2020.			
3. Pallasmaa, Juhani. The Eyes of the Skin: Architecture and the Senses. Wiley, 3rd ed., 2012.			
4. Zumthor, Peter. Atmospheres. Birkhäuser, 2006.			
5. Brand, Stewart. How Buildings Learn. Viking, 1994.			
6. ARTE Architectures series: the ten documentaries associated with topics 2–11.			

9.2 Laboratory — total 14 hours	Hrs	Methods	Notes
1. Reading a building through plan and section. Identifying users, routes and comfort conditions; introducing the portfolio brief.	1	Guided open discussion; comparative analysis; sketches and short exercises; feedback.	
2. Barcelona: planes, boundaries and perception. Discussion of the placement of lighting, grilles and drainage.	1		
3. Prouvé: analysing an assembly joint. Coordinating service penetrations, maintenance access and disassembly.	1		
4. Exeter: the reader, light and spatial hierarchy. Environmental zoning and principles of technical distribution.	1		
5. Pompidou: comparing exposed services with internal distribution. Effects on space, urban appearance and operation.	1		
6. Bordeaux: the moving platform in plan and section. Agency, accessibility, reliability and changing user needs.	1		
7. Bilbao: coordination within complex geometry. Comparing distribution strategies and identifying joint decisions.	1		
8. Vals: developing a sensory brief. Atmosphere, ventilation, humidity, acoustics, lighting and maintenance.	1		
9. Sendai: different activities within an open plan. Conflicts between flexibility, noise, distribution and comfort.	1		
10. Rolex: reading sections and courtyards. Accessibility, environmental zoning and the relationship between geometry and simulation.	1		
11. House for All: community needs and resources. A brief for shared space and an appropriate level of technical provision.	1		
12. Exeter–Sendai–Rolex comparison. Supporting an argument through plans, sections and the user experience.	1		
13. Integration workshop: an intervention in an existing building. Coordination sketches and feedback on individual portfolios.	1		
14. Presentation and discussion of portfolios. Assessment of argumentation, spatial interpretation and integration proposals.	1		
Bibliography			
Course bibliography; documentaries and drawings discussed in class. Project sources: Fundació Mies van der Rohe (miesbcn.com); Phillips Exeter Academy (exeter.edu); Centre Pompidou (centrepompidou.fr); OMA (oma.com); EPFL (epfl.ch); Home for All (home-for-all.org).			

10. Relevance to the professional community

The subject prepares graduates to collaborate in building design, consultancy and operation. Case study analysis develops the ability to communicate with architects, anticipate the spatial impact of building services and relate technical solutions to user experience, resources and long-term maintenance. The contents support the interdisciplinary and regenerative approach of the BSRC programme.

11. Assessment

Activity type	11.1 Assessment criteria	11.2 Assessment methods (and evaluation form: continuous/summative)	11.3 Weight in the final grade
11.4 Course	Understanding architectural concepts and developments; interpreting a building; explaining relationships between space and services.	Oral examination with case study analysis and synthesis questions (summative assessment).	50%
11.5 Laboratory	Reading plans and sections, critical comparison, relevance of integration proposals and appropriate use of sources.	Individual portfolio and oral presentation: continuous assessment and final assessment of the applications.	50%

11.6 Minimum standard of performance

Submission and a pass grade for the portfolio are required for admission to the examination. The portfolio includes three analyses of studied buildings, a comparison of two cases and an annotated sketch proposing the integration of services. The student identifies a spatial intention, explains at least two effects of services on space and justifies one shared design decision.

Final grade: $G = 0.50E + 0.50L$, with $E \geq 5$ and $L \geq 5$. E = oral examination; L = portfolio and presentation of applications.

Date of filling in:		Title Surname Name	Signature
05.10.2026	Lecturer	Lecturer PhD Arch. Silviu Virgil ALDEA	
05.10.2026	Laboratory	Lecturer PhD Arch. Silviu Virgil ALDEA	

Date of approval by the Department of Building Services Engineering

Head of department
Assoc.Prof.PhD.Eng. Ciprian BACOTIU

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Date of approval by the Council of the Faculty of Building Services Engineering

Dean
Assoc.Prof.PhD.Eng. Florin DOMNIȚA

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