

## SYLLABUS

### 1. Data about the program 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
1.8	Subject code	7.00

### 2. Data about the subject

2.1	Subject name	Professional practice 1		
2.2	Course responsible/lecturer	-		
2.3	Teachers in charge with professional practice 1	Assoc.Prof.PhD.Eng Octavian POP – octavian.pop@insta.utcluj.ro		
2.4	Year of study	I	2.5 Semester	I
		2.6 Assessment		Verification
2.7	Subject category	Formative category		DS
		Optional		DI

### 3. Estimated total time

3.1 Number of hours per week	14	of which	3.2 Course		3.3 Seminar		3.3 Laboratory		3.3 Project	14
3.4 Total hours in the curriculum	196	of which	3.5 Course		3.6 Seminar		3.6 Laboratory		3.6 Project	196
3.7 Individual study:										
(a) Manual, lecture material and notes, bibliography										24
(b) Supplementary study in the library, online and in the field										24
(c) Preparation for seminars/laboratory works, homework, reports, portfolios, essays										16
(d) Tutoring										-
(e) Exams and tests										2
(f) Other activities										-
3.8 Total hours of individual study (sum (3.7(a)...3.7(f)))					54					
3.9 Total hours per semester (3.4+3.8)					250					
3.10 Number of credit points					10					

### 4. Pre-requisites (where appropriate)

4.1	Curriculum	Bachelor's degree in one of the following fields: - building services engineering; - civil engineering; - architecture; - other related specializations.
4.2	Competence	

## 5. Requirements (where appropriate)

5.1	For the course	
5.2	For the development of professional practice	

## 6. Specific competences

Professional competences	<p>Theoretical knowledge:</p> <ul style="list-style-type: none"> <li>• Disciplines taught in the first semester within the master's program.</li> </ul> <p>Acquired skills:</p> <ul style="list-style-type: none"> <li>• To deepen the knowledge taught through design topics specific to the course disciplines.</li> </ul> <p>Skills acquired:</p> <ul style="list-style-type: none"> <li>• Development of skills in the field of design and execution.</li> <li>• Development of skills regarding the preparation of reports specific to the field.</li> </ul>
Cross competences	<p>The students will be able to:</p> <ul style="list-style-type: none"> <li>• make decisions and take responsibility for their own decisions and actions by adapting to new situations;</li> <li>• have leadership skills on complex projects;</li> <li>• demonstrate a creative and enterprising spirit in solving complex problems.</li> </ul>

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

7.1	General objective	<ul style="list-style-type: none"> <li>✓ To evaluate the functional and energy efficiency of the installation systems and to design solutions for their rehabilitation and technological modernization;</li> <li>✓ To synthesize, explain and transmit information on the composition and operation of installation systems</li> </ul>
7.2	Specific objectives	<ul style="list-style-type: none"> <li>• To compile programs for investigating the operating conditions and evaluating the efficiency of different categories of installations</li> <li>• To analyze and evaluate the functional parameters and performance indicators of equipment and installation systems in the given operating conditions</li> <li>• To identify the technical non-conformities and the needs of functional and energetic rehabilitation / modernization</li> <li>• To select and propose intervention measures for the energy efficiency of the different categories of installations</li> <li>• To draw up the technical-economic documentation specific to the functional and energetic evaluation</li> <li>• Analyze and synthesize existing information on installation systems;</li> <li>• To elaborate documentary and formative materials regarding the composition and calculation of the installation systems;</li> <li>• To know the recent technical-scientific achievements and the national and international tendencies for the development of the field.</li> </ul>

## 8. Contents

8.1. Theme area	Number of hours	Teaching methods	Notes
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Advanced Building Services – HVAC and Water Distribution			
Human Centric Lighting			
Digital Design and Fabrication			
nZeb Buildings			
Circular economy			
Obs: Students will be divided into groups and will address a topic of their choice from those proposed by teachers or companies with which there are internship agreements. The themes will be focused on the realization of projects and on the analysis of the chosen solutions.			
8.2. Applications	Number of hours	Teaching methods	Notes
Presentation of the design / practice theme for each student	42	Exposure, applications	
Calculation method used at national level	42		
Implementation of the calculation methodology	42		
Case study based on calculation methods used at national level	68		
Deliver and present the elaborated project	2		
Bibliography 1. Course notes related to the disciplines studied in the first semesters of the master's cycle. 2. Bibliographic sources specific to the project / practice topic. 3. Legislation specific to each topic.			

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

The gained knowledge will be necessary for employees that will work in building services engineering design and execution.

**10. Evaluation**

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	-		
10.5 Applications	Verification (grade C); Knowledge in the calculation methodology when carrying out the project (grade A).	The verification consists in evaluating the knowledge resulting from the design (2 hours).	80% project 20% verification
10.6 Minimum standard of performance			
Grade components: Verification (C); Knowledge in the calculation methodology (A). $G = 0.2 C + 0.8 A$ Condition for obtaining the credits: $G \geq 5$ ; $C \geq 5$ ; $A \geq 5$			

<b>Date of filling in:</b> 16.06.2025		<b>Title Surname Name</b>	<b>Signature</b>
	Lecturer		
	Teachers in charge of application	Assoc.Prof.PhD.Eng Octavian Pop	
Date of approval in the Department of Building Services Engineering  19.06.2025		Head of department Assoc.Prof.PhD.Eng. Ciprian BACOȚIU	
Date of approval in the Council of the Faculty of Building Services Engineering  19.06.2025		Dean Assoc.Prof.PhD.Eng. Florin DOMNIȚA	