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	8.00

2. Data about the subject

2.1	Subject name			Building and City Assessment			
2.2	Course responsible/lecturer			Prof. PhD.eng. Cristina Câmpian - *cristina.campian@dst.utcluj.ro*			
2.4	Teachers in charge of seminars			Assoc.prof.Phd.Eng. Dorin Beu - *dorin.beu@insta.utcluj.ro*			
2.5 Year of study	I	2.6 Semester	2	2.7 Assessment	Exam		
2.8 Subject category	Formative category					DS	
	Optional					DI	

3. Estimated total time

3.1 Number of hours per week	3	of which	3.2 Course	1	3.3 Seminar		3.3 Laboratory		3.3 Project	2
3.4 Total hours in the curriculum	42	of which	3.5 Course	14	3.6 Seminar		3.6 Laboratory		3.6 Project	28

3.7 Individual study:	
(a) Manual, lecture material and notes, bibliography	18
(b) Supplementary study in the library, online and in the field	18
(c) Preparation for seminars/laboratory works, homework, reports, portfolios, essays	18
(d) Tutoring	2
(e) Exams and tests	2
(f) Other activities	

3.8 Total hours of individual study (sum (3.7(a)…3.7(f)))	58
3.9 Total hours per semester (3.4+3.8)	100
3.10 Number of credit points	4

4. Pre-requisites (where appropriate)

4.1	Curriculum	nZeB Buildings, Circular Economy
4.2	Competence	Use of computer (MS-Office)

5. Requirements (where appropriate)

5.1	For the course	Video-projector
5.2	For the project	N/A

6. Specific competences

Professional competences	● carry out a pre-assessment for voluntary green building certification schemes such as LEED, BREEAM, GREEN HOMES and for cities - European Energy Award; ● understand the process and implications of the green building and cities certifications systems; ● prepare the documentation needed in order to obtain a green building certification or city EEA; ● gain experience working in a green building or city ● certification project;
Cross competences	1. Use of efficient and responsible work strategies, on-time, honest and personal engagement, based on principles, norms, and ethical professional values. 2. Knowledge of team efficient work, on different hierarchy stages. 3. Use of references in a foreign language, for professional and personal development, through continuous formation and efficient adaptation to new technical specifications. 4. Social competences by becoming aware of his/her current knowledge and understanding the necessity of studying through the whole life of a system/product, building or a city.

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

7.1	General objective	● Learn to complete a green building certification system for a building or a community;
7.2	Specific objectives	● develop a solid understanding of the process, data requirements for completion of a green building or city certification; ● understand the criteria intent and technical applicable solutions and documentation requirements; ● critically evaluate sustainability tools used; ● use different methodologies for impact assessment; ● learn possible applications and limitations of the green building or city certification systems; • comparison of the main green building or city certification systems used at national and European level and analyze indicators through case studies;

8. Contents

8.1. Lecture (syllabus)	Number of hours	Teaching methods	Notes
1.Introduction to voluntary green building/city certification systems: History, definition, types, benefits, structure;	2	Video-Projector Teaching style based on the interactive teacher-student partnership;	
2.Goal and intent of the criteria for BREEAM, LEED, GREEN HOMES and European Energy Award;	2		
3.Data collection and validation. Data interpretation, limitation of green building/city certification systems.	2		
4.Identification of significant issues, evaluation, reporting, critical review.	2		

5.Pre-certification and certification process for a variety of projects.	2	Presentation of case studies.	
6.Integrated design charrettes with a project team and rol play in order to understand the process and the responsibilities of the green building/city consultant;	2		
7.Specialty reports and dynamic modelling specifications using approved software;	2		

Bibliography

1. Reeder, L. , Guide to Green Building Rating System, John Wiley &Sons, ISBN 978-0470401941, 2010
2. LEED V4 Reference Manual; www.usgbc.org
3. BREEAM New Construction 2019 Manual; www.breeam.com
4. BREEAM Refurbishment and Fit Out 2019 Manual; www.breeam.com
5. GREEN HOMES v3 Manual; www.rogbc.org
6. EEA manual: https://www.european-energy-award.org

8.2. Seminar /Laboratory/Project	Number of hours	Teaching methods	Notes
Computing programs and databases dedicated to green buildings	4	Site visits, role play during the projects, modeling execution, computer exercises, group project	
Preparation of reports based on the visit to the construction site;	4		
Real experience in each project;	2		
Preparation of an interim or final report for BREEAM, LEED and GREEN HOMES.	2		
Critical view and limitations of the main green building certification systems;	2		
European Energy Award concept - EEA	4		
Evaluating a city with the EEA system using the EMT calculation program	4		
Covenant of Mayor - CoM reporting system	2		
Data transfer between EEA and CoM	2		
Presentation of case studies	2		

Bibliography

1. National and international case studies;
2. Most specialized magazines with articles about the certification of green buildings / cities;
3. Journal of Industrial Ecology,
4. Environmental Science and Technology,
5. Journal of Cleaner Production,
6. Journal of Environmental Management, Ecological Economics, Energy.

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

The course is supervised by EEA – European Energy Award Association and Green Building Council International, with the help of Romania Green Building Council.

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Technical content, word count, structure and critical analysis;	mid-term exam final report grade	20% 40%
10.5 Seminars /Laboratory/Project	Technical content, presentation and communication skills;	class activity, assignments, presentation grade	40%
10.6 Minimum standard of performance			
5 points out of 10 total points (5 min/10 max)			

Date of filling in:		**Title Surname Name**	**Signature**
16.06.2024	Lecturer	Prof.PhD.Eng. Cristina Câmpian	
	Teachers in charge of application	Assoc.prof.PhD.Eng. Dorin Beu	

Date of approval in the Department of Building Services Engineering 27.06.2024	Head of department Assoc.Prof.PhD.Eng. Ciprian BACOŢIU
Date of approval in the Council of the Faculty of Building Services Engineering 27.06.2024	Dean Assoc.Prof.PhD.Eng. Florin DOMNIŢA