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	3.00

2. Data about the subject

2.1	Subject name			Digital Design and Fabrication			
2.2	Course responsible/lecturer			Lecturer Phd.Eng. Rusu Daniel Sorin			
2.3	Teachers in charge of seminars			Lecturer Phd.Eng. Rusu Daniel Sorin			
2.4 Year of study	1	2.5 Semester	1	2.6 Assessment		colloquy	
2.7Subject category	Formative category					DA	
	Optional					DI	

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) Manual, lecture material and notes, bibliography	14
(b) Supplementary study in the library, online and in the field	14
(c) Preparation for seminars/laboratory works, homework, reports, portfolios, essays	14
(d) Tutoring	0
(e) Exams and tests	2
(f) Other activities	3

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. Pre-requisites (where appropriate)

4.1	Curriculum	
4.2	Competence	Basic Knowledge of AutoCAD

5. Requirements (where appropriate)

5.1	For the course	AutoCAD REVIT MEP
5.2	For the applications Seminar / laboratory / project	I206, I207, I208, I209 Bd. 21 December Nr. 128-130, Cluj-Napoca

6. Specific competences

Professional competences	Understanding and knowing the basic notions of working with a BIM CAD software; Learning the basic of REVIT MEP: Interface, keyboard shortcuts, views, families, basic creation tools, HVAC, Plumbing and Electrical modules; Basic commands for construction elements; Creation of selection sets and basic editing tools; Work with different views of the project; Spaces and zones editing; Building Energy Performance Analysis; Using the HVAC module; Using the Hydronic Piping and Plumbing module; Using the Electrical Systems module; Scheduling, Detailing, Documentation, Work-sharing Printing and presentation of project
Cross competences	Efficient using of information sources and communication resources, assisted professional training.

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

7.1	General objective	Constructive and functional identification of building systems elements; Sizing calculation and representation
7.2	Specific objectives	Graphic representation of Building systems Data analysis output after using CAD and CAE software in building systems area.

8. Contents

8.1. Lecture (syllabus)	Number of hours	Teaching methods	Notes
1. Introduction in REVIT MEP	2	interactive teaching	Computes and required software
2. Basic Editing Tools	2		
3. Building Energy Performance Analysis	2		
4. HVAC Module	2		
5. Hydronic Piping and Plumbing Module	2		
6. Electrical Systems Module	2		
7. Scheduling, Detailing, Documentation, Work-sharing, Printing and Presentation	2		

Bibliography

Autodesk Revit 2021: Fundamentals for MEP (Metric Units): Autodesk Authorized Publisher, Editor Ascent, Centre for Technical Knowledge, ISBN: 1952866111

Exploring Autodesk Revit 2018 for MEP, Sham Tickoo, Cadcim Technologies, ISBN: 1942689918

8.2. Seminar /Laboratory/Project	Number of hours	Teaching methods	Notes
1. Starting a New Project, Views, Interface, Keyboard Shortcuts, Families, Basic Creation Tools	2	Exposition and applications	Computes and required software, video projector
2. Spaces and Zones Editing	2		
3. Perform Building Energy Analyses	2		
4. Draw HVAC	2		
5. Draw Piping and Plumbing	2		
6. Draw Electrical Systems	2		
7. Finalize and Printing the Project	2		
Bibliography Virtual didactical models Virtual examples; PDF applications PowerPoint presentations.			

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

Once you have completed this training course, you will have developed the knowledge and skills necessary to be able to create your own projects in Revit MEP Learn how to use Autodesk Revit MEP

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Testing of acquired knowledge	Presentation	50%
10.5 Seminars /Laboratory/Project	Develop a project in REVIT MEP	Project evaluation	50%
10.6 Minimum standard of performance			
Completion of at least one module (HVAC, Plumbing, Electrical) Seminar attendance is mandatory for examination Final grade components: Testing acquired knowledge (E), project evaluation (P). Final grade formula N=0.5xE+0.5xP Credits obtained only if N>5, E>5, P>5.			

Date of filling in:		**Title Surname Name**	**Signature**
16.06.2023	Lecturer	Lect.Phd.Eng. Rusu Daniel Sorin	
	Teachers in charge of application	Lect.Phd.Eng. Rusu Daniel Sorin	

Date of approval in the Department of Building Services Engineering 29.06.2023	Head of department Assoc.Prof.PhD.Eng. Carmen MÂRZA
Date of approval in the Council of the Faculty of Building Services Engineering 29.06.2023	Dean Assoc.Prof.PhD.Eng. Florin DOMNIŢA