

SYLLABUS ¹

1. Information about the program

1.1 Higher education institution	Politehnica University of Timisoara
1.2 Faculty ² / Department ³	Faculty of Civil Engineering / Department of Steel Structures and Structural Mechanics
1.3 Chair	—
1.4 Field of study (name/code ⁴)	Inginerie civilă și instalații (Civil engineering and building services) / 10
1.5 Study cycle	Master
1.6 Study program (name/code/qualification)	Inginerie civilă (Civil engineering) / 80 /Diplomă de master (Master degree)

2. Information about discipline

2.1 Name of discipline/The educational classe ⁵	Cold-Formed Steel Structures						
2.2 Coordinator (holder) of course activities	Prof.dr.ing. Daniel-Viorel Ungureanu						
2.3 Coordinator (holder) of applied activities ⁶	S.L.dr.ing. Andrei Crișan						
2.4 Year of study ⁷	2	2.5 Semester	1	2.6 Type of evaluation	E	2.7 Type of discipline ⁸	DCAV

3. Total estimated time (direct activities (fully assisted), partially assisted activities and unassisted activities⁹)

3.1 Number of hours fully assisted/week	4 ,of which:	3.2 course	2	3.3 seminar/laboratory/project			2
3.1* Total number of hours fully assisted/sem.	56 ,of which:	3.2* course	28	3.3* seminar/laboratory/project			28
3.4 Number of hours partially assisted/week	,of which:	3.5 project, research		3.6 training		3.7 hours designing M.A. dizertation	
3.4* Number of hours pasrtially assisted/ semester	,of which:	3.5* project of research		3.6* training		3.7* hours designing M.A. dizertation	
3.8 Number of hours of unassisted activities/ week	3.57 ,of which:	Additional documentation in the library, on specialized electronic platforms, and on the field					1.0
		Study using a manual, course materials, bibliography and lecture notes					1.0
		Preparation of seminars/ laboratories, homework, assignments, portfolios, and essays					1.5 7
3.8* Total number of hours of unasssited asctivities/ semester	50 ,of which:	Additional documentation in the library, on specialized electronic platforms, and on the field					14
		Study using a manual, course materials, bibliography and lecture notes					14
		Preparation of seminars/ laboratories, homework, assignments, portfolios, and essays					22
3.9 Total hrs./week ¹⁰	7.57						
3.9* Total hrs./semester	106						
3.10 No. of credits	8						

4. Prerequisites (where applicable)

4.1 Curriculum	• Steel structures
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¹ The form corresponds to the Syllabus promoted by OMECTS 5703/18.12.2011 (Annex 3), updated based on the Specific Standards ARACIS of December 2016.

² The name of the faculty which manages the educational curriculum to which the discipline belongs

³ The name of the department entrusted with the discipline, and to which the course coordinator/holder belongs.

⁴ Fill in the code provided in HG no. 376/18.05.2016 or in HG similars annually updated.

⁵ The educational classes of subjects (ARACIS – specific standards, art./paragraph 4.1.2.a) are: fundamental subjects, field subjects, majoring/specialization subjects.

⁶ The applied activities refer to: seminar (S) / laboratory (L) / project (P) / practice/training (Pr).

⁷ The year of study to which the discipline is provided in the curriculum .

⁸ The types of subjects (ARACIS – specific standards, art./paragraph 4.1.2.a) are: extended knowledge subject / advanced knowledge subject and synthetic subject (DA / DCAV and DS).

⁹ Within UPT, the number of hours from 3.1*, 3.2*, ..., 3.9* are obtained by multiplying by 14 (weeks) the number of hours from 3.1, 3.2, ..., 3.9.

¹⁰ The total number of hours/week is obtained by summing up the number of hours from 3.1, 3.4 și 3.8.

	• Mechanics of materials • Structural Mechanics
4.2 Competencies	• Operation with scientific and engineering fundamentals
5. Conditions (where applicable)	
5.1 of the course	• Classroom, video projector, writing board, projecting screen, computer
5.2 to conduct practical activities	• Computer room, writing board

6. Specific competencies acquired through this discipline

Specific competencies	• Building design with the possibility of assuming responsibility as a Manager; • Construction and maintenance activities in the construction industry; • Research activity, development in structural domain for constructions; • Consulting, technical assistance and project verifications.
Professional competencies ascribed to the specific competencies	• Cognitive skills: knowledge, understanding and use of specialist terminology relating to cold-formed steel products; • Applied-practical skills: knowledge and understanding of concepts related to the use of elements for drafting; the theoretical base necessary for training future professional development
Transversal competencies ascribed to the specific competencies	• Communication skills and networking: capacity development of oral and written communication, respectively, the proper use of specific terms; • Skills for personal and professional development: to develop the capacity for learning, improving management skills working with building components in order to obtain a maximum construction energetic efficiency.

7. Objectives of the discipline (based on the grid of specific competencies acquired)

7.1 The general objective of the discipline	• Steel structures built using thin-walled cold-formed steel profiles represent the most dynamic sector of construction engineering. The use of thin-walled cold-formed steel profiles implies to solve a series of specific design problems that are not usual for steel structures made of hot-rolled or welded profiles.
7.2 Specific objectives	• Present course gives students the necessary knowledge to tackle all the design matters that arises when dealing with cold-formed steel structures.

8. Content

8.1 Course	Number of hours	Teaching methods
Introduction. The use of thin-walled cold-formed steel members in constructions	2	Oral presentation, interactive lecture, explanation, demonstration (by effective action, with the help of graphic materials, with the aid of 3D models using real objects), problems, case studies.
Basis of structural design	2	
Geometric characteristics of effective sections for thin-walled profiles	2	
Strength design of thin-walled cold-formed steel members accounting for local buckling	6	
Stability design of thin walled cold-formed steel members in compression and/or bending	4	
Connections	2	
Design of purlins and claddings	4	
Diaphragm effect of corrugated sheeting	2	
Structural applications of cold-formed thin-walled section profiles	2	
Constructive solutions for residential buildings and industrial warehouses using thin-walled cold-formed steel profiles	2	

Bibliography ¹¹		
1. Dubina D., Ungureanu V., Landolfo R.: Design of Cold-formed Steel Structures. Eurocode 3: Design of Steel Structures. Part 1-3 Design of cold-formed Steel Structures. ISBN-13: 978-3-433-02979-4, Ernst & Sohn, A Wiley Company, Berlin, 2012. 2. Dubina D., Ungureanu V., Zaharia R., Nagy Zs.: Calculul și proiectarea construcțiilor din profile metalice cu pereți subțiri formate la rece. Volumul I. Editura AMM, Colecția Lindab, București, 2004. 3. Rhodes J. (Ed.): Cold-Formed Members in Constructional Steel Design – An International Guide, Elsevier, Oxford, 1992. 4. EN 1993-1-3 (2006) (English): Eurocode 3: Design of steel structures - Part 1-3: General rules - Supplementary rules for cold-formed members and sheeting, 2006.		
8.2 Applied activities ¹²	Number of hours	Teaching methods
Design of an industrial building made of thin-walled cold-formed steel profiles, using all the design steps described in the course, including drawings for connections.	28	Individual project. Description and explanation of the main steps necessary for designing the industrial building.
Bibliography ¹³		
1. Dubina D., Ungureanu V., Landolfo R.: Design of Cold-formed Steel Structures. Eurocode 3: Design of Steel Structures. Part 1-3 Design of cold-formed Steel Structures. ISBN-13: 978-3-433-02979-4, Ernst & Sohn, A Wiley Company, Berlin, 2012. 2. Ungureanu V.: Cold-formed Steel Structures - Design Examples. Editura Orizonturi Universitare, ISBN: 978-973-638-527-8, 2013. 3. EN 1993-1-3 (2006) (English): Eurocode 3: Design of steel structures - Part 1-3: General rules - Supplementary rules for cold-formed members and sheeting, 2006.		

9. Corroboration of the content of the discipline with the expectations of the main representatives of the epistemic community, professional associations and employers in the field afferent to the program

• The University of Sydney, Australia • Imperial College London • Colorado State University

10. Evaluation

Type of activity	10.1 Evaluation criteria ¹⁴	10.2 Evaluation methods	10.3 Share of the final grade
10.4 Course	2-3 exam subjects with theoretical character and 2	Written exam: 2 hours	50%

¹¹ At least one title must belong to the department staff teaching the discipline, and at least one title must refer to a relevant work for the discipline, a national and international work that can be found in the UPT Library.

¹² The types of applied activities are those mentioned in 5. If the discipline contains more types of applied activities then they are marked, consecutively, in the table below. The type of activity will be marked distinctively under the form: „Seminar:”, „Laboratory:”, „Project:” and/or „Practice/Training:”.

¹³ At least one title must belong to the staff teaching the discipline.

¹⁴ The Syllabus must contain the evaluation method of the discipline, specifying the criteria, the methods and the forms of evaluation, as well as mentioning the share attached to these within the final mark. The evaluation criteria must correspond to all activities stipulated in the curriculum (course, seminar, laboratory, project), as well as to the methods of continuous assessment (homework, essays etc.)

	applications		
10.5 Applied activities	S:		
	L:		
	P: Project activity, project development and project defense	Verification at the end of the semester	50%
	Pr:		
	Tc-R¹⁵:		
10.6 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified ¹⁶)			
• Passing mark (5) received for 50% completion of each subject and project passed			

Date of completion

**Course coordinator
(signature)**

**Coordinator of applied activities
(signature)**

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**Head of Department
(signature)**

**Date of approval in the Faculty
Council ¹⁷**

**Dean
(signature)**

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¹⁵ Tc-R= Homework-Reports

¹⁶ For this point turn to "Ghid de completare a Fișei disciplinei" found at: http://univagora.ro/m/filer_public/2012/10/21/ghid_de_completare_fisa_disciplinei.pdf

¹⁷ The approval is preceeded by discussing the study program's board's point of view with redgards to the syllabus.