

SYLLABUS

1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Civil Engineering
1.3	Department	Structuri
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	Civil, Industrial and Agricultural Buildings /Engineer (English language)
1.7	Form of education	Full time
1.8	Subject code	65.1

2. Data about the subject

2.1	Subject name				Constructii industriale						
2.2	Course responsible/lecturer				Prof.Dr.Ing. Nagy Zsolt-Zsolt.Nagy@dst.utcluj.ro						
2.3	Teachers in charge of seminars				Sl.Dr.Ing. Moga Catalin-Catalin.Moga@dst.utcluj.ro						
2.4	Year of study	4	2.5	Semester	2	2.6	Assessment	E	2.7	Subject category	DS/DO

3. Estimated total time

3.1	Number of hours per week	2	3.2	of which, course:	1	3.3	applications:	
3.4	Total hours in the curriculum	28	3.5	of which, course:	14	3.6	applications:	
Individual study								hours
Manual, lecture material and notes, bibliography								20
Supplementary study in the library, online and in the field								8
Preparation for seminars/laboratory works, homework, reports, portfolios, essays								13
Tutoring								2
Exams and tests								4
Other activities								0
3.7	Total hours of individual study		47					
3.8	Total hours per semester		75					
3.9	Number of credit points		3					

4. Pre-requisites (where appropriate)

4.1	Curriculum	
4.2	Competence	Exam of Steel Structures II.

5. Requirements (where appropriate)

5.1	For the course	
5.2	For the applications	

6. Specific competences

Professional competences	<p>The student shall be familiar with steel and concrete structural systems for buildings: columns, beams, floors, for single story (SS) buildings and cladding solutions;</p> <p>The student shall be able to use /shall be familiar with design software's for steel and/or concrete structures</p> <p>Performing the lectures and applications students will be able:</p> <ul style="list-style-type: none"> - to set up structural solutions (steel and concrete) for columns, beams, floors, for single story (SS) industrial buildings - to perform rational and economic design of structures and claddings, - to design industrial buildings, using a number of available specific products, being able to define list of materials, execution details for runaway cranes, to manage and check the designed construction works <p>Performing the lectures and applications students will be able to handle:</p> <ul style="list-style-type: none"> - design software's for steel framed structures, - design software's for complex structural applications which involves steel and concrete structures, - BIM modelling technology to prepare design documentation for industrial constructions
Cross competences	<p>To apply accumulated skills in order to improve the performance in team working, on site or in a design office;</p> <p>To develop own and responsible strategy following the principles, codes and professional ethics</p>

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

7.1	General objective	Design of steel- structure for an industrial hall
7.2	Specific objectives	<ol style="list-style-type: none"> 1. Set up of structural solutions for industrial halls using steel columns, beams and floors; 2. Quick and efficient design of steel columns, and beams with cladding solutions; 3. To prepare design documentation for industrial type structures; 4. To familiarize with existing technologies provided by specific companies in the construction market.

8. Contents

8.1. Lecture (syllabus)	Teaching methods	Notes
Introduction – industrial constructions; generalities, examples	-	-
Key design factors: Forms of Industrial Buildings, Fire safety, Building physics, Loading		
Key design factors: Concept Design Considerations, Floors, Service integration, Lighting		
Actions for industrial constructions		
Structural systems, Structural configurations, Cranes		
Steel claddings: source material, corrosion protection, roofing solutions with trapezoidal sheeting		
Roofing solutions with sandwich elements, loading performance, sizing guidelines, details		
Building physics: thermal insulation, noise protection, vapor diffusion		

Wall solutions with box profiles, Packaging / transport / storage, Built examples		
Sandwich elements for walls, Historic development of sandwich elements / production, Insulation cores quality assurance, Tables with span data / technical data, construction details		
Designer's in 21-st century		
Case study: human error - design errors in practice		
Material suppliers for claddings, resources from industry		
Case study: built example of industrial building		
Bibliography		
References		
1. Dr. ing. Cătălin Moga, dr.Ing. Zsolt NAGY - Construcții Industriale, Editura UTPress		
2. En1993-1-3:2003 Eurocode 3: Part 1-3: General rules, Supplementary rules for cold-formed thin gauge members and sheeting		
3. ECCS TC7 TWG 7.5 - Practical Improvement of Design Procedures - Worked Examples According to EN 1993-1-3		
4. Best Practice in Steel Construction - Industrial Buildings		
5. Access Steel resources on www.access-steel.com		
6. ESDEP Lectures		
8.2. Applications/Seminars	Teaching methods	Notes
Selection and design of Z purlins for roofing and wall cladding	-	-
Selection and design of trapezoidal sheeting for roofing and wall cladding		
Selection and design of sandwich elements for roofing and wall cladding		
Selection and design of dry floor solutions		
Case study: resources from industry - ABC software		
Training: resources from industry - Consteel software		
Training : resources from industry – Tekla structures software		
Designer's in 21-st century		
Bibliography		
References		
1. Dr. ing. Cătălin Moga, dr.Ing. Zsolt NAGY - Construcții Industriale, Editura UTPress		
2. En1993-1-3:2003 Eurocode 3: Part 1-3: General rules, Supplementary rules for cold-formed thin gauge members and sheeting		
3. ECCS TC7 TWG 7.5 - Practical Improvement of Design Procedures - Worked Examples According to EN 1993-1-3		
4. Best Practice in Steel Construction - Industrial Buildings		
5. Access Steel resources on www.access-steel.com		
6. ESDEP Lectures		

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

Accumulated skills will be necessary for those employees who will be involved in private or public institutions activities dealing with construction works, project management or quality assurance for industrial constructions

10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade
10.4 Course	Essay, responding for 3 theoretical question	Written testing –1,5-2 hour evaluation	60%
10.5 Applications	Design application using personal computer	Practical testing –1 hour evaluation	40%
10.6 Minimum standard of performance			
Solving the design application and responding for 2 theoretical questions			

Date of filling in:		Title Surname Name	Signature
	Lecturer	Prof.Dr.Ing. Nagy Zsolt	
	Teachers in charge of application	Sl.Dr.Ing. Moga Catalin	

Date of approval in the department	Head of department conf.dr.ing. Attila Puskas
18/06/2025	
Date of approval in the faculty	Dean prof.dr.ing Daniela MANEA
25/06/2025	