

# **SYLLABUS**

## 1. Data about the program of study

1.1	Institution	The Technical University of Cluj-Napoca
1.2	Faculty	Faculty of Constructions
1.3	Department	Civil Constructions and Management
1.4	Field of study	Civil Engineering
1.5	Cycle of study	Bachelor of Science
1.6	Program of study/Qualification	CE
1.7	Form of education	Full time
1.8	Subject code	45.20

# 2. Data about the subject

2.1	Subject nam	е			Fire Safety of C	onstruct	ions	
2.2	Subject area							
2.3	Course respo	onsil	ole/lecturer					
2.4	Teachers in	char	ge of seminars	5				
2.5 stud	Year of ly	III	2.6 Semester	2	2.7 Assessment	С	2.8 Subject category	DID/DOP

#### 3. Estimated total time

3 1 N	lumber of hours per week	2	3.2 of which course:	28	3.3		
5.1 N	under of nours per week	2	5.2 UI W	men, course.	28	applications:	
3 / T	otal bours in the curriculum	52	35 of $w$	hich course:	28	3.6	
J.4 I		52	5.5 OF W		20	applications:	
Indiv	idual study						hours
Man	ual, lecture material and note	s, biblio	graphy				12
Supp	plementary study in the library	y, online	and in t	the field			2
Preparation for seminars/laboratory works, homework, reports, portfolios, essays					8		
Tuto	ring						
Exar	ns and tests						2
Othe	r activities						
3.7	Total hours of individual stu	dy	24				-
3.8	Total hours per semester		52				
3.9	Number of credit points		2				

3.9	Number of credit points

## 4. Pre-requisites (where appropriate)

		Resistance of Materials, Dynamics of fluids,
4.1 Curriculum		Thermodynamics, Chemistry, Numerical methods and
		Statistics
4.2	Competence	Fire safety Engineering

## 5. Requirements (where appropriate)



5.1	For the course	N/A
5.2	For the applications	

#### 6. Specific competences

Professional	competences	Constructive and functional conformation of buildings concerning fire safety. Evaluation of specific fire actions on buildings structure. Fire design of structural elements for steel, timber and reinforced concrete structures. Fire protection of structural elements for steel, timber and reinforced concrete structures.
competence	s	

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

7.1	General objective	Constructive and functional conformation of buildings concerning fire safety. Qualitative evaluation of constructions fire behavior
7.2	Specific objectives	Evaluation of specific fire actions on buildings structure. Fire design of structural elements for steel, timber and reinforced concrete structures. Fire protection of structural elements for steel, timber and reinforced concrete structures.

#### 8. Contents

8.1. L	ecture (syllabus)	Teaching methods	Notes
1.	Introduction in fire behavior of buildings and construction elements. Natural and normalized fire. Factors which influence development and distructiv		
	potential of fire.		
2	Thermal load. Parametric fire curves. Standard fire		
۷.	curve.		
3	Requirements and performance criteria in buildings		
5.	fire design. Fire behaviour and fire resistance tests.		
4	Review of romanian regulations of fire protection. fire		
4.	safety according standard P118-1999.		
5.	Fire scenario		

str. Memorandumului nr.28, 400114 Cluj-Napoca, România \_\_tel. +40-264-401200, fax +40-264-592055, secretariat tel. +40+264-202209, fax +40-264-202280\_ http://www.utcluj.ro/



6.       Fire design of constructions according to performance criteria.         7.       Eurocodes Parts 1-2. Fire safety design         8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of steel elements. Protection of concrete elements.         Protection of concrete elements.         Protection of concrete elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCTII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.       Eurocosy Fire Dynamics.         8.       .         9.       .         1.       .         2.       .         3.       . <th>6.       Fire design of constructions according to performance criteria.         7.       Eurocodes Parts 1-2. Fire safety design         8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of       13.         steel elements.Protection of wood elements.         Protection of concrete elements.         Fire design and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA. – CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.      </th> <th></th> <th></th> <th></th> <th></th>	6.       Fire design of constructions according to performance criteria.         7.       Eurocodes Parts 1-2. Fire safety design         8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of       13.         steel elements.Protection of wood elements.         Protection of concrete elements.         Fire design and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA. – CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.				
0.       criteria. regulations based on performance criteria.         7.       Eurocodes Parts 1-2. Fire safety design         8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of         13.       steel elements. Protection of owood elements and structures design.         Protection of concrete elements.         Protection of concrete elements.         Protection of concrete elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA. – CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	0.       criteria. regulations based on performance criteria.         7.       Eurocodes Parts 1-2. Fire safety design         8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         13.       steel elements. Protection of buildings elements. Protection of steel elements.         Price tool of concrete elements.       Fire design and stability computation. Steel elements and structures design.         Bibliography       1. Normativul P118-99.       2. Andreica, HA CONSTRUC7/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.       4. Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.       Teaching methods         1.	6	Fire design of constructions according to performance		
7.       Eurocodes Parts 1-2. Fire safety design         8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of stability computation. Steel elements. Protection and stability computation. Steel elements and structures design. Wood elements and structures design.         Bibliography       1.         14.       and structures design. Wood elements and structures design.         Bibliography       1.       Notreica, HA CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.       4.         4.       Standards, norms, national and international technical regulations.       5.         5.       Quintiere J. Enclosure Fire Dynamics.       1.         6.       .       .         7.       .       .         8.       .       .         9.       .       .         10.       .       .         11.       .       .         12. <t< td=""><td>7.       Eurocodes Parts 1-2. Fire safety design         8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of         13.       steel elements. Protection of wood elements and structures design.         Protection of concrete elements.         Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUC7/II, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.      </td><td>0.</td><td>criteria. regulations based on performance criteria.</td><td></td><td></td></t<>	7.       Eurocodes Parts 1-2. Fire safety design         8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of         13.       steel elements. Protection of wood elements and structures design.         Protection of concrete elements.         Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUC7/II, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	0.	criteria. regulations based on performance criteria.		
8.       Thermai load evaluation. Eurocode 1991-1-2. Parametric fire curves.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria. regulations based on performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of steel elements. Protection of wood elements. Protection of concrete elements.         14.       Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography       Normativul P118-99.       Andreica, HA CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.       Teaching methods       Notes         1.       Image: Complexity of the structure is	8.       Thermal load evaluation. Eurocode 1991-1-2.         Parametric fire curves.       9.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria. regulations based on performance criteria.         12.       Smoke filling time.         13.       Fire protection of buildings elements. Protection of steel elements. Protection of concrete elements.         Protection of concrete elements.       Fire design. Concrete elements and structures design.         14.       Calculation and stability computation. Steel elements and structures design.         astructures design. Wood elements and structures design.       Natures.         Bibliography       1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCTII, UT PRES Cluj-Napoca       3.         3.       EUROCODE 1-5 Parts 1-2.       4.         4.       Standards, norms, national and international technical regulations.       5.         5.       Quintiere J. Enclosure Fire Dynamics.       Teaching methods       Notes         1.	7.	Eurocodes Parts 1-2. Fire safety design		
9.       Parametric fire curves.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         13.       steel elements. Protection of buildings elements. Protection of concrete elements.         Protection of concrete elements.       Protection of concrete elements.         Protection and stability computation. Steel elements and structures design. Concrete elements and structures design.         Bibliography       1.         14.       and structures design. Wood elements and structures design.         Bibliography       1.         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.       Partical HA.         4.	9.       Parametric fire curves.         9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria. regulations based on performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of steel elements. Protection of concrete elements. Protection of concrete elements.         Price design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography       1.         1.       Calculation and stability computation. Steel elements and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography       1.         1.       Calculation and stability computational technical regulations.         2.       Andreica, HA. – CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	8	Thermal load evaluation. Eurocode 1991-1-2.		
9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of         13.       steel elements. Protection of wood elements.         Protection of concrete elements.         Protection and stability computation. Steel elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA. – CONSTRUCTII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.       Puestions/Seminars         1.       Teaching methods         1.       Motes         1.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Teaching methods         9.       Standards, norms, national and international technical regulations.         6.       Standards	9.       Enclosure Fire dynamics. Plume equations.         10.       Fuel controlled and ventiliation controlled compartment fire. Flashover oriteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of         13.       steel elements.Protection of wood elements.         Protection and stability computation. Steel elements and structures design. Concrete elements.         and structures design. Wood elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	0.	Parametric fire curves.		
10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria. regulations based on performance criteria.         12.       Smoke filling time.         13.       Fire protection of buildings elements. Protection of steel elements. Protection of concrete elements.         14.       Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         15.       Bibliography         1.       Normativul P118-99.         2.       Andreica, HA. – CONSTRUCTII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.       Motes         1.       Eaching methods         9.       Guintiere J. Enclosure Fire Dynamics.         8.       Guintiere J. Enclosure Fire Dynamics.         8.       Guintiere J.         9.       Guintiere J.         10.       Guintiere J.         11.       Guintiere J.         12.       Guintiere J.         13.       Gui	10.       Fuel controlled and ventilation controlled compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         13.       steel elements. Protection of steel elements. Protection of concrete elements.         14.       Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design.         14.       Astructures design. Wood elements and structures design. Concrete elements and structures design.         15.       Bibliography         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCT/I, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	9.	Enclosure Fire dynamics. Plume equations.		
10       compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria. regulations based on performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of steel elements. Protection of concrete elements.         Protection of concrete elements.         Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         14.         15.         16.         17.         18.         19.         19.         10.         11.         12.         13.         14.         15.         14.         16.         17.         18.         19.         19.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18.         18.         18.         18.         18.         19. <td< td=""><td>10       compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria. regulations based on performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of       file         13.       steel elements. Protection of wood elements. Protection of ocncrete elements.         Protection of concrete elements.       Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         14.       ad structures design. Wood elements and structures design.         Bibliography       1. Normativul P118-99.         2. Andreica, HA. – CONSTRUCT/I, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.      </td><td>10</td><td>Fuel controlled and ventilation controlled</td><td></td><td></td></td<>	10       compartment fire. Flashover criteria.         11.       Fire design of constructions according to performance criteria. regulations based on performance criteria.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of       file         13.       steel elements. Protection of wood elements. Protection of ocncrete elements.         Protection of concrete elements.       Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         14.       ad structures design. Wood elements and structures design.         Bibliography       1. Normativul P118-99.         2. Andreica, HA. – CONSTRUCT/I, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	10	Fuel controlled and ventilation controlled		
11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         13.       steel elements. Protection of wood elements.         Protection of concrete elements.       Protection of concrete elements.         14.       Fire protection of structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         Bibliography       1.         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Teaching methods         2.       Image: Structura analysis and structures design.         1.       Image: Structure analysis and structures design.         2.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3.       Europative analysis and structures design.         8.2.       Applications/Seminars         1.       Image: Structure analysis and structures design.         3.       Image: Structure analysis and structures design.         4.       Image: Structure analysis	11.       Fire design of constructions according to performance criteria.         12.       Smoke filling time.         13.       steel elements. Protection of buildings elements. Protection of concrete elements.         13.       steel elements.Protection of wood elements.         Protection of concrete elements.       Fire design and structural analysis, strength         14.       calculation and stability computation. Steel elements and structures design.         Bibliography       1.         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	10.	compartment fire. Flashover criteria.		
11.       Conternational and international technical regulations.         12.       Smoke filling time.         Fire protection of buildings elements. Protection of steel elements. Protection of concrete elements.         Protection of concrete elements.         Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCTII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.       Applications/Seminars         1.       Teaching methods         3.       Notes         1.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.       Quintiere J.         9.       Quintiere J.         10.       Quintiere J.         11.       Quintiere J.         12.       Quintiere J.         13.       Quintiere J.         14.       Quintiere J.         15.       Quintiere J. <t< td=""><td>11.       Conternational and international technical regulations.         12.       Smoke filling time.         13.       steel elements. Protection of buildings elements. Protection of concrete elements.         14.       Protection of concrete elements and structures design.         Bibliography       1.         14.       Normativul P118-99.         2.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Teaching methods         3.       Image: Construct of Construc</td><td>11</td><td>Fire design of constructions according to performance</td><td></td><td></td></t<>	11.       Conternational and international technical regulations.         12.       Smoke filling time.         13.       steel elements. Protection of buildings elements. Protection of concrete elements.         14.       Protection of concrete elements and structures design.         Bibliography       1.         14.       Normativul P118-99.         2.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Teaching methods         3.       Image: Construct of Construc	11	Fire design of constructions according to performance		
12.       Smoke filling time.         13.       Fire protection of buildings elements. Protection of steel elements.Protection of wood elements.         13.       Protection of concrete elements.         14.       calculation and stability computation. Steel elements and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography       1.         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCTII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Teaching methods         1.       Motes         1.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Image: Standards and Structures design and Structures design and Structures design.         9.       Image: Standards and Structures design and Structures design and Structures design.         1.       Image: Standards and Structures design	12.       Smoke filling time.         13.       Fire protection of buildings elements. Protection of steel elements. Protection of concrete elements.         Protection of concrete elements.       Protection of concrete elements.         14.       Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design. Concrete elements and structures design. Concrete elements and structures design.         Bibliography       1.         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCTII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.       Applications/Seminars         1.       Teaching methods         1.       Teaching methods         1.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.       Standards         9.       Notes         10.       Interval         11.       Interval         12.       Interval         13.       Interval         9.       Interval		criteria. regulations based on performance criteria.		
Fire protection of buildings elements. Protection of steel elements.Protection of wood elements.       Protection of concrete elements.         13.       Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.       Image: Concrete elements and structures design.         14.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca       Image: Concrete elements and structures design.         Bibliography       1.       Normativul P118-99.       Image: Concrete elements and structures design.         3.       EUROCODE 1-5 Parts 1-2.       4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.       Image: Concrete elements and structures design.         8.2.       Applications/Seminars       Teaching methods         1.       Image: Concrete elements and international technical regulations.       Image: Concrete elements and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.       Image: Concrete elements and elements are elements and elements are elements are elements.         1.       Image: Concrete elements are elements	Fire protection of buildings elements. Protection of steel elements.       Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design. Concrete elements and structures design.         Bibliography       1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.	12.	Smoke filling time.		
13.       steel elements.Protection of wood elements. Protection of concrete elements.         Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography         1.         Normativul P118-99.         2.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.	13.       steel elements. Protection of wood elements.         Protection of concrete elements.         Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         14.         14.         and structures design. Wood elements and structures design.         Bibliography         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Teaching methods         1.       Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Enclosure Fire Dynamics.         8.1       Enclosure Fire Dynamics.         6.       Enclosure Fire Dynamics.         7.       Enclosure Fire Dynamics.         8.       Enclosure Fire Dynamics.         9.       Enclosure Fire Dynamics.         10.       Enclosure Fire Dynamics.         11.       Enclosure Fire Dynamics.         12.       Enclosure Fire Dynamics. <td></td> <td>Fire protection of buildings elements. Protection of</td> <td></td> <td></td>		Fire protection of buildings elements. Protection of		
Protection of concrete elements.         Fire design and structural analysis, strength         calculation and stability computation. Steel elements         and structures design. Wood elements and structures         design. Concrete elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA. – CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         11.      <	Protection of concrete elements.         Fire design and structural analysis, strength         calculation and stability computation. Steel elements         and structures design. Wood elements and structures         design. Concrete elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         9.         10.         11.         12.         13.         14.         Bibliography	13.	steel elements.Protection of wood elements.		
Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA. – CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         11.         12.         13.         14.         15.         16.	Fire design and structural analysis, strength calculation and stability computation. Steel elements and structures design. Wood elements and structures design. Concrete elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA. – CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         11.         12.         13.         14.         Bibliography </td <td></td> <td>Protection of concrete elements.</td> <td></td> <td></td>		Protection of concrete elements.		
14.       calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         Bibliography       1.         1.       Normativul P118-99.         2.       Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3.       EUROCODE 1-5 Parts 1-2.         4.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Teaching methods         2.       Notes         1.       Eurocoure         2.       Standards, norms, national and international technical regulations.         5.       Quintiere J. Enclosure Fire Dynamics.         8.2.       Applications/Seminars         1.       Teaching methods         9.       Standards         1.       Standards         1.       Standards         1.       Standards         2.       Standards         3.       Standards         4.       Standards         5.       Standards         6.       Standards         7.       Standards         9.       Standards         10.       <	14.       calculation and stability computation. Steel elements and structures design. Concrete elements and structures design.         Bibliography       1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography		Fire design and structural analysis, strength		
and structures design. Wood elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         Teaching methods         Notes         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         11.         12.         13.         14.         15.         16.         17. </td <td>and structures design. Wood elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         7.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography</td> <td>14</td> <td>calculation and stability computation. Steel elements</td> <td></td> <td></td>	and structures design. Wood elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         7.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography	14	calculation and stability computation. Steel elements		
design. Concrete elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA. – CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         Teaching methods         Notes         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18         18         11.         12.         13.         14.         15.	design. Concrete elements and structures design.         Bibliography         1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography	17.	and structures design. Wood elements and structures		
Bibliography         1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         Teaching methods         Notes         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18bilgeranby	Bibliography         1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography		design. Concrete elements and structures design.		
1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         Teaching methods         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.         16.         17.         18bilingeranby	1. Normativul P118-99.         2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography	Biblio	graphy		
2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         15.         16.         17.         18.         19.         10.         11.         12.         13.         14.         15.	2. Andreica, HA CONSTRUCȚII, UT PRES Cluj-Napoca         3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars         1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography	1.	Normativul P118-99.		
3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	3. EUROCODE 1-5 Parts 1-2.         4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.			Manaaa	
4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	4. Standards, norms, national and international technical regulations.         5. Quintiere J. Enclosure Fire Dynamics.         8.2. Applications/Seminars       Teaching methods         1.	2.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj-	Napoca	
Teaching methods       Notes         1.	Teaching methods       Notes         1.	2. 3.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2.		
8.2. Applications/Seminars       Teaching methods       Notes         1.	8.2. Applications/Seminars     Teaching methods     Notes       1.	2. 3. 4.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr	napoca	
Image: Market of the second	Image: Market of the second	2. 3. 4. 5.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca	
1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.	1.         2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography	2. 3. 4. 5. 8.2. A	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	inapoca nical regulations.	Notes
2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.	2.         3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography	2. 3. 4. 5. 8.2. A	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	inapoca iical regulations. Teaching methods	Notes
3.         4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.	3.	2. 3. 4. 5. 8.2. A	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	inapoca nical regulations. Teaching methods	Notes
4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.	4.         5.         6.         7.         8.         9.         10.         11.         12.         13.         14.         Bibliography	2. 3. 4. 5. 8.2. A 1. 2.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	inapoca nical regulations. Teaching methods	Notes
5.         6.         7.         8.         9.         10.         11.         12.         13.         14.	5.	2. 3. 4. 5. 8.2. A 1. 2. 3.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	inapoca nical regulations. Teaching methods	Notes
6.         7.         8.         9.         10.         11.         12.         13.         14.	6.	2. 3. 4. 5. 8.2. A 1. 2. 3. 4.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
7.         8.         9.         10.         11.         12.         13.         14.	7.	2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
8.       9.         9.       10.         10.       11.         12.       13.         14.       Bibliography	8.       9.         9.       10.         10.       11.         12.       13.         14.       Bibliography	2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
9.         10.         11.         12.         13.         14.         Bibliography	9.         10.         11.         12.         13.         14.         Bibliography	2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7.	Andreica, HA. – <i>CONSTRUCŢII</i> , UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
10.         11.         12.         13.         14.         Bibliography	10.         11.         12.         13.         14.         Bibliography	2. 3. 4. 5. 7. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
11.       12.       13.       14.	11.         12.         13.         14.         Bibliography	2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
12.       13.       14.       Bibliography	12.       13.       14.       Bibliography	2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9. 10.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	ical regulations. Teaching methods	Notes
13.       14.       Bibliography	13.       14.       Bibliography	2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
14. Bibliography	14. Bibliography	2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	ical regulations. Teaching methods	Notes
Bibliography	Bibliography	2. 3. 4. 5. 7. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
Dibilography		2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14.	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
		2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. Biblio	Andreica, HA. – CONSTRUCȚII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
		2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. Biblio	Andreica, HA. – CONSTRUCŢII, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics.	napoca nical regulations. Teaching methods	Notes
		2. 3. 4. 5. 8.2. A 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. Biblio	Andreica, HA. – CONSTRUC[11, UT PRES Cluj- EUROCODE 1-5 Parts 1-2. Standards, norms, national and international techr Quintiere J. Enclosure Fire Dynamics. 	napoca nical regulations. Teaching methods	Notes



TECHNICAL UNIVERSITY\_ OF CLUJ-NAPOCA

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

## 10. Evaluation

Activity type	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight in the final grade			
Course	Examination of theoretical part	Written exam paper	100%			
Applications	-					
10.4 Minimum standard of performance						

Date of completion september 2016 Course Tenure

Lecturer , Dr Eng\_MSc Ruxandra Dârmon **Course Instructor** 

Lecturer, Dr Eng\_MSc Ruxandra Dârmon

Date of approval within department

Department Manager Senior Lecturer, Dr Eng\_Claudiu Aciu