#### **COURSE OUTLINE**

#### 1. Data about the study programme

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1.1 Higher education institution	TRANSILVANIA UNIVERSITY OF BRASOV
1.2 Faculty	FURNITURE DESIGN AND WOOD ENGINEERING
1.3 Department	WOOD PROCESSING AND WOOD PRODUCTS DESIGN
1.4 Field of study <sup>1)</sup>	FORESTRY ENGINEERING
1.5 Study level <sup>2)</sup>	MASTER
1.6 Study programme/ Qualification	FURNITURE ECO-DESIGN AND RESTORATION (in English)

#### 2. Data about the course

2.1 Name of course			ECO-CERTIFICATION AND NOX EMISSIONS IN WOOD INDUSTRY					RY
2.2 Course convenor			Ass	Assoc. Prof. Octavia ZELENIUC Ph.D.				
2.3 Seminar/ laboratory/ project convenor		Ass	Assoc. Prof. Octavia ZELENIUC Ph.D.					
2.4 Study year	Ш	2.5 Semester	Ι	2.6 Evaluation	С	2.7 Course	Content <sup>3)</sup>	AC
				type		status	Attendance type <sup>4)</sup>	EC

### 3. Total estimated time (hours of teaching activities per semester)

3.1 Number of hours per week	2	out of which: 3.2 lect	ture	1C	3.3 seminar/ laboratory/ project	1L
3.4 Total number of hours in	28	out of which: 3.5 lect	ture	14	3.6 seminar/ laboratory/ project	14
the curriculum						
Time allocation						hours
Study of textbooks, course suppo	ort, biblio	ography and notes				16
Additional documentation in libraries, specialized electronic platforms, and field research				20		
Preparation of seminars/ laboratories/ projects, homework, papers, portfolios, and essays					11	
Tutorial					-	
Examinations					-	
Other activities				-		
3.7 Total number of hours of stu	ident act	ivity 47				
3.8 Total number per semester		75				

## 4. Prerequisites (if applicable)

3.9 Number of credits<sup>5)</sup>

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4.1 curriculum-related	Knowledge related to wood species, wood processing, quality management
4.2 competences-related	Skills in using Microsoft Office programs (Word Excel, Power point, etc.), the ability
	to design, communicate and work in a team.

3

#### 5. Conditions (if applicable)

5.1 for course development	Room equipped with video projector, PC, internet
5.2 for seminar/ laboratory/	Laboratory equipped with computers, internet, materials, equipment specific to the
project development	performance of laboratory activity

#### 6. Specific competences and learning outcomes

	Cp6. Analyzes test data
	L.O. 6.4. The graduate is responsible in concrete situations for effective problem solving on the basis of the
	results obtained from the tests, in order to provide appropriate conclusions and solutions.
nal	Cp. 7 Uses sustainable materials and components
ssio	L.O. 7.4. The graduate identifies and appropriately selects eco-friendly materials and components in the
ofe: mp:	design and realization of furniture.
P 0	
	Ct. 2. Manages personal professional development
	L.O. 2.1. The graduate is able to objectively assess his/her professional preparation in relation to the needs of
	the labor market.
sal	L.O. 2.2. The graduate is responsible and adopts a positive attitude towards new and challenging requirements
vers	that can be met only through lifelong learning.
ans	L.O. 2.3. The graduate is able to identify priority areas for professional development in relation to the practical
	every series of a small as in relation to the relationships developed with statished days

#### 7. Course objectives (resulting from the specific competences to be acquired)

7.1 General course objective	• The accumulation and use of information/concepts related to measurement and
	certification of pollutants, in direct correlation with the evolution of related
	measurement/diagnostic systems, respectively technical and technological.
7.2 Specific objectives	• The use of pollutants measurement methods and eco-certification in order to
	increase the quality of products

#### 8. Content

8.1 Course	Teaching methods	Number of hours	Remarks
1. An introduction to eco-certification in the wood industry		2	
2. Certification organizations internationally recognized in the		2	
field of wood industry (FSC, OLB, PEFC, SFI)			
3. Certification-testing organisations in the field of furniture		2	
industry products (FIRA, CPA, INTERTEK)			
4. International regulations regarding formaldehyde emissions	Slide-based lecture	2	
from wood-based panels, in order to reduce the impact on the	and interactive		
environment and humans.	debate		
5. Sources of pollution/nox emissions in the wood industry:		2	
dust, noise, vibrations, volatile organic compounds.			
6. Aspects regarding the reduction/prevention of pollution in		2	
the furniture industry			
7. Instructions, regulations regarding the environment, health		2	
and safety in the manufacturing processes of wooden products			
Total co	ourse hours 14 h	ours	

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8.2 Seminar/ laboratory/ project	Teaching-learning	Number of hours	Remarks
	methods		
1 Presentation and selection of study topics regarding the eco-		2	
certification systems and pollutants/nox emissions in the			
wood industry by working groups.			
2. Analysis/characterization of certification systems according	Documentation.	2	
to the activity profile.	Interactive		
3. Evaluation of volatile organic compounds (VOC) from the	discussions. Case	4	
wood industry. The work methods and equipment	studies		

4. Methods used to measure the formaldehyde emission and		4	
content: gas analysis, chamber, bottle and perforator methods			
5. Comparison of formaldehyde emission from wood -based		2	
composites in relation to international regulations.			
Т	otal laboratory hours	14 hours	

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# 9. Correlation of course content with the demands of the labour market (epistemic communities, professional associations, potential employers in the field of study)

The content of the discipline is permanently adaptable to the novelties in the field, ensuring the development of complementary skills to the initial specializations, acquiring the possibility of greater flexibility on the labour market

#### 10. Evaluation

Activity type	10.1 Evaluation criteria	10.2 Evaluation	10.3 Percentage	
		methods	of the final grade	
10.4 Course	Correct selection of the certification			
	system along the entire custody chain			
	(from raw material to consumer).	Written exams	60%	
	Knowledge the pollutants from the wood			
	industry. Appropriate use of technical			
	terms, coherence, comparative analysis.			
10.5 Seminar/ laboratory/	The way of analysing the information		40%	
project	obtained, the capacity for information and	Oral		
	receptivity, the assimilation with the	presentation-		
	practical conditions of production	laboratory		
	regarding the certification system and	colloquium		
	pollutants.			
10.6 Minimal performance standard				
• To present, to characterize one system of certification/labelling and one polluting factor/ a measurement method,				
specific to wood engineering.				

This course outline was certified in the Department Board meeting on 25/11/2024 and approved in the Faculty Board meeting on 25/11/2024.

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Dean	Head of Department
Assoc. Prof. Octavia ZELENIUC Ph.D.	Assoc. Prof. Octavia ZELENIUC Ph.D.
Course holder	Holder of seminar/ laboratory/ project

Note:

- Field of study select one of the following options: Bachelor / Master / Doctorat (to be filled in according to the forceful classification list for study programmes);
- <sup>2)</sup> Study level choose from among: Bachelor / Master / Doctorat;
- <sup>3)</sup> Course status (content) for the Bachelor level, select one of the following options: FC (fundamental course) / DC (course in the study domain)/ SC (speciality course)/ CC (complementary course); for the Master level, select one of the following options: PC (proficiency course)/ SC (synthesis course)/ AC (advanced course);
- <sup>4)</sup> Course status (attendance type) select one of the following options: CPC (compulsory course)/ EC (elective course)/ NCPC (non-compulsory course);
- <sup>5)</sup> One credit is the equivalent of 25 study hours (teaching activities and individual study).