COURSE OUTLINE

of the class 2025-2027

Transilvania University of Braşov

Master's degree study programme	**FURNITURE ECO-DESIGN AND RESTORATION (in English)**
Fundamental field	**Engineering Sciences**
Master's degree study field	**Forestry Engineering**
Faculty	**Furniture Design and Wood Engineering**
Duration of studies	**2 years**
Form of education:	**Full-time (IF)**
Type of master's study programme:	**professional**

1. EDUCATIONAL OBJECTIVES AND COMPETENCES

The **general objective** of the study programme FURNITURE ECO-DESIGN AND RESTORATION is to respond to a requirement of society and the labor market by training specialists with skills for a professional-vocational career in the field of eco-design and conservation-restoration of furniture / wooden and wood-based products, aiming both at the development of eco-products and processes innovative, as well as towards the scientific conservation of wooden cultural heritage through awareness and professional practical approach. The innovative and rational use of wood mass resources, as well as the awareness and conservation of heritage values related to civilization and wood processing in Romania are needs that must be assumed by the society and solved through the contribution of specialists with specific skills. These key elements are synergistically combined in this master's program.

The master's study program is developed in connection with the objectives of the Scientific Research Center C11 Eco-design of furniture, restoration and certification in the wood industry within the Faculty of Furniture Design and Wood Engineering, Department of Wood Processing and Design of Wood Products.

The aim of the master's study program is to ensure skills and competences for a professional-vocational career in the field of eco-design and conservation-restoration of wood and wood-based products, aiming both at the development of eco-innovative products and processes, as well as at the establishment of an innovation system specific to the transition from the society based on resources to the society based on knowledge, a situation that characterizes the whole forestry sector in Romania. The master's study program deepens the bachelor's study program *Engineering and design of finished wood products*. It is a professional master's program, but it has the potential to develop the capacity for scientific investigation, thus constituting a possible preparatory basis for doctoral study degrees in the fields of Forestry Engineering and Industrial Engineering, considering the facilities and orientation of the C11 Scientific Research Center.

The undergraduate field that forms the basis of the Furniture Eco-Design and Restoration master's program is Forestry Engineering, specific to the Faculty of Furniture Design and Wood Engineering.

In full agreement with the general objectives of the Bologna process, all graduates of the bachelor's degree programs lasting at least 3 years, who obtained the bachelor's degree, can enroll in this study program, provided that they complete their knowledge in the disciplines basic field, such as: Anatomy of wood, Study of wood properties, Wooden structures for furniture, Furniture styles and ornaments, Furniture design etc. In order to fulfill this condition, the graduates enrolled in this master's program have access to the speciality courses from the undergraduate programs offered by the Faculty of Furniture Design and Wood Engineering (IDPFL, IPL) and/or will supplement their knowledge through individual study, being guided by faculty teachers.

The targeted occupations, closely related to the specific competencies of this study program, are in accordance with the COR 2018/ISCO-08 codes. The qualifications related to the Furniture Eco-Design and Restoration study program have been approved by the National Authority for Qualifications and are the following:

Occupation	Code COR/ISCO-08
Wood industrialization engineer advisor	214119
Wood industrialization engineer expert	214120
Inspector specialized in wood industrialization engineer	214121

Obs. The main career directions that the graduates of this master's degree follow are, on the one hand, those in the field of furniture design and eco-design, interior design (arrangement, design, equipment), and on the other hand, those in the field of restoration-conservation furniture and other assets of heritage, with historical value or of public or private interest.

The language of teaching in these master's studies is English.

The skills profile developed in line with the needs identified on the labor market and the national qualifications framework, as well as the learning outcomes associated with these skills are summarized below. Their detailed presentation can be found in the subject sheets of the curriculum.

The training objective of the master's program is to deepen the skills of graduates with bachelor's studies in the field of forestry engineering and the training of new skills necessary both for the development of the professional career in the fields of furniture eco-design and the conservation of wooden cultural assets, as well as for approaching some specific research problems for these niche professional fields. Such training also allows young people access to the cycle of doctoral studies. For graduates with bachelor's studies in other fields, this program ensures the development of skills complementary to the initial specializations, which gives greater flexibility in the labor market.

The education plan ensures the achievement of this objective through direct (fully assisted) and partly assisted teaching activities, to which are added the related unassisted activities (individual study, documentation) included in the subject sheets.

The disciplines included in the curricula, in accordance with the specific ARACIS Standard for engineering fields, aim at the following:
- Acquisition of in-depth and synthesis knowledge in the specified specialist fields;
- The training of skills that will allow graduates to approach the problems of conception and advanced design for products, technologies, complex processes, to carry out comparative studies of technical solutions, to propose appropriate solutions, correlated with the economic and ecological effects, in a sustainable approach;
- The acquisition of specific, traditional and modern techniques, and the use of professional equipment;
- Use of specific professional software.

Thus, the master's program ensures the formation of

Professional competences and learning outcomes

Cp. 1 Uses technical drawing software

1.1 Knowledge

L.O. 1.1.1 The graduate produces technical and technological drawings for designed parts.

1.2. Skills

L.O. 1.2.1 The graduate applies modern design methods using specialized software.

L.O. 1.2.2 The graduate applies calculation systems and uses specialized software for the management of research-innovation projects.

1.3 Responsibility and autonomy

L.O. 1.3.1 The graduate produces technical and technological drawings for designed parts.

Cp. 2 Designs prototypes

2.1 Knowledge

L.O. 2.1.1. The graduate analyzes and optimizes prototype design activities.

2.2. Skills

L.O. 2.2.1 The graduate applies specific elements of furniture eco-design in the design process of prototypes

L.O. 2.2.2 The graduate makes effective use of materials, technologies, software means specific to the processes of designing prototypes for pieces of furniture/finished products made of wood, as appropriate.

L.O. 2.2.3 The graduate uses his/her specialized knowledge to organize and manage the activity of a prototype design workshop.

2.3 Responsibility and autonomy

L.O. 2.3.1 The graduate designs prototypes for furniture and other products intended for human habitation that implement in an innovative and original way specific elements of eco-design and sustainability concepts.

Cp. 3 Gathers technical information

3.1 Knowledge

L.O. 3.1.1 The graduate knows and identifies investigation methods, materials and conservation-restoration methods appropriate for each conservation-restoration case.

L.O. 3.1.2 The graduate knows and identifies the specific elements that define the cultural goods belonging to the civilization of wood and the components of their heritage value.

L.O. 3.1.3 The graduate knows and identifies the specific elements of scientific conservation-restoration of wooden furniture / cultural goods.

3.2. Skills

L.O. 3.2.1 The graduate identifies the technical principles of conservation-restoration and the provisions of the code of ethics.

L.O. 3.2.2 The graduate identifies specific elements characteristic for the design and manufacture of furniture products.

3.3 Responsibility and autonomy

L.O. 3.3.1 The graduate analyzes and identifies ways to scientifically investigate artifacts and test new materials and/or restoration techniques.

L.O. 3.3.2 The graduate knows and identifies the specific standards of good practice.

Cp. 4 Uses testing equipment

4.1 Knowledge

L.O. 4.1.1 The graduate knows and uses modern testing methods and equipment for testing new products made from sustainable materials.

L.O. 4.1.2 The graduate shall know and apply specific testing standards in the field of conservation-restoration and testing standards for materials used in the manufacture of furniture/finished wood products.

4.2. Skills

L.O. 4.2.1 The graduate knows and uses modern testing methods and equipment for testing new products made from sustainable materials.

L.O. 4.2.2 The graduate shall know and apply specific testing standards in the field of conservation-restoration and testing standards for materials used in the manufacture of furniture/finished wood products.

4.3 Responsibility and autonomy

L.O. 4.3.1 The graduate knows and uses modern testing methods and equipment for the scientific investigation.

Cp. 5 Performs tests

5.1 Knowledge

L.O. 5.1.1 The graduate knows and applies in conservation-restoration processes appropriately, depending on the case, the original traditional techniques as well as modern testing and testing methods accepted in the field of conservation-restoration.

L.O. 5.1.2 The graduate examines and tests with appropriate scientific means cultural goods, interprets and corroborates the obtained data with historical information in order to decide on the heritage value and the way of intervention.

5.2. Skills

L.O. 5.2.1 The graduate knows and applies in conservation-restoration processes appropriately, depending on the case, the original traditional techniques as well as modern testing and testing methods accepted in the field of conservation-restoration.

L.O. 5.2.2 The graduate examines and tests with appropriate scientific means cultural goods, interprets and corroborates the obtained data with historical information in order to decide on the heritage value and the way of intervention.

L.O. 5.2.3 The graduate designs, implements and coordinates conservation-restoration processes based on scientific principles.

5.3 Responsibility and autonomy

L.O. 5.3.1 The graduate knows and performs scientific investigation tests and trials.

L.O. 5.3.2 The graduate knows and performs tests and trials on new pods made from various sustainable materials.

Cp. 6 Analyzes test data

6.1 Knowledge

L.O. 6.1.1 The graduate knows, interprets and specifically applies, as appropriate to the case, the technical principles of conservation-restoration and the provisions of the code of ethics.

L.O. 6.1.2 The graduate analyzes and interprets data and information from the scientific investigation of artifacts and the testing of new materials and/or restoration techniques.

L.O. 6.1.3 The graduate analyzes and evaluates with appropriate scientific means cultural assets, interprets and corroborates the obtained data with historical information in order to decide on the heritage value and the intervention mode.

6.2. Skills

L.O. 6.2.1 The graduate knows, interprets and specifically applies, as appropriate to the case, the technical principles of conservation-restoration and the provisions of the code of ethics.

L.O. 6.2.2 The graduate analyzes and interprets data and information from the scientific investigation of artifacts and the testing of new materials and/or restoration techniques.

L.O. 6.2.3 The graduate analyzes and evaluates with appropriate scientific means cultural assets, interprets and corroborates the obtained data with historical information in order to decide on the heritage value and the intervention mode.

L.O. 6.2.4 The graduate is able to collaborate within multidisciplinary teams for the appropriate solution and application of tests.

6.3 Responsibility and autonomy

L.O. 6.3.1 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.

Cp. 7 Uses sustainable materials and components

7.1 Knowledge

L.O. 7.1.1 The graduate knows and applies elements of wood anatomy, wood physics and wood mechanics.

L.O. 7.1.2 The graduate analyzes and interprets the concept of eco-design in the furniture industry in order to ensure the sustainability of the furniture industry.

L.O. 7.1.3 The graduate identifies and appropriately selects eco-friendly materials and components in the design and realization of furniture.

L.O. 7.1.4 The graduate knows and decides the types of ecological materials to be used in the processes of restoration-conservation / design and realization of furniture, in order to maintain the characteristics and functionality of the products.

7.2. Skills

L.O. 7.2.1 The graduate knows and applies elements of wood anatomy, wood physics and wood mechanics.

L.O. 7.2.2 The graduate analyzes and interprets the concept of eco-design in the furniture industry in order to ensure the sustainability of the furniture industry.

L.O. 7.2.3 The graduate identifies and appropriately selects eco-friendly materials and components in the design and realization of furniture.

7.3 Responsibility and autonomy

L.O. 7.3.1 The graduate designs pieces of furniture and other products intended for human habitation that implement in an innovative and original way specific elements of eco-design and sustainability concepts.

Cp. 8 Designs recycling programs

8.1 Knowledge

L.O. 8.1.1 The graduate analyzes and evaluates and uses recycled and waste materials to design and produce furniture and other products/items for the human habitation.

L.O. 8.1.2 The graduate analyzes and correctly applies restoration and reconditioning concepts.

8.2. Skills

L.O. 8.2.1 The graduate analyzes and evaluates and uses recycled and waste materials to design and produce furniture and other products/items for the human habitation.

L.O. 8.2.2 The graduate applies modern methods for the management of research-innovation projects in the field of eco-design of furniture made of recycled or waste materials and/or scientific preservation of reconditioned wooden furniture/cultural goods.

L.O. 8.2.3 The graduate analyzes and correctly applies restoration and reconditioning concepts.

L.O. 8.2.4 The graduate designs and coordinates programs aimed at recycling materials and integrating them into new products.

8.3 Responsibility and autonomy

L.O. 8.3.1 The graduate differentiates and correctly applies furniture reconditioning concepts.

L.O. 8.3.2 The graduate designs, implements and coordinates reconditioning processes based on scientific principles.

Transversal competences and learning outcomes

Ct. 1 Exercises result-oriented leadership towards colleagues

L.O. 1.1. The graduate is able to assume functions of coordinating production, research and design activities.

L.O. 1.2. The graduate is able to apply techniques for the coordination of multidisciplinary teams in order to achieve specific objectives.

L.O. 1.3. The graduate is able to collaborate in multidisciplinary teams with all its members.

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.

L.O. 2.2. The graduate is responsible and adopts a positive attitude towards new and challenging requirements that can be met only through lifelong learning.

L.O. 2.3. The graduate is able to identify priority areas for professional development in relation to the practical experience gained as well as in relation to the relationships developed with stakeholders.

2. STRUCTURE PER WEEKS OF THE ACADEMIC YEAR

Number of semesters: 4 semesters.

Number of credits per semester: 30 credits

Number of hours of teaching activities /week:

- fully assisted activities (teaching activities): 16 hours (courses, practical assignments, such as seminars, laboratories, projects)
- partly assisted activities: 12 hours (practice, projects, reserach modules)
- un-assisted activities: 12 hours (documentation, individual study, referates, homeworks)

Number of weeks:

	Teaching activities		Exam sessions			Holidays		
	Sem. I	Sem. II	Winter	Summer	Retakes	Winter	Spring	Summer
Year I	14	14	3	4	2	3*	1	10
Year II	14	...	3	3	2	3*	1	-

* 2 weeks of winter holidays and 1 week of inter-semestrial holidays were cumulated

3. PROVISION OF EDUCATION FLEXIBILITY. CONDITIONINGS

The flexibilization of the study programme is ensured by optional disciplines. The optional disciplines are proposed for the semesters II-III, through packages of specialized disciplines.

4. CONDITIONS OF ENROLLMENT IN THE FOLLOWING STUDY YEAR. CONDITIONS FOR PASSING A STUDY YEAR

The enrollment in the following year is conditional on meeting the conditions for passing contained in the *Regulations on students' professional activity*.

5. REQUIREMENTS FOR OBTAINING THE MASTER'S DEGREE DIPLOMA

The conditions for taking the dissertation exam are presented in the *Methodology for the academic studies final examination*, approved by the Senate of the University. According to this methodology, in order to enter the dissertation exam, all disciplines laid down in the course outline must have been passed.

DISSERTATION EXAM

1 Period of drafting the dissertation: semesters III – IV;
2 Period of completing the dissertation: the last 3 weeks of the terminal year;
3. Period of defending the dissertation exam: June-July session of the last year of study
4. Number of credits for defending the dissertation: 10 credits (supplementary to the 120 credits gained during the two years of study).

Transilvania University of Braşov — Ministry of Education
Faculty: Furniture Design and Wood Engineering — Valid in the academic year 2025-2026
Master's degree study programme: FURNITURE ECO-DESIGN AND RESTORATION (in English)
Fundamental field: Engineering Sciences
Master's degree field: Forestry Engineering
Duration of studies: 2 years
Form of education: full-time (IF)
Type of master's degree programme: professional

YEAR I

No.	Compulsory disciplines	Type*	Semester I						Semester II					
			C	S	L	P	Ver.	Cred.	C	S	L	P	Ver	Cred
1	Istoria mobilierului. Autentificare şi evaluare/History of furniture. Authentication and evaluation	DAP	2	0	2	0	E	5						
2	Eco-design de produs I/ Product eco-design I	DSI	2	0	0	2	E	6						
3	Structuri şi materiale tradiționale și moderne pentru mobilier/Traditional and modern structures and materials for furniture	DSI	2	0	0	2	E	5						
4	Elemente de teoria restaurării şi conservarea patrimoniului cultural/ Theory of the restoration and conservation of the cultural heritage	DAP	1	0	1	0	E	4						
5	Civilizația lemnului / Wood civilization	DCA	1	0	0	1	C	4						
6	Practică profesională 1/ Internship 1	DSI	0	0	0	12	V	6						
7	Metode de investigare ştiințifică pentru restaurare / Scientific investigation methods in restoration	DCA							2	0	1	0	E	4
8	Modelare CAD / CAD modeling	DCA							2	0	1	0	E	4
9	Etică şi integritate academică / Ethics and academic integrity	DAP							1	0	0	0	C	2
10	Practică profesională 2 / Internship 2	DSI							0	0	0	12	V	6
Total hours compulsory disciplines			8	0	3	17	4E+ 1C+ 1V	30	5	0	2	12	2E+ 1C+ 1V	16
			28 (out of which 12 partly assisted)						19 (out of which 12 partly assisted)					

No.	Optional disciplines	Type*	Semester I						Semester II					
			C	S	L	P	Ver.	Cred.	C	S	L	P	Ver.	Cred.
Choose one discipline from each package:														
Optional package 1														
11.	Design de mobilier şi elemente de ergonomie / Furniture design and ergonomy elements	**DAP**							2	0	0	2	E	6
	Identitate culturală şi tradiții ale lemnului / Cultural identity and traditions of the wood	**DAP**							2	0	0	2	E	
Optional package 2														
12.	Ştiința materialelor utilizate în conservare-restaurare / Materials science in conservation and restoration	**DCA**							2	0	1	0	E	5
	Elemente de anatomia, fizica şi mecanica lemnului pentru restauratori / Elements of wood anatomy, wood physics and wood mechanics for restorers	**DCA**							2	0	1	0	E	
Optional package 3														
13.	Spațiu arhitectural 1 / Architectural space 1	**DCA**							1	0	0	1	E	3
	Teoria culorii cu aplicații în design şi restaurare / Theory of color with applications in design and restoration	**DCA**							1	0	0	1	E	
Total hours optional disciplines per week			-	-	-	-	-	-	5	0	1	3	3E	14
			0				-	-	9 (fully assisted)					
Total hours			**28** (16 fully assisted + 12 partly assisted)				4E+ 1C+ 1V	30	**28** (16 fully assisted + 12 partly assisted)				**5E+ 1C+ 1V**	**30**

*Legend:
DAP – in-depth discipline **DS** – synthesis discipline **DCA** – advanced knowledge discipline PS – specialized practice

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YEAR II

No.	Compulsory disciplines	Type	Semester III						Semester IV					
			C	S	L	P	Ver.	Cred.	C	S	L	P	Ver	Cred.
1	Practică profesională 3 / Internship 3	DSI	0	0	0	12	V	6						
2	Practică pentru pregătirea diserta iei / Practice for drafting the dissertation	DSI							0	0	0	14	V	15
3	Elaborarea lucrării de disertație / Elaboration of the dissertation thesis	DSI							0	0	0	14	V	15
Total hours compulsory disciplines			0	0	0	12	1V	6	0	0	0	28	2V	30
			12 (partly assisted)						28 (partly assisted)					

No.	Optional disciplines	Type*	Semester III						Semester IV					
			C	S	L	P	Ver.	Cred.	C	S	L	P	Ver.	Cred.
Choose one discipline from each package:														
Optional package 1														
4.	Eco-design de produs 2 / Product eco-design 2	DCA	2	0	0	2	E	5						
	Consolidare structurală. Restaurare mobiler tapițat / Structural consolidation. Restoration of upholstered furniture	DCA			2	0								
Optional package 2														
5.	Restaurare lemn policrom / Restoration of polichrome wood	DCA	1	0	2	0	E	4						
	Spațiul arhitectural 2 / Architectural space 2	DCA			0	2								

Optional package 3														
6.	Noi tendințe în designul de mobilier / New tendencies in furniture design	DCA	1	0	0	2	**E**	**4**						
	Restaurare finisaj şi tehnici de antichizare / Restoration of coating films and antiquing techniques	DCA			2	0								
Optional package 4														
7	Eco-certificare şi emisii de noxe în industria lemnului / Eco-certification and nox emissions in wood industry	DCA	**1**	**0**	**1**		**C**	**3**						
	Cazuistică / Casuistry	DCA				**1**								
Optional package 5														
8.	Restaurare virtuală / Virtual Restoration	DCA	**1**	**0**	**1**	**0**	**C**	**4**						
	Proiectarea experimentelor şi analiza datelor experimentale / Experiment design and experimental data analysis	DCA			**1**	**0**								
Optional package 6														
9.	Tradiție şi tehnici inovative de ornamentare a mobilierului / Tradition and innovative techniques for furniture decoration	DCA	**1**	**0**	**1**	**0**	**C**	**4**						
	Modelare, machetare, prototipare / Modeling. Layout and prototyping	DCA			**1**	**0**								
Total hours optional disciplines per week			7	0	9		**3E+ 3C**	24	-	-	-	-	-	-
			16						-				-	-
Total hours			**28** (16 fully assisted + 12 partly assisted)				3E+ 3C+ 1V	30	**28** (partly assisted)				**2V**	**30**

*Legend:
DAP – in-depth discipline **DS** – synthesis discipline **DCA** – advanced knowledge discipline
PS – specialized practice **PLD** – practice for drafting the dissertation thesis

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GENERAL BALANCE SHEET I

No.	Discipline	No. of hours		Total		No. of credits	
		Year I	Year II	hours	%	Year I	Year II
1	Compulsory	658	560	1218	77.68	30	30
2	Optional	126	224	350	22.32	30	30
	TOTAL	**784**	**784**	**1568**	**100**	**60**	**60**

GENERAL BALANCE SHEET II

No	Discipline	No. of hours		Total		No. of credits	
		Year I	Year II	hours	%	Year I	Year II
1	Fully assisted disciplines	448	224	672	42.86	48	25
2	Partially assisted disciplines, out of which:	336	560	896	57.14	12	35
2.1	Specialized practice	336	168	504	32.14	12	5
2.2	Practice for drafting the dissertation	-	196	196	12.50	-	15
2.3	Elaboration of the dissertation	-	195	196	12.50	-	15
	TOTAL	**784**	**784**	**1568**	**100**	**60**	**60**

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