Annex 6

SUBJECT OUTLINE

1. Information on the study programme

1.1 Academic institution	**UNIVERSITY OF ORADEA**
1.2 Faculty	**FACULTY OF ENVIRONMENTAL PROTECTION**
1.3 Department	**FORESTRY AND FOREST ENGINEERING**
1.4 Field of study	**FOREST ENGINEERING**
1.5 Cycle of study	**BACHELOR**
1.6 Study programme/Qualification	**WOOD PROCESSING ENGINEERING / ENGINEER**

2. Information on the discipline

2.1 Name of discipline				**BASICS OF WOOD PRODUCTION AND ENVIRONMENTAL PROTECTION**			
2.2 Course holder				Lecturer **MOȚIU PETRICĂ TUDOR**, Eng. PhD			
2.3 Seminar/Laboratory/Project holder				Lecturer **MOȚIU PETRICĂ TUDOR**, Eng. PhD			
2.4 Year of study	I	2.5 Semester	II	2.6 Type of evaluation	Summative	2.7 Regime of discipline	C

(C) Compulsory; (O) Optional; (E) Elective

3. Total estimate time (hours per semester of didactic activities)

3.1 Number of hours per week	5	out of which: 3.2 course	2	out of which 3.3 seminar/laboratory/project	3
3.4 Total hours in the curriculum	70	out of which: 3.5 course	28	out of which 3.6 seminar/laboratory/project	42

Time allotment	hours
Study assisted by manual, course support, bibliography and notes	15
Additional documentation in the library/ on specialised electronic platforms and in the field	10
Preparation of seminars/laboratories/ topics/reports, portfolios and essays	16
Tutorship	6
Examinations	8
Other activities.....	

3.7 Total hours of individual study	**55**
3.9 Total hours per semester	**124**
3.10 Number of credits	**5**

4. Pre-requisites (where appropriate)

4.1 curriculum	Forestry, Botany, Dendrology, Dendrometry, Forestry exploitation
4.2 competences	Notions necessary for the description of woody plants and notions related to the

	forest

5. Conditions (where appropriate)

5.1. related to course	Video projector, computer, drawings
5.2. related to seminar/laboratory/ project	Equipment related to the development of laboratory hours (pressed plant material, cones, seeds, vines, color plates, etc.) Carrying out all laboratory work and field trips

6. Specific competences acquired	
Professional competences	C1.1 Description of the theoretical and practical foundations of forestry processes (through the botanical description of species of forest interest) and biodiversity; C2.2 Explaining and interpreting the phenomena and processes associated with the field of forest production (by presenting the ecology of forest species);
Transversal competences	CT1. Development and observance of a work program and accomplishment of one's own attributions with professionalism and rigor. CT2. Applying efficient communication techniques in specific activities of teamwork; assuming a role within the team and respecting the principles of the division of labor. CT3. Objective self-assessment of the need for continuous professional training in order to constantly adapt and respond to the demands of economic development; the use of information and communication techniques and, at least, a language of international circulation.

7. Objectives of discipline (coming from the specific competences acquired)

7.1 General objective	The course "Basics of wood processing" aims to familiarize students with the basics necessary to know the woody plants, wood production in the forest and the technology of harvesting and collection and primary sorting of wood Through the wealth of scientific data it offers (on the spread and ecology of wood species, taxonomy, systematics, morphology, their silvicultural value, on the technological process of harvesting, collecting, sorting wood) this course will be able to contribute to future management rational development of forests.
7.2 Specific objectives	The laboratory works are designed to provide future forestry engineers with practical skills on identifying and describing the main species of forest interest in our country.

8. Contents*/

8.1 Course	Methods of teaching	No. of hours/Remarks
1. The forest, an objective of economic interest Peculiarities regarding the demand and supply of wood-based products The formation of the price of wood per foot	Free exposure, with the presentation of the course on the video projector and on the board	2
2. Forest economy. Concept and classifications	Free exposure, with the presentation of the course on the video projector and on the board	2
3. The role and importance of forests - the source of wood production	Free exposure, with the presentation of the course on the video projector and on the board	2
4. Basics of wood exploitation	Free exposure, with the presentation of the course on the video projector and on the board	4
5. Order of Pinales. Genus Abies: Abies alba; Genus Pseudotsuga: Pseudotsuga menziesii; Genul Picea: Picea Abies; Genus Larix: Larix decidua; Genus Pinus: Pinus sylvestris, Pinus nigra ssp. Nigra, Pinus strobus, Pinus cembra. Order of Taxales. Genus Taxus: Taxus baccata	Free exposure, with the presentation of the course on the video projector and on the board	2
6. Order of Fagales. Genus Carpinus: Carpinus betulus; Genus Fagus: Fagus sylvatica; Genul Quercus: Quercus rubra, Quercus cerris, Quercus Petraea ssp. Petraea, Quercus robur, Quercus frainetto	Free exposure, with the presentation of the course on the video projector and on the board	2
7. Order of Juglandales, Genus Juglans: Juglans regia, Juglans nigra. Ordinul Sapindales. Genus Acer: Acer pseudoplatanus, Acer platanoides. Order of Malvales. Genus Tilia: Tilia cordata, Tilia tomentosa, Tilia platyphyllos. Order of Oleales. Genus Fraxinus: Fraxinus excelsior, Fraxinus ornus, Fraxinus pallisae, Fraxinus angustifolia, Fraxinus americana, Fraxinus pennsylvanica	Free exposure, with the presentation of the course on the video projector and on the board	2
8. Order of Salicales. Genus Populus : Populus alba, Populus tremula, Populus x canescens, Populus nigra, Populus x canadensis, Populus simonii. Order of Rosales. Genus Malus : Malus sylvestris ; Genus Pyrus : Pyrus pyraster ; Genus Sorbus : Sorbus aucuparia, Sorbus domestica, Sorbus torminalis, Sorbus aria; Genus Prunus. Prunus avium. Order of Fabales. Genus Sophora : Sophora japonica ; Genus Robinia : Robinia pseudacacia	Free exposure, with the presentation of the course on the video projector and on the board	2
9. Sorting the wood mass on the foot	Free exposure, with the presentation of the	2

	course on the video projector and on the board	
10. Theory and mathematical modeling of the shape and volume of tree trunks	Free exposure, with the presentation of the course on the video projector and on the board	2
11. Methods and instruments for measuring tree dimensions; Recap I: Presentation of Plate 1- Plate 10	Free exposure, with the presentation of the course on the video projector and on the board	2
12. Recapitulation II: Presentation Plate 11- Plate 26	Free exposure, with the presentation of the course on the video projector and on the board	2
13. Recapitulation III: Presentation Plate 27 - Plate 37	Free exposure, with the presentation of the course on the video projector and on the board	2

Bibliography

1. Moțiu P. T., 2020, *Bazele producţiei lemnului şi protecţia mediului.*
2. Brenndorfer, D., Zlate, G., 1990, *Bazele producţiei şi prelucrării mecanice a lemnului.* Editura Ceres, Bucureşti.
3. Doniţă, N., Geambaşu,T., Brad R., 2004, *Dendrologie.* Editura Universităţii Vasile Goldiş, Arad.
4. Stănescu V., Şofletea N., Popescu O., 1997, *Flora forestieră lemnoasă a României*. Editura Ceres, Bucureşti.
5. Doniţă N., 2002, *Dendrologie*, Editura Universităţii din Oradea.
6. Leahu Iosif, 1994, *Dendrometrie*. Editura Didactica si pedagogica, Bucureşti.
7. Giurgiu Victor, 1979, *Dendrometrie şi auxologie forestiera*. Editura Ceres, Bucureşti.

8.2 Laboratory	Methods of teaching	No. of hours/ Remarks
1. General information on wood. The tree, the wood producing base. Parts of the tree	In the first hour there will be a training related to the protection of laboratory-specific work and practical work in the field. Presentation of theoretical and practical aspects related to the subject. Interactive	3
2. Tree growth and wood formation process	Presentation of theoretical and practical aspects related to the subject. Interactive	3
3. Notions necessary for the description of woody plants	Presentation of the morphological aspects of the species, through plates, seeds, cones and vines	3

4. Specific species recognition characters of the Genus Abies: Abies alba; Genus Pseudotsuga: Pseudotsuga menziesii; Genus Picea: Picea Abies; Genul Larix: Larix decidua; Genus Pinus: Pinus sylvestris, Pinus nigra ssp. nigra, Pinus strobus, Pinus cembra. Order of Taxales. Genus Taxus: Taxus baccata	Presentation of the morphological aspects of the species, through plates, seeds, cones and vines	3
5. Specific species recognition characters of the Order of Fagales. Genus Fagus: Fagus sylvatica; Genus Quercus: Quercus rubra, Quercus cerris, Quercus Petraea ssp. petraea, Quercus robur, Quercus frainetto; Genus Carpinus: Carpinus betulus	Presentation of the morphological aspects of the species, through plates, seeds, cones and vines	3
6. Specific species recognition characters of the Order of Juglandales, Genus Juglans: Juglans regia, Juglans nigra. Ordinul Sapindales. Genus Acer: Acer pseudoplatanus, Acer platanoides. Order of Malvales. Genus Tilia: Tilia cordata, Tilia tomentosa, Tilia platyphyllos. Order of Oleales. Genus Fraxinus: Fraxinus excelsior, Fraxinus ornus, Fraxinus pallisae, Fraxinus angustifolia, Fraxinus americana, Fraxinus pennsylvanica	Presentation of the morphological aspects of the species, through plates, seeds, cones and vines	3
7. Specific species recognition characters of the Order of Salicales. Genus Populus: Populus alba, Populus tremula, Populus x canescens, Populus nigra, Populus x canadensis, Populus simonii. Order of Rosales. Genus Malus: Malus sylvestris ; Genul Pyrus: Pyrus pyraster; Genus Sorbus : Sorbus aucuparia, Sorbus domestica, Sorbus torminalis, Sorbus aria; Genus Prunus. Prunus avium. Order of Fabales. Genus Sophora : Sophora japonica ; Genus Robinia: Robinia pseudacacia	Presentation of the morphological aspects of the species, through plates, seeds, cones and vines	3
8. Field trips	Presentation of theoretical and practical aspects related to the subject. Interactive	6
9. Sorting the wood mass on the foot. Generalities. Sorting methods	Presentation of theoretical and practical aspects related to the subject. Interactive	3
10. The cubage of the wood of the standing and felled trees	Presentation of theoretical and practical aspects related to the subject. Interactive	3
11. Determining the dimensional elements of trees in the forest	Presentation of theoretical and practical aspects related to the subject. Interactive	3
12. Field trips	Presentation of theoretical and practical aspects related to the subject. Interactive	6

Bibliography

1. Moțiu P. T., 2020, *Bazele producţiei lemnului și protecția mediului* – Îndrumar de laborator
2. Brenndorfer, D., Zlate, G., 1990, *Bazele producţiei şi prelucrării mecanice a lemnului.* Editura

Ceres, Bucureşti.
3. Doniţă, N., Geambaşu,T., Brad R., 2004, *Dendrologie.* Editura Universităţii Vasile Goldiş, Arad.
4. Stănescu V., Şofletea N., Popescu O., 1997, *Flora forestieră lemnoasă a României*. Editura Ceres, Bucureşti.
5. Doniţă N., 2002, *Dendrologie*, Editura Universităţii din Oradea.
6. Leahu Iosif, 1994, *Dendrometrie*. Editura Didactica si pedagogica, Bucureşti.
7. Giurgiu Victor, 1979, *Dendrometrie şi auxologie forestiera*. Editura Ceres, Bucureşti.

* The content, respectively the number of hours allocated to each course / seminar / laboratory / project will be detailed during the 14 weeks of each semester of the academic year.

9. Corroboration of discipline content with the expectations of the epistemic community, professional associations and representative employers from the field corresponding to the study programme

The content of the discipline is adapted and satisfies the requirements imposed by the labor market, being agreed by the social partners, professional associations and employers in the field related to the bachelor program. The content of the discipline is found in the curriculum of Woodworking Engineering and other university centers in Romania that have accredited these specializations, so knowledge of the basics is a stringent requirement of employers in the field of Forest Engineering (Wood Industrialization), such as: RNP, ICAS, IFN, etc.

10. Evaluation

Type of activity	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of the final grade
10.4 Course	- for grade 5 it is necessary to have a constructive and functional knowledge of the machinery and equipment used in forestry. - for grade 10, a thorough knowledge of all subjects is required.	Written exam Students receive 3 topics to solve.	75%
10.5 Seminar			
10.6 Laboratory	- Ability to understand, interpret and solve problems specific to the field. Presence, interactivity during laboratory hours - Final evaluation test. - The grade obtained confers the right to enter the exam.	Practical application Each student receives a grade for laboratory work during the semester.	25 %
10.7 Project	-		
Grade components: Exam (Ex), Laboratory (L); - Note calculation formula: N = 0.75Ex + 0.25L; - Condition for obtaining loans: N> 5; L> 5;			
10.8 Minimum standard of performance			
Minimum performance standard: Carrying out coordinated work to solve specific problems in the field of wood processing engineering, with the correct assessment of workload, available resources, time required for completion and risks, under conditions of application of safety rules			

and occupational health.

Date of completion	Signature of course holder**	Signature of seminar laboratory/project holder **
02.10.2020	Moțiu Petrică Tudor, Eng. PhD e-mail: tudormotiu@gmail.com; tmotiu@uoradea.ro	Moțiu Petrică Tudor, Eng. PhD

Date of approval in the department
05.10.2020

Signature of the Head of Department***
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*** - Name, first name, academic degree and contact details (e-mail, web page, etc) of the academic entity beneficiary of the Discipline Outline will be specified.