DENDROCRONOLOGY

Basic data of the subject	
Academic Unit:	**Life and Environmental Sciences Faculty**
Course title:	**Dendrocronology**
Program:	**Forestry and Environmental Sciences**
Level:	**Bachelor**
Course status:	**Selective**
Study year:	**Second year, second semester**
Number of hours per week:	**2+1**
Credit value – ECTS:	**3**
Time / location:	**To be announced**
Lecturer:	**Prof. Asoc. Dr. Faruk Bojaxhi**
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Course description:	Dendrochronology is a science that studies the modalities of wood development from the moment of seed germination to a certain moment in the life cycle. The term dendrochronology has different meanings: Dendrochronology in the strict sense includes all those branches of science that use the last annual circle to date woody material. Dendrochronology, which includes all those branches of science that serve to extract some types of environmental information, based on the sequences of annual rings in accordance with the purpose of the study.
Course objectives:	The purpose of the study of dendrochronology is the annual rings of monsters obtained from living trees in forest piles or in old historical buildings. This is because annual rings contain information on the conditions of wood development over the years. Annual rings have characteristics that make them a valuable source of information, especially in paleo climatic and archaeological studies.
Learning outcomes:	After completing this course, students will be able to: • Identify the shapes and structures of forest trees, depending on the species, • Solve problems related to the dating and growth of forest trees, • Increase the use of the most modern methods of

	measuring the microscopic structure of wood, • Assessment of the age, growth and shape of the stem of forest trees, • Determine how a model tree should be, in the context of its growth and structure, • Modify the classic and modern methods of measuring forest trees.

Contribution on student load (must correspond with learning outcomes)			
Activity	**Hours**	**Days/week**	**Total**
Lectures	2	15	30
Exercise theoretical/laboratory			
Practice work	1	5	5
Contact with lecturer/consultations	1	5	5
Field exercises	2	10	10
Mid-terms, seminars	1	-	1
Homework	-	-	-
Individual time spent studying (at the library or home)	1	10	10
Final preparation for the exam	1	10	10
Time spent in evaluation (tests, quiz, final exam)	1	4	4
Projects, presentations, etc.			
Total			**75 hours (3 ECTS)**

Teaching methods :	Lectures, works on lab Lintab software, discussions, consultations, technical exercises, formula solutions, independent projects, colloquia, exams.
Evaluation methods:	First grade (colloquium): 10%, Seminars or other commitments: 10%, Final exam: 80%: Total: 100%.
Literature	
Basic Literature:	Dendrochronology as a science, its role, purpose and principles. Prof.Dr. Elvin Toromani. "Dendrochronology in climatology—the state of the art" by M. G. L. Baillie. "Dendrochronology and Past Human Activity" by P.M. Brown and J.J. Krusic:
Additional Literature:	International Tree-Ring Data Bank (ITRDB): The ITRDB is a global archive of tree-ring data, providing access to a vast collection of dendrochronological information from around the world

Designed study plan:

Week	Lectures	Exercises
First week:	Dendrochronology as a science, its role, purpose and principles.	History of the development of Dendrochronology
Second week:	Definitions and other concepts of Dendrochronology	Concept of climate, environment, physiology
Third week:	Growth and structure of trees	Exercises on the vegetative cell, primary and secondary cell wall, cell vessels, etc.
Fourth week:	Silica Crystals and Deposits in Wood Exercise about Silica Crystals in Wood	Exercise about Silica crystals in wood
Fifth week:	Macroscopic structure of the stem of forest trees	Exercise about vascular cambium, bark
Sixth week:	Measurement of radial growth	Exercise in Lintab software
Seventh week:	Wood growth and wood-station complex	Getting monsters on the sample plots
Eighth week:	Work operations in Dendrochronology	Analysis of materials
Ninth week:	Measuring the width of circles	Practice exercise
Tenth week:	Colloquia	Colloquia
Eleventh week:	Date check on numerical data	Measurement of maximum and minimum density
Twelfth week:	Statistical and electronic data processing	Explanation of processing methods
Thirteenth week:	Standardization of annual rings and assessment of growth trend	Practical exercise in Lintab
Fourteenth week:	Methods of calculating the function of mean values	Coursework for students
Fifteenth week:	Measuring the statistical quality of a chronology	Analysis of chronology error
Academic policies and rules of conduct:		
Regular and active participation of students in lectures, exercises (practical part) and in seminar work. Keeping quiet in lecture, disabling mobile phones, timely access to the classroom, etc.		