

4.0 credits

30.0 h + 30.0 h

1q

Teacher(s) :	Vincke Caroline ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	iCampus
Prerequisites :	Introduction in silviculture, plant physiology, organic chemistry, phénomène de transferts, general botany and systematic
Main themes :	<ul style="list-style-type: none"> <li>- descriptive anatomy of the wood of gymnosperms and angiosperms and cambial activity ;</li> <li>- comparative anatomy of the main ligneous species from temperate and tropical zones;</li> <li>- wood chemistry and ultrastructure of the cell wall;</li> <li>- wood defects and consequences on wood quality;</li> <li>- physical, thermal, mechanical, acoustical and electrical properties of wood;</li> <li>- wood degradation by physical and biological agents.</li> </ul>
Aims :	<p>a. Contribution de l'activité au référentiel AA (AA du programme)                      This course contributes to the learning outcomes AA 1 (Maîtriser un corpus de « savoirs scientifiques » ; en particulier 1.1 à 1.4), 2 (Maîtriser un socle de « savoirs en ingénierie et en gestion » ; en particulier 2.1) et 4 (Concevoir et mettre en 'uvre une démarche complète et innovante d'ingénieur ; en particulier 4.1) du programme BIRF.</p> <p>b. Formulation spécifique pour cette activité des AA du programme (maximum 10)                      At the end of this course, the student is able to:</p> <ul style="list-style-type: none"> <li>- identify temperate and tropical ligneous species on the basis of anatomical features observable on small samples and microscopic sections, anatomical elements introduced in the course and illustrated during the practical exercises in laboratory ;</li> <li>- explain and compare wood behavior, on the basis of wood chemistry, wood properties (physical, mechanical), (ultra)structure of the cell wall, in order to optimally valorize this material in the wood processing industry;</li> <li>- identify and explain the influence of growth conditions (silviculture, environment) on wood quality, by integrating the theoretical underlying concepts, in order to adopt a Bioengineer approach aware of the impacts of management on wood quality.</li> </ul> <p><i>The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".</i></p>
Evaluation methods :	Examination relies on « definition type » questions, or questions centered on a theoretical development, specific or transverse. Indeed, the ability to link concepts from different chapters is one of the learning outcomes. An separated exam, which counts for 1/3 of the rating, assess the student's ability to identify a ligneous species from its wood.
Teaching methods :	The course is a lecture, with small learning activities (guided questions, quiz) and concrete examples. Depending of wood news and opportunity, invited lecturers may be invited on specific subjects. The practical exercises are organised so as to allow students to integrate and apply progressively the theoretical knowledge.
Content :	1. Table of content Introduction ' Cambial functioning and anatomical elements of softwood and hardwood ' Chemistry of the cell wall ' Wood specific aspects and defects ' Physical properties ' Wood and water ' Thermal, acoustical and electrical properties ' Mechanical properties ' Wood damages from biological source
Bibliography :	- slides of the course (PDF) are available on i-campus for the enrolled students - Reference books : H.A. CORE, W.A. COTE, A.C. DAY - Wood Structure and Identification. Syracuse University Press, 1979.J.C.F. WALKER - Primary Wood Processing - Chapman & mp; Hall, 1993
Other infos :	This course can be given in English.
Faculty or entity in charge:	AGRO

<b>Programmes / formations proposant cette unité d'enseignement (UE)</b>				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Forests and Natural Areas Engineering	BIRF2M	4	-	