LBIRF2105A

2015-2016

Sylviculture et dendrologie: partie sylviculture

4.0 credits	30.0 h + 30.0 h	1q

Teacher(s) :	Ponette Quentin ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	iCampus http://www.biologievegetale.be
Prerequisites :	Prerequisite: introductory course in forestry, ecology, plant physiology, systematic botany. Supplementary courses: forest valuation and economics, wood science, forest mensuration, forest management, forest tour
Main themes :	1. Main concepts: - context, tags and constraints: time, cost, types of ownerships and owners, stand and ecosystem stability, wood quality; - evenaged monospecific stands: installation, education / stem formation, growth, regeneration; - complex stands: conversion and transformation, selection system, treatment of irregular and / or mixed-species stands; - dendrology: identification and ecology of the main tree species used for silviculture in temperate Europe; - compared applied silvicultures: optimizing silvicultural prescriptions according to the species (biological and ecological characteristics, wood properties), eco-climatic conditions and techno-economic context (e.g. public forests, private forests.).
Aims :	a. Contribution de l'activité au référentiel AA (AA du programme) M1.1, M1.2, M2.1, M2.2, M4.5, M4.6, M4.7, M6.1, M6.2, M6.5, M6.8 b. Formulation spécifique pour cette activité des AA du programme At the end of this activity, the student is able to: - identify the main forest tree species observed in temperate Europe, to determine their taxonomic position and know their ecology; - carry out an ecological and techno-economic stand assessment; on this basis, to establish a detailed and argued silvicultural proposal and write it in the form of an expertise-type report; - establish silvicultural prescriptions for monospecific even-aged stands, with species of contrasting characteristics and in diverse techno-economic contexts; - describe complex stands, understand their dynamics and manage them using current management tools. *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".*
Evaluation methods :	- written examination; - oral examination on the identification, systematics and autecology of tree species; - project report; - critical analysis of technical texts.
Teaching methods :	- lectures including practical examples; - seminars by stakeholders from the socio-professional world; - mini-project focused on the renewal of stands; - training to tree marking in a marteloscope; - practical field and laboratory work dedicated to the identification of tree species; - reading and analysis of technical texts/manuals in groups of students; - thematic field excursions on regeneration, as well as on hardwods and conifers silvicultures.
Content :	1. Table of contents 1. Constitution of silvicultural prescriptions for even-aged stands - framework and tags - silvicultural cycle and phases - definition of silvicultural objectives and parameterization of silvicultural prescriptions - autecology of tree species site tolerances and requirements response to light and competition architecture and growth dynamics regeneration - wood properties intrinsic properties wood properties, growth rate and age

	- benefits and risks damaging agents impacts of tree species on the environment 2. Silvicultural interventions in evenaged stands - site preparation - management of young stands - form and selective artificial pruning - thinnings - regeneration methods 3. Silviculture of complex stands - description and assessment structure quality - functioning light control growth and canopy position regeneration - management the 'de Liocourt' model: advantages and limitations silvicultural interventions 2. Additional informations This course is organized in the form of five interconnected modules. - Module 1: lectures and seminars - 14 sessions of 2 hours on the establishment, management and transformation of forest stands of contrasting structures and species compositions; - Module 2: excursions - three 1-day field trips devoted to the regeneration of stands, to the silvicultures of hardwoods and to the silvicultures of conifers, respectively; - Module 3: tree marking - initiation to tree marking in irregular stands in a marteloscope; - Module 4: project - installation of even-aged monospecific stands by planting or natural regeneration; - Module 5: dendrology - five 4-hour sessions and one half-day trip in an arboretum to identify and learn the ecological characteristics of the main species of gymnosperms and angiosperms used for silvicultural purposes in temperate Europe .
Bibliography :	- compulsory material for the course (power point slides, transparencies, reference documents) are made available to the student on iCampus. In addition, the module 5 is based on an interactive web site available at: http://www.biologievegetale.be - for more information, students may usefully consult the following references: Balleux, P., Van Lerberghe, P. 2006. Guide technique pour des travaux forestiers de qualité. Ministère de la Région Wallonne, DGRNE-DNF, Fiche technique n°17. Namur, Belgique, 373 p. Bastien, Y., Gauberville, C. (coord.). 2011. Vocabulaire forestier. Ecologie, gestion et conservation des espaces boisés. IDF, Paris, France, 554 p. + annexes Nyland, R.D. 2002. Silviculture : concepts and applications. 2nd ed. McGraw-Hill, USA, 682 p. Schütz, J.-P. 1990. Sylviculture 1. Principes d'éducation des forêts. Presses polytechniques et universitaires romandes, Lausanne, Suisse, 243 p. Schütz, J.-P., 1997. Sylviculture 2. La gestion des forêts irrégulières et mélangées. Presses polytechniques et universitaires romandes, Lausanne, Suisse, 178 p. Smith, D.M., Larson, B.C., Kelty, M.J., Ashton, P.M.S. 1996.The practice of silviculture: applied forest ecology. 9th ed. John Wiley & mp; Sons, New York, USA
Faculty or entity in charge:	AGRO

Programmes / formations proposant cette unité d'enseignement (UE)				
Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in Environmental Bioengineering	BIRE2M	4	-	