Linnæus University

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Course syllabus

Faculty of Technology
Department of Forestry and Wood Technology

1TS251 Skogsbränslekunskap, 7,5 högskolepoäng
Forest Fuel Science, 7.5 credits

Main field of study
Forest and Wood Engineering

Subject Group
Forest Science

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved 2009-12-15
Revised 2014-06-30 by Faculty of Technology. Review of objectives, contents and prerequisites.
The course syllabus is valid from spring semester 2015

Prerequisites
7,5 hp in Science of Forestry or similar.

Objectives
Students should be able to:

- define basic concepts relating to forest energy,
- explain forest fuels importance for the Swedish energy balance and relate to how it affects social and ethical aspects;
- describe the rules and recommendations that govern forest fuel extraction,
- describe how forest soil nutrient balance is affected by removal of biomass,
- describe when the forest can supply fuel to the energy-converting industry as well as calculating and in writing value the energy content of forest fuel,
- search and analyze scientific literature on current research in bioenergy from forests, and verbally discuss how these research results are translated into practical forest fuel management,
- draw conclusions about the pros and cons of various handling and storage systems for the procurement of traditional and future assortment of forest fuels and interpret how these systems affect the energy-converting industry quality standards of fuel.

Content
The course covers overview of issues in forest energy sector in a cross-border perspective from forest owners to energy-converting industry. The course includes the

following elements:

- forest fuels historical and current importance for the use of bioenergy in Sweden,
- laws and recommendations, and natural and environmental concerns associated with forest fuel extraction,
- forest soil nutrient balance and ash recycling,
- forest fuels logistics, from harvesting to end users,
- storage properties and mass losses of forest fuel
- combustion of forest fuels,
- laboration regarding forest fuels quality factors and energy content,
- group project and oral presentations under the theme: "The Forestry attitudes to forest fuel research,"
- study visit in an energy-converting industry.

Type of Instruction

Course can be taken on campus and remotely with the support of ICT, Internet and hits. Lectures and compulsory modules in the form of field trips, laboratory work, discussion and group work with oral presentation.

Examination

The course is assessed with the grades U,3,4 or 5.
The examination forms are assignments, attendance at compulsory modules and exam. For a Pass, the expected learning outcomes should be achieved, ie the student must have achieved a passing performance on assignments, exam and attended mandatory. Ratings are based on the results of the exam. If a student is on the border of a higher grade road performance on homework assignments and active participation in compulsory modules in the assessments.

Course Evaluation

A course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed.

Other

Some elements of the course may involve costs that are paid by the student.

Required Reading and Additional Study Material

Required reading

Egnell, G., 2009, Skogsbränsle, Skogsskötselserien Nr 17, Skogsstyrelsen, 68 sidor.

Lehtikangas, P., 1998, Lagringshandbok för trädbränslen, Sveriges Lantbruksuniversitet, Uppsala, 116 sidor.