

Sustainable forestry SYLLABUS

Study subject No: 1.3

Responsible Unit: Vytautas Magnus University, Faculty of Forest Sciences and Ecology (VMU)

Credits and distribution of academic hours*:

	Credits ECTS	Contact hours		Independent study hours	Total hours
		Lectures	Practical works or seminars		
VMU	3	14	13	63	90
JAMK	2	9	9	42	60
Total	5	23	22	105	150

* 1 ECTS = 30 hours (9 contact hours and 21 independent hours);

1 academic hour = 40 minutes;

Theoretical lectures not less than 50% of contact hours.

Course developers:

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Notes: General study course for the master programme Bioeconomy

Prior knowledge: Fundamentals of Sustainable Forestry

Annotation: The course provides students with knowledge about forest bioeconomy, sustainable and multi-purpose forestry. Special focus will be paid on sustainable management principles of forest. The course provides forest policy and legislation related to forestry and wood use. Students will understand basic of forest typology, types of forest use and reforestation, also about forest protection against fire. Focus will be paid on a system of protected areas and ecological network and importance of forest for biodiversity. After finishing this study course students will be competent in forest terminology, classification of forestry operations and basics of Finish forest management.

The aim: To provide knowledge and skills related to forest bioeconomy, sustainable and multi-purpose forestry necessary for critical thinking and improving well-being of society, and to develop the competencies in the specialized forest management.

Description of the organization and tasks of students' independent work: The student has to prepare group works about forest policy in Uzbekistan and sustainable forestry and present them in practicals; to prepare themselves for the test.

Learning outcomes (knowledge, skills and competences)

Learning outcomes	Assessment methods	Levels of achievement		
		Satisfactory	Average	High
KNOWLEDGE				
Demonstrate comprehensive knowledge of global forestry and forest bioeconomy in terms of forest management, use and wood trade, including two most used forest certificates	Test, discussions	Knowledge of the most important relevant concepts, understanding only the main principles of forest management, use and wood trade.	Comprehensive knowledge of global forestry and forest bioeconomy, demonstration some critical thinking on forest management, use and wood trade.	Comprehensive knowledge of global forestry and forest bioeconomy, demonstration high critical thinking on forest management, use and wood trade.
To apply the knowledge of the components of a forest ecosystem and forest ecosystem functions by evaluating the impact of forest growing technologies on forest ecosystems and on a sustainable forest management.	Test, discussions	Knowledge of the most important relevant concepts, yet there is difficulty in understanding of the complex impact of economic activities on the environment.	Knowledge and understanding of the concepts and functions of land, understanding of the impact of economic activities on the environment, assessing system compliance with legal acts and market needs.	Comprehensive knowledge of the substance and functions of land, understanding of the impact of economic activities on the environment, assessing system compliance with legal acts and market needs, and critical understanding of the role of marketing in the consumer and industrial markets.
Demonstrate comprehensive knowledge about forest and forest data management in the context of Nordic country, case Finland	Test, discussions	Basic knowledge (based only on some facts) about forest and forest data management in the context of Nordic country.	Comprehensive knowledge about forest and forest data management in the context of Nordic country, demonstration some critical thinking.	Comprehensive knowledge about forest and forest data management in the context of Nordic country, demonstration of high critical thinking.
To acquire the knowledge on the accounting of forest resources, the rational use of forest and wood resources	Test, discussions	Knowledge of the relevant concepts used, yet there is difficulty in understanding interaction among the elements of forest and wood resources, 40-69 % of the questions are answered correctly.	Knowledge and understanding of the concepts of forest and wood resources, main forest management fields, 70-89 % of the questions are answered correctly.	Comprehensive knowledge of forest and wood resources, main forest management fields, 90-100% of the questions are answered correctly.
SKILLS				
Professional skills				
To make appropriate decisions in increasing	Test, discussions	Knowledge of the relevant concepts	Knowledge and understanding of	Comprehensive knowledge of forestry and

adaptation, sustainability and economic value of forest trees under changing environmental conditions.		used, yet there is difficulty in understanding sustainability and economic value of forest trees under changing environmental conditions. 40-69 % of the questions are answered correctly.	sustainability and economic value of forest trees under changing environmental conditions. 70-89 % of the questions are answered correctly.	ecology and fundamental knowledge in physical and technological fields / areas fundamental knowledge and legal norms in studies, consultations and when making decisions in economic activities. 90-100% of the questions are answered correctly.
To use forest management planning projects and design timber harvesting by applying the principles of a sustainable, multifunctional and rational use of the forest under the changing environment.	Test, discussions	Knowledge of the relevant concepts used, yet there is difficulty in understanding forest management planning projects and design timber harvesting by applying the principles of a sustainable. 40-69 % of the questions are answered correctly.	Knowledge and understanding of forest management planning projects and design timber harvesting by applying the principles of a sustainable. 70-89 % of the questions are answered correctly.	Comprehensive knowledge of communicate with forestry specialists and the society in solving tasks in professional activities or area of studies, to present the conducted activities and the outcome. They are able to take responsibility for the quality of own actions and actions of subordinate employees and the assessment there of in observance of professional ethics and civic-mindedness. 90-100% of the questions are answered correctly.
Soft skills				
To discuss and develop critical thinking on forestry policy and sustainable forestry issues.	Preparation and presentation of group works	Ability to prepare and present group works, to discuss on forestry policy and sustainable forestry, to develop low level of critical thinking.	Ability to prepare and present group works, explain the advantages and disadvantages of forestry policy, to discuss on sustainable forestry issues, to develop medium level of critical thinking.	Ability to prepare and present group works, to develop high level of critical thinking, to convey information related to forestry policy and sustainable forestry to specialists and other learners.
COMPETENCE				
To develop personal competencies, to communicate with all stakeholders on forest bioeconomy, sustainable and multi-purpose forestry issues.	Preparation and presentation of group works, discussions	Ability is insufficient and based only on facts, poor motivation and critical thinking, passive position	Ability to understand the necessity of developing personal competencies, medium motivation	Ability to develop personal competencies, to understand moral responsibility for decision-making, high motivation and critical thinking, very active

		in communication.	and critical thinking, active position in communication.	position in communication.
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Requirements for awarding credit points: The student has to be active in the lectures and practical classes, to pass test as well as to prepare, submit and present two group works.

Knowledge assessment and prerequisites for taking a test or examination

The final mark in the course is based on cumulative score: activity during lectures (10%), activity during practicals (10%), test (40%), group works' preparation and a presentation (40%).

* 10 percent are equal to one point on a 10-point marking scale (or 10 percent are equal to 0.5 point on a 5-point marking scale).

Topic	Type of assessment	Percentage	Assessment deadline
Activity in lectures	Participation and activity in discussions	10	During the entire semester
Activity in practicals	Participation and activity in discussions	10	During the entire semester
Topics 1-7	Test	40	Within the specified time for the test
Forest policy in Uzbekistan (20%) Sustainable forestry and management (20%)	Two group works	40	Within the specified time for presentations

The course contents

1. Lectures

1. Introduction to forest Bioeconomy (Global Forest management, incl. Forest certificates, Global use of wood, Non-wood forest products, Fast growing energy crops).
2. Sustainable, multi-purpose forestry. Responsible forest use concepts.
3. Forest policy and legislation related to forestry and wood use in EU and Uzbekistan.
4. System of protected areas and ecological network. Natural frame. Green infrastructure. Forest condition monitoring.
5. Uzbekistan forest types. Forest succession. Significance of forest to biodiversity.
6. Reforestation and afforestation. Types of forest thinning's and felling's.
7. Finnish forest management (Forest history, Forest practises, Forest operators, Forest wood trade, Forest trends, forest biodiversity, Data collecting and management).

2. Practical

1. WEBINAR and discussion about the webinar: On forest restoration, in celebration of the International Day of Forests 2021, <https://www.youtube.com/watch?v=BUyujIEQGbw>
2. Video and discussion about the video. World Agroforestry 2020. Poplars and Agroforestry in Central Asia, <https://www.youtube.com/watch?v=Iv0VdPqBT9o>
3. Video and discussion about the video. National Forest Inventory of Kyrgyzstan (0:18), [National Forest Inventory of Kyrgyzstan - YouTube](#)
4. Videos and discussions about the videos. Forestry and forest management - playlist videos, [Forestry and forest management - YouTube](#)

5. Group presentations and discussions about forest policy in Uzbekistan, e.g. certificates in the context of Uzbekistan, comparison of policies with other countries or EU, participation of stakeholders in forest related decision-making.
6. Group presentations and discussions about the sustainable forestry in Uzbekistan, e.g. forest protection, fellings, reforestation, climate change and mitigation, biodiversity, society and forests.
7. Test.

List of sources of training, methodological and scientific literature and information

Compulsory reading (books, scientific articles, online sources etc.):

1. Asian development bank. 2018. Forestry Development and Best Practices of Forest Management in Uzbekistan, <https://apfnet.cn/uploads/media/200227/1-20022G11F4.pdf>
2. Ibrakhimov, M. 2021. Integrated natural resources management worldwide and in Uzbekistan. Tashkent. FAO and Universität Greifswald. <https://doi.org/10.4060/cb0465en>
3. FAO 2020. Global Forest Resource Assessment 2020. [ca9825en.pdf \(fao.org\)](#)
4. FAO 2019. Statistical Capacity Country Profile for SDG Indicators (Uzbekistan), [Statistical Capacity Country Profile for SDG Indicators \(Uzbekistan\) \(fao.org\)](#)
5. (Finnish) Ministry of Forestry and Agriculture -website: [Forests - Maa- ja metsätalousministeriö \(mmm.fi\)](#) (includes links to Finnish forestry knowledge and data).
6. Linser, S; O'Hara, P. (2019). Guidelines for the Development of a Criteria and Indicator Set for Sustainable Forest Management. ECE/TIM/DP/73, 92, United Nations and the Food and Agriculture Organization of the United Nations, New York, Geneva; ISBN: 978-92-1-117190-7 (In English).
7. Linser, S; O'Hara, P. (2019). Методические рекомендации по разработке набора критериев и индикаторов устойчивого управления лесами Женевский дискуссионный документ по сектору лесного хозяйства и лесной промышленности 73 ECE/TIM/DP/73, 92, United Nations, New York and Geneva; ISBN: 978-92-1-047655-3 (In Russian language).
8. The state of World 's forests. Forest pathways to sustainable development. FAO, 139 p. <http://www.fao.org/3/I9535EN/i9535en.pdf>
9. UNECA 2019. Overview of the State of Forests and Forest Management in Uzbekistan. https://unece.org/DAM/timber/publications/2020/Uzbekistan_DP85_1922478_E_WEB.pdf
10. UNECE. 2018. Criteria and indicators for sustainable forest management for Uzbekistan, <https://unece.org/DAM/timber/meetings/2018/20180808/report2nd-nat-workshop-uzb-en-aug18.pdf>
11. UNECE 2019. Guidelines for the Development of a Criteria and Indicator Set for Sustainable Forest Management. <https://unece.org/DAM/timber/publications/DP-73-ci-guidelines-en.pdf>
12. UNECE. 2018. Forest Landscape Restoration in the Caucasus and Central Asia.
13. [DP-72-flr-cca-en.pdf \(unece.org\)](#)
14. UNECE. 2019. State of Forests of the Caucasus and Central Asia, <https://unece.org/DAM/timber/publications/sp-47-soccaf-en.pdf>

Further reading:

1. Forest Europe Glossary, <https://foresteurope.org/communication/#1473684927281-829b95cc-499686b5-6c62> (website)
2. Forest Stewardship Council, <https://fsc.org/en>
3. Finnish Forest Association: Forest glossary, [https://forest.fi/glossary/Terms and Definitions](https://forest.fi/glossary/Terms%20and%20Definitions), FRA 2020. <http://www.fao.org/3/I8661EN/i8661en.pdf>
4. LUKE: [Forest resources - Luonnonvarakeskus \(luke.fi\)](#)

5. Projects related to Uzbekistan forests and forestry, e.g. Poplars in Agroforestry in Central Asia – from Planting Material to Utilization World Agroforestry Transforming Lives and Landscapes with Trees.
6. The Programme for the Endorsement of Forest Certification, <https://www.pefc.org/>

Periodicals and other sources:

1. Quality improvement tool for environmental education, <http://forestpedagogics.eu/portal/material/>
2. SEEC (Swiss Environmental Education Commission) 2019. Guide to improve the impact of learning materials in forest pedagogy, environmental education and education for sustainability. https://www.education21.ch/sites/default/files/uploads/ausserschulische-anbietende/FUB/2019_SEEC_Guide_Impact_Quality_learning_materials_EE_EfS.pdf

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