CIRCULAR BIOECONOMY IN THE FOREST SECTOR

Department of Forest Mensuration and Forest Management

Education and Research Institute of Forestry and Landscape-Park Management

Lecturer:	Yevhenii Khan
Semester:	2
Degree level:	Master's
ECTS Credits:	3
Form of assessment:	Exam
Contact hours:	30 (15 hours of lectures, 15 hours of practical/group work)
Self-study:	60 hours

General Course Description

The course provides students with comprehensive knowledge and skills in circular bioeconomy applied to the forest sector. It covers the transition from linear "harvest–produce–dispose" models to circular approaches in forest-based industries, EU policy frameworks (European Green Deal, Bioeconomy Strategy), sustainable forest management, certification, life cycle assessment, cascading use of wood resources, industrial symbiosis, and innovative technologies for biomass conversion. A project-based learning approach is used: students work in small groups with partner enterprises operating across the forest-based value chain.

Learning outcomes include: explain the fundamentals of circular bioeconomy and its relevance to the forest sector; conduct life cycle assessments and circularity evaluations; design circular business models and closed-loop material flows; apply cascading use principles and biomass conversion technologies; develop circularity assessment strategies and sustainability reports; work

effectively in interdisciplinary teams communicating complex bioeconomy concepts to diverse stakeholders.

Lecture Topics

1. Introduction to the Circular Bioeconomy.
2. Global and EU Strategies on Bioeconomy.
3. Forests and Their Role in the Bioeconomy.
4. Circularity in the Forest Sector.
5. Policies, Governance and Stakeholder Engagement.
6. Case Studies and Best Practices.
7. Circularity Assessment and Reporting Strategies.

Practical Class Topics

1. Introduction to the Circular Bioeconomy: linear vs. circular model analysis at partner enterprises.
2. Forests and Their Role in the Bioeconomy: ecosystem services, certification, and biomass limitations.
3. Policies, Governance and Stakeholder Engagement: regulatory frameworks and stakeholder dialogue.
4. Circularity in the Forest Sector: wood value chain mapping, waste utilisation, and industrial symbiosis.
5. Case Studies and Best Practices: international circular forest business models.
6. Project Development: circular bioeconomy project proposal for a partner enterprise.
7. Circularity Assessment and Reporting Strategies: assessment tools application and e-portfolio preparation.