LANDSCAPE FIRES: SCIENCE, POLICY AND MANAGEMENT

Department of Silviculture

Educational and Research Institute of Forestry and Landscape-Park Management

Lecturer:	Sergiy Zibtsev
Semester:	2
Degree level:	Master's
ECTS Credits:	3
Form of assessment:	Exam
Contact hours:	30 (15 hours of lectures, 15 hours of practical classes)
Self-study:	60 hours

General Course Description

The course "Landscape Fires: Science, Policy and Management" aims to train specialists capable of understanding, preventing, and managing landscape fires in the context of climate change and post-war recovery challenges. Students will gain comprehensive knowledge of fire ecology and combustion processes, national fire policy frameworks, and integrated fire management approaches. The course addresses the increasing threat of landscape fires to rural communities, ecosystems, and biodiversity, with particular attention to Ukraine-specific challenges including reduced firefighting capacity and the need for sustainable recovery of socio-ecological systems.

Course objectives: studying the basics of fire ecology and combustion, including fire behavior, fuel moisture dynamics, smoke transport, and emissions; analysing national landscape fire policy, legislation, and the roles of responsible agencies; examining human dimensions of fire management and community safety in fire-prone areas; mastering integrated fire management approaches including prevention, preparedness, early warning systems, and fire hazard forecasting; developing skills in interagency cooperation, fire detection, and information sharing with stakeholders; understanding fire suppression strategies and rehabilitation of burned sites; and assessing fire season dynamics under climate change conditions.

Lecture Topics

1. Current situation with landscape fires in the world and Ukraine: climate change, war, land use change.
2. Fire triangle and basics of combustion of fuel on landscape level. Environmental and climate aspects of landscape fires.
3. Fuel types, structure and distribution along the landscapes. Fuel modelling. Fire weather danger. Fire hazard.
4. Spatial and temporal aspects of fire regimes of landscapes in Ukraine. Modelling of fire behavior.
5. Fire policy and legislation. Fire management in forests and other types of land use.
6. Incident management, commanders and their responsibility. Forest fire brigades' structure and management. Safety and equipment of fire personal. Fire engines and other tools.
7. Prescribe burnings aims, application, technics.
8. Fire suppression operations: safety, management, strategy and tactics.

Practical Class Topics

1. Fire policy: agencies, fire statistics, legislation.
2. Land use and fuel types of structure of territory. Fire weather patterns.
3. Assessment of land use structure of territory. Ignition sources. Fire regimes.
4. Landscape fire management: preparedness, responsibility / coordination of detection, response and initial attack.
5. Fire suppression: safety, incident management, fire weather monitoring, radio connection.