Module No.	Module name
Ρ7	Natural Hazards and Risk Management

Module coordinator

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Additional teaching staff

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Syllabus

Almost every day we are confronted with news of natural catastrophes, the spread of diseases and other disturbances, which are all events that affect both natural and managed ecosystems. To manage ecosystems sustainably, these risk factors need to be considered.

This module will introduce students to a range of biotic and abiotic risk factors and the way in which these may affect ecosystems and the enterprises depending on them. In addition, students will learn about the components of ecosystem resistance and resilience and how these can be managed to stabilise forest ecosystems and reduce the impact of risks. Particular emphasis will be placed on the following ecosystem risks/disturbance agents: storms, drought, fire, flooding, and biotic factors such as animals.

Students will learn that disturbances are a normal phenomenon in ecosystems and responsible for the dynamics of stands and landscapes. The importance of managing ecosystems within the variation of a natural disturbance regime will be discussed, and approaches to assess disturbance regimes will be examined. Examples of ecosystem risks and disturbances and how they can be considered in natural resource management will be drawn from around the world. Risk management and particularly risk assessment and risk modelling will be a focus of the module.

Learning goals and qualifications

Students will learn:

- that disturbances are a natural phenomenon and responsible for ecosystem dynamics
- reasons and features of disturbances and the consequences of disturbances in forest ecosystems
- how to reconstruct disturbance regimes of forest ecosystems and how to develop management systems that increase ecosystem resistance and resilience.
- principle processes of risk management including risk analysis (identification and evaluation of risks), risk handling and control
- assessment, modelling and application of risk probabilities (including expert systems, basic statistical and mechanistic models and advanced technologies of risk modelling)

Teaching and learning methods

Lectures, tutorials, pracs, excursions

Prerequisites

Requirements for registration

Distribution of work load

Contact hours Independent learning 60 h (Lectures, pracs, excursion, exam) 65 h (Preparation, reading etc.)

Proposed assessment

Written exam

Link to learning resources

Preliminary Reading

Attiwill PM (1994) The disturbance of forest ecosystems; the ecological basis for conservative management. Forest Ecology & Management 63, 247-300.

Oliver CD and Larson BC (1996) Forest Stand Dynamics. Update edition. John Wiley & Sons, NY.

Comments