Innovative Postgraduate Education in The Field of Environment Protection: Methods and Tools

MENV PRO
Co-funded by the Erasmus+ Programme of the European Union

Landscape planning

Shushanik Asmaryan
Center for Ecological-Noosphere Studies
06 October 2022

GRENA
GEORGIAN RESEARCH AND EDUCATIONAL NETWORKING ASSOCIATION
UNIVERSITY OF GEORGIA
ITM
UNIVERSITÀ DEGLI STUDI DELLA TUSCIA
NAS RA
INTERNATIONAL SCIENTIFIC EDUCATIONAL CENTER
MARTIN-LUTHER-UNIVERSITÄT HALLE-WITTENBERG
TÉCNICO LISBOA
GIRAF PM

BIO Presenter

Shushanik Asmaryan

PhD in Geography; Research interest; include GIS and RS technologies for land use planning, land cover monitoring and modeling, remote observation of environmental compartments (soil, water, plants), land degradation by erosion, droughts, Spatial Data Infrastructures - distributed GIS

Lead and participate in a number of national and international projects (***FP7 EcoArm2ERA, SNF Swiss-Armenian ARPEGEO, WorldBank Carmac, H2020 Connecting Nature, SERI Swiss-Armenian ADC4SD, DTRA Atlas; Erasmus+ MENVIPRO, SEVAMOD2 etc.***);

Author and co-author of more than 80 research publications;

- ORCID: https://orcid.org/0000-0002-6538-9171
- Scopus Author ID: 56029764700

Deputy Director for science and **Head of GIS and Remote Sensing department** of CENS NAS RA

Lecturer of the "Environmental Protection and Nature Management" educational department of the ISEC NAS RA.

https://www.linkedin.com/in/shushanik-asmaryan-4829851a/

shushanik.Asmaryan@cens.am

Modernized/New Developed Course Objectives and Tasks

Module _1_ credit _3_

Teaching hours _ 32 _ (lectures: 24, seminars: 4, practicals: 4)

Course main objective is to introduce to the main principles of the landscape planning as a core step of the spatial and human activity planning policy and a platform for scientifically justified decision making oriented to the sustainable development.

Course Tasks

- Introducing the natural complexes, landscape-forming natural and social-economical factors and to the geoecological properties of the modern landscape.
- Introducing the main principles, definitions, methods and steps of the landscape planning.
- Teaching the regional characteristics of the landscape planning based on the studying the experience of several countries (including Armenia) in the context of spatial planning and regional policy.

Course Prerequisites

- Physical Geography
  - ✓ Landscape as a natural complex, structure
  - ✓ The main characteristics of landscapes
  - ✓ Landscape forming natural and social-economical factors

- Fundamentals of Sustainable Development

Course Comparative Analysis

NAS RA
INTERNATIONAL SCIENTIFIC
EDUCATIONAL CENTER

Course main objective is to introduce to the main principles of the landscape planning as a core step of the spatial and human activity planning policy and a platform for scientifically justified decision making oriented to the sustainable development.

UNIVERSITÀ DEGLI STUDI DELLA Tuscia

the course is focused on the acquisition of knowledge in Earth Sciences, biological, agricultural and forestry systems, environmental sciences, city planning and landscape and on acquiring the methodological tools needed for sustainable planning the environment and the landscape.

- Generally the main aim of the courses are almost similar, though the courses are included in the different types of the programs (***Master and Bachelor***)
- Both are using similar set of tools and methods, where ***GIS and Remote Sensing technologies*** has a key role.

Course CONTENT

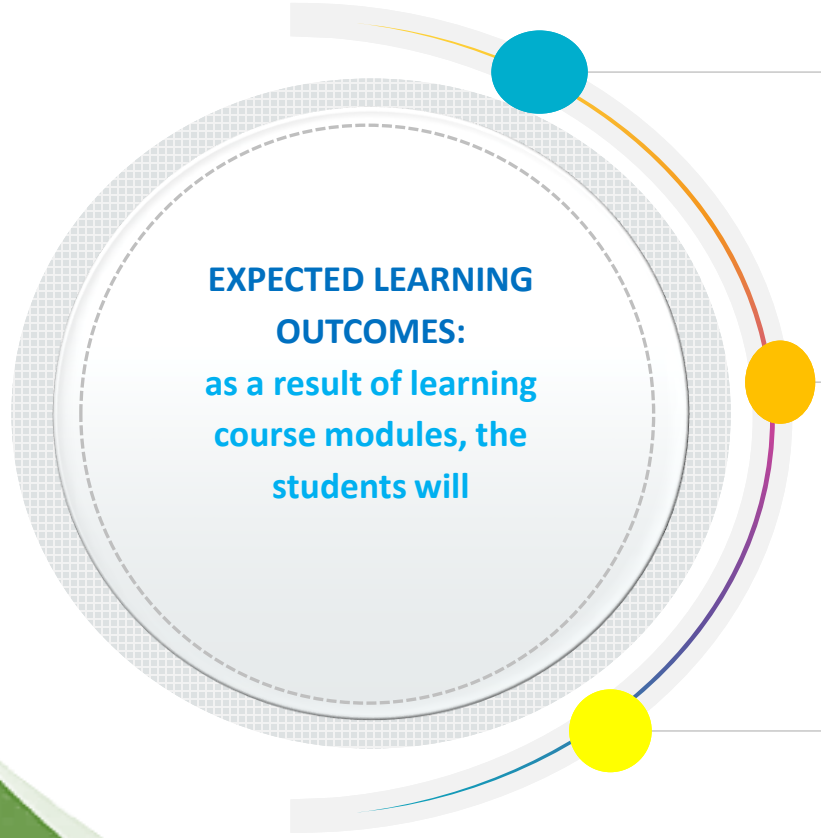
HOURS AND CREDITS

ENV PRO
Co-funded by the Erasmus+ Programme of the European Union

Course Outcomes

(according to the course curricula)

Module _1_ credit _3_



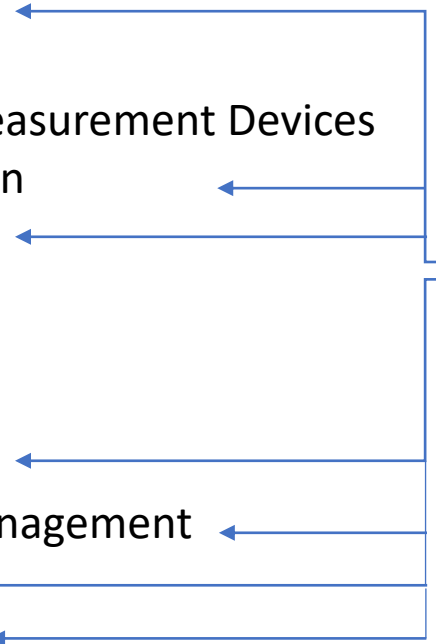
1. **know** the geoecological characteristics of modern natural complexes (landscapes), the main principles, definitions, methods and steps of the landscape planning.

2. **be able** to analyze and systemize the information related to the state, significance and sensitivity of the natural complexes according to the spatial planning norms and requirements.

3. **master** the modern approaches of assessing the geoecological state of the modern landscapes.

Interdisciplinary Connections With Other Courses

- Computer technology in environmental studies
- Research methods
- Professional foreign language
- Life Safety & Emergency issues
- Human sustainable development
- Nature Managment Economics
- Environmental Monitoring and Measurement Devices
- Environmental Radiation Protection
- Environmental Geochemistry
- Environmental Toxicology
- Environmental Statistics
- Food Safety Risk Assessment
- Urban Ecology
- Spatial data infrastructure and management
- Applied remote sensing
- Complex Geoecological mapping



- Nature Recreation Management
- The Environment and Human Health
- Research Logic
- Medical Ecology
- Industrial Ecology
- Soil quality monitoring
- Landscape planning
- Environmental legislation

Innovative Postgraduate Education in The Field of Environment Protection: Methods and Tools

Spatial Data Infrastructures and data management

Shushanik Asmaryan
Center for Ecological-Noosphere Studies
06 October 2022

Modernized/New Developed Course Objectives and Tasks

Module _1_ credit _5_
Teaching hours _ 48 _ (lectures: 24, seminars: 4, practical: 20)

Course goal is to introduce to the geographical Information systems (GIS) and spatial data infrastructures (SDI), the main components of spatial data infrastructures, global spatial data repositories as main tools of systemizing spatial data and making scientifically justified decisions.

Course objectives

- Introducing GIS technologies and the skills, methods and principals of the geospatial data processing, maintaining, analyzing, and producing.
- Introducing the main structural components of the spatial data infrastructures, software, global data repositories and the benefits of their application.
- Introducing geospatial standards, the experience of creating the nationally distributed processing capacities for geospatial data in Armenia as well as the benefits of geospatial data and metadata sharing and exchange.

ENV PRO
Co-funded by the Erasmus+ Programme of the European Union

Course Prerequisites

- ✓ Basics of Geographical Information Systems
  - ➢ Spatial data models (raster, vector, attributes etc.)
  - ➢ methods and principals of the geospatial data processing, maintaining, analyzing, and producing.
- ✓ Computer skills

Course Outcomes

(according to the course curricula)

Module _1_ credit _5_

EXPECTED LEARNING OUTCOMES:
as a result of learning course modules, the students will

1. Know

- **The role and significance of geospatial information technologies in scientifically justified decision making in relation to the sustainable land-use planning and development.**
- **The structure of GIS, the types of data models in GIS, the methods of data analysis, visualization and generation.**
- **The role and opportunities of web-GIS for data standardization and sharing.**

2. **be able** to analyze and systemize the information related to the state, significance and sensitivity of the natural complexes according to the spatial planning norms and requirements.

3. **master** the modern approaches and methods of processing, analyzing, visualizing and exchanging and sharing the geospatial data.

Course Benchmarking

Module _1_ credit _5_

Teaching hours _ 48 _ (lectures: 24, seminars: 4, practical: 20**)**

NAS RA
INTERNATIONAL SCIENTIFIC
EDUCATIONAL CENTER

UNIVERSITÉ
DE GENÈVE

UNIVERSITÀ
DEGLI STUDI DELLA
Tuscia

MARTIN-LUTHER-UNIVERSITÄT
HALLE-WITTENBERG

Course goal course aimed at introducing the main components of spatial data infrastructure, global spatial data repositories, giving the main skills how to use them.

This is a **certificate of advanced studies** (CAS) **course** for any persons who is interested in /or involved in environmental sustainability and natural capitals: biodiversity, water resources and ecosystem services. This CAS is targeting in particular Swiss and foreign experts in GIS interested in environmental sustainability, young graduates, PhD students, experienced professionals who want to upgrade their knowledge and skills, on how GeoSpatial data generated by GIS systems is effectively managed, analyzed and preserved in the Environmental Sciences. It is providing attendees with an overview of the various existing tools and approaches to tackle the multidisciplinary environmental challenges.

The comparative analysis of both course shows that they have similar goals and outcomes despite the general differences.

The differences in course load, applied tools, teaching resourses ECTS and other criterions conditioned with the specificity of educational programs in the countries.

However, both courses required basic knowledges on Geographical Information systems.

Course CONTENT; hours and credits

ENV PRO
Co-funded by the Erasmus+ Programme of the European Union

Interdisciplinary Connections With Other Courses

- Computer technology in environmental studies
- Research methods
- Professional foreign language
- Life Safety & Emergency issues
- Human sustainable development
- Nature Managment Economics
- Environmental Monitoring and Measurement Devices
- Environmental Radiation Protection
- Environmental Geochemistry
- Environmental Toxicology
- Environmental Statistics
- Food Safety Risk Assessment
- Urban Ecology
- Spatial data infrastructure and management
- Applied remote sensing
- Complex Geoecological mapping

- Nature Recreation Management
- The Environment and Human Health
- Research Logic
- Medical Ecology
- Industrial Ecology
- Soil quality monitoring
- Landscape planning
- Environmental legislation

THANK YOU !

Shushanik Asmaryan
06.10.2022
Email: shushanik.asmaryan@cens.am

MENV PRO
Co-funded by the Erasmus+ Programme of the European Union