COURSE OUTLINE

1. GENERAL

SCHOOL	School of Technology		
DEPARTMENT	Department of Forestry, Wood Sciences and Design (Karditsa)		
LEVEL	*Undergraduate*		
CODE	ΔΠΕ941	**STUDENT SEMESTER**	9th
COURSE TITLE	Ecosystem Restoration		

ACTIVITIES	**WEEKLY HRS**	**ECTS**
Lectures	3	4

TYPE OF COURSE	Optional course in the Orientation of Natural Environment Management
PREREQUISITES:	None
LANGUAGE TEACHING AND EXAMINATION:	Greek
THE COURSE IS OFFERED TO ERASMUS STUDENTS	No
WEBPAGES COURSE (URL)	

2. LEARNING OUTCOMES

Learning Outcomes

The purpose of the course is to make the pre-graduate student of the Department capable of understanding the complex problem of restoring ecosystems that have been disturbed by specific projects or natural phenomena. In the first case, the student is asked to understand how the restoration will be done based on a specific process (drafting of technical studies and Environmental Impact Studies (EIA) – project construction – restoration or mitigation of impacts based on EIA and environmental liability legislation), while in the second case he is called upon to identify the reasons why a natural phenomenon had devastating effects on an ecosystem, in which human activities may have existed.

Upon successful completion of the course, the students will be able to:

- Understand the concepts of ecosystem disturbance and the need for their restoration.
- Identify the causes of ecosystem disturbance, e.g. due to the necessity of constructing large road projects, and the methods of restoring them or mitigating their effects based on the requirements of the legislation.
- Understand the primary and secondary impacts of major and minor projects or phenomena, such as the construction of airports, highways, power transmission networks, fuel pipelines, dams, residential-tourism expansion, land redistribution works, fires, floods and pollution, on the natural environment, society and the economy.
- Know that EIAs or landscape restoration studies contain provisions for environmental-ecosystem restoration after the construction of public and private projects or the occurrence of catastrophic phenomena and how these are materialized.
- Distinguish between substantial restoration of disturbances based on ecological principles (and time-series data, if available) as opposed to simply restoring the landscape or assigning equivalent (in size) lands (to the disturbed or damaged ones) without the same ecological features.
- Know the basic principles of restoration of forests, wetlands, rural landscapes, dunes, rock formations and urban habitats.
- Understand and interpret typical examples of restoration of disturbed areas and ecosystems (case studies) and methods of monitoring the effectiveness of restoration actions (e.g. Karla Lake in Thessaly, Greece, and the Skjern River in Denmark).

- Be informed about the market share of environmental studies in Greece (do they cover an important part in the consulting business?) and their importance for the restoration of disturbed areas, as well as for the pro-environmental profile of the bodies and companies involved each time, at a time when targeting minimum environmental impact of projects and activities seems to concern them more than in the recent past.

General Skills

Upon successful completion of the course, the students will be able to develop and cultivate basic professional and social skills:

- Search, analysis and synthesis of data and information, using the necessary technologies
- Adaptation to new situations
- Teamwork
- Decision making
- Demonstration of social, professional and moral responsibility
- Project design and management
- Work in an interdisciplinary environment
- Respect for the natural environment
- Promoting free, creative and inductive thinking
- Production of new research ideas

3. COURSE CONTENT

The course includes only a theoretic part which provides the student with knowledge on the following themes:

- Introduction to the concepts of ecosystem disturbance (causes of disturbance, necessity for large technical projects and infrastructures) and their restoration (legislation, environmental responsibility, restoration techniques, compensatory actions) as well as the principles of rehabilitation.
- Effects of large and smaller projects such as the construction of airports, road axes, energy transmission networks, fuel pipelines, dams, residential-tourist expansion, land redistribution, fires, floods, pollution.
- Provisions of Environmental Impact Studies (EIA) of public and private projects for environmental - ecosystem restoration.
- Necessity of restoration of disturbances based on ecological principles and time series of data with a clear differentiation of this framework in relation to simple landscape restoration or allocation of corresponding areas without the same ecological characteristics.
- Sound case studies of restoration (presented by the professor, and the students through exercises).

Directions and material on the course are posted in the e-class platform.

4. TEACHING AND LEARNING METHODS - EVALUATION

DELIVERY METHOD	Combined educational methods and techniques are applied aiming at enhancing the active participation of students and at increasing the effectiveness of "face to face" teaching: enriched presentations, questions - answers, discussion, exercises, working groups, study and demonstration of case studies, educational visit.
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	Use of video projector for the lectures as well as thecourse page on the e-class platform for posting (a) notes, (b) internet links, and (c) announcements.
MANAGEMENT OF TEACHING	

Activity	***Semester Workload***
Lectures	20
Term assignment preparation and presentation	30

	Individual and work study for term assignment	50
	Course Total	***100***
STUDENT EVALUATION	Student assessment takes place at the end of the semester by means of (a) written examination for the theoretical part of the course, and (b) grading of the essay of the student.	

5. RECOMMENDED-BIBLIOGRAPHY

Books offered to students through the *Eudoxus* platform:

- Vagiona D. 2021. Environmental Impact Studies – Theory and Applications. DISIMA Editions, 768 pp. ISBN: 978-618-202-065-4 (Eudoxus code: 102074486, *in Greek*).

Books offered besides the *Eudoxus* platform:

- Gattenlöhner, U., M. Hammerl-Resch and S. Jantschke (eds.). Reviving Wetlands – Sustainable Management of Wetlands and Shallow Lakes, Guidelines for the Preparation of a Management Plan. Global Nature Fund, Living Lakes, EU LIFE Programme, DG Environment.
- Kallia-Antoniou, A. 2010. Civil Liability – The implementation of Directive 2004/35/EC. Ankara, Turkey, Regional Environment Committee (REC).
- Silva, J.P., W. Jones, J. Eldridge and E. Sarvan. 2006. LIFE and the marine environment – Promoting sustainable management of Europe's seas. European Commission, Environment Directorate-General. pp 54.
- Silva, J.P., L. Phillips, W. Jones, J. Eldridge and E. O'Hara. 2007. LIFE and Europe's wetlands – Restoring a vital ecosystem. European Commission, Environment Directorate-General. pp 66.
- Silva, J.P., J. Toland, W. Jones, J. Eldridge, E. Thorpe and E. O'Hara. 2008. LIFE and Europe's grasslands – Restoring a forgotten habitat. European Commission, Environment Directorate-General. pp 53.
- Zalidis, G. T.L. Crisman and P.A. Gerakis (editors). 2002. Restoration of Mediterranean Wetlands. Ministry of Environment, Land Planning and Public Works, Greek Biotope-Wetland Center.