

COURSE OUTLINE

1. GENERAL

SCHOOL	APPLIED SCIENCES		
DEPARTMENT	ENVIRONMENTAL ENGINEERING		
LEVEL OF STUDY	Undergraduate		
COURSE UNIT CODE	GE5710	SEMESTER OF STUDY	7 ^o
COURSE TITLE	ENVIRONMENTAL RESTORATION IN GEOTECHNICAL AND MINING WORKS		
COURSEWORK BREAKDOWN		TEACHING WEEKLY HOURS	ECTS Credits
Lectures, Laboratory Exercises		5	5
COURSE UNIT TYPE	SC: Specialization Courses		
PREREQUISITES :			
LANGUAGE OF INSTRUCTION/EXAMS:	Greek		
COURSE DELIVERED TO ERASMUS STUDENTS			
MODULE WEB PAGE (URL)	http://geope.teikoz.gr/undergraduate/ug_studies.htm		

2. LEARNING OUTCOMES

Learning Outcomes
<p>On successful completion of this module the learner will be able to:</p> <ul style="list-style-type: none"> • adopt rules and techniques of environmental remediation (technical and aesthetic) in mining, geotechnical and infrastructure projects. • Understand the issues of environmental landscape planning after mining activities and to use principles of siting focusing on environmental, social, economic and aesthetic criteria of the changing landscape.
<p>General Skills Upon successful completion of the programme students will:</p> <ul style="list-style-type: none"> - have the basic theoretical and practical knowledge in the fields of the subject area of Geotechnology and Environmental Engineering - be able to properly apply the theoretical and practical knowledge acquired during the study period - be able to cover a wide spectrum of scientific and technical knowledge related to mining and geotechnical projects as well as the sector of environmental reclamation - have gained the necessary competencies to proceed to their second cycle study

3. COURSE CONTENTS

<p>Introduction. Principles and methods of environmental planning and restoration in mining and geotechnical engineering. Rehabilitation methods for reducing environmental footprint. Landscape and rehabilitation. Aesthetic restoration and analysis of the landscape. Climatic, geological and soil</p>

mechanics data in environmental restoration. Groundwater and surface hydrology affecting the landscape, current trends in rehabilitation. Restoring exploited mining areas, landscaping, vegetation, and aesthetic organization of the landscape. Unblotting the landscape. Vegetation and aesthetic improvement of landscape. Recreation in restored lands. Actually problems and perspectives of mining areas. Brownfield land, rehabilitation of industrial mining complexes, the case of Lavrion in Greece.

4. TEACHING METHODS - ASSESSMENT

MODE OF DELIVERY	Face-to-face	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGY	KENO	
TEACHING METHODS	<i>Method description</i>	<i>Semester Workload</i>
	Theory	60
	Laboratory Exercises	40
	Total of lessons	100
ASSESSMENT METHODS	I. Lab and/or Project Work (40%) II. End of Semester Formal Examination (60%)	

5. RESOURCES

- *Recommended Book Resources:*
 - *Recommended Article/Paper Resources:*

1. Τσαλικίδης, Ι. 2008. Αρχιτεκτονική τοπίου. Έκδοση: 1η ISBN: 978-960-458-016-3 Εκδόσεις Επίκεντρο Α.Ε.
2. Τσαλικίδης, Ι., Αθανασιάδου Ε. 2009. Αειφορικός Σχεδιασμός Χρήσεων Γής. Εκδόσεις ΓΑΡΤΑΓΑΝΗΣ ΑΓΙΣ-ΣΑΒΒΑΣ.
3. Χατζηστάθης, Α., Ισπικούδης Ι., 1995. Προστασία της φύσης και αρχιτεκτονική του τοπίου. Εκδόσεις Γιαχούδη Γιαπούλη. Θεσσαλονίκη.
4. Ανανιάδου – Τζημπούλου, Μ. 1997. Αρχιτεκτονική Τοπίου – Σχεδιασμός αστικών χώρων. Τόμος Α., Εκδόσεις ΖΗΤΗ, Θεσσαλονίκη.
5. Canter, L. 1999. Environmental impact assessment. Mc Graw Hill.
6. Meuser H. 2013. Soil Remediation and Rehabilitation: Treatment of Contaminated and Disturbed Land: Kindle Edition. Springer.
7. Berger, J. 2013. Environmental Restoration: Science and Strategies for restoring The Earth. Kindle Edition. Island Press ,Washington DC.
8. Tongway D.J. and Ludwig J.A. 2011. Restoring Disturbed Landscapes: Putting Principles into Practice. The Science and Practice of Ecological Restoration Series. Society for ecological restoration International. Kindle Edition. Island Press, Washington DC.
9. Falk, D.A., Palmer M., Zedler J., Hobbs R.J. 2006. Foundations of Restoration Ecology (The Science and Practice of Ecological Restoration Series. [Kindle Edition] Society for ecological

- restoration International. Kindle Edition. Island Press, Washington DC.
10. Doyle, M., Drew C. 2008. Large-Scale Ecosystem Restoration: Five Case Studies from the United States. The Science and Practice of Ecological Restoration Series. Society for ecological restoration International. Kindle Edition. Island Press, Washington DC.
 11. Higuchi, T. 1983. The visual and Spatial Structure of Landscape. Cambridge, MA: MIT Press.
 12. LYNCH, K. HACK, G. 1984. Site planning, Mit Press, Cambridge Mass., USA
 13. LOVEJOY, D. 1973. Land use and landscape planning, Leonard Hill Books, Bucks, UK.
 14. THOMPSON, G., & STEINER, F. 1997. Ecological design and planning, John Wiley & Sons, New York, USA
 15. Parker, J., Bryan, P. 1989. Landscape management and maintenance. Gower, UK.
 16. Βουρνάς Τ. 2011. Τα Λαυρεωτικά και η χρεωκοπία του 1893. Εκδόσεις τα Νέα & Φυτράκη, Αθήνα.
 17. Λαυρεωτικά 1869-1873. (2011). Η πρώτη αρπαγή δημόσιας περιουσίας. Εκδόσεις Ιστορικά, Ελευθεροτυπία 2011, Αθήνα.