

COURSE DISCRIPTION

1. GENERAL

SCHOOL	ENVIRONMENT, GEOGRAPHY AND APPLIED ECONOMICS		
DEPARTMENT	GEOGRAPHY		
LEVEL OF COURSE	Undergraduate		
COURSE CODE		SEMESTER	4H
COURSE TITLE	RENEWABLE ENERGY SOURCES (RES)		
STRUCTURE OF TEACHING ACTIVITIES		TEACHING HOURS PER WEEK	NUMBER OF CREDITS ALLOCATED (ECTS)
Lectures and Laboratory Classes		3	5
TYPE OF COURSE	Optional		
PREREQUISITES	-		
LANGUAGE OF INSTRUCTION	GREEK		
COURSE OFFERED TO ERASMUS STUDENTS (URL)	YES (in English if required)		

2. EXPECTED LEARNING OUTCOMES

Learning outcomes

Describe the objectives of the course as well as the expected learning outcomes

The course of RES is an introductory course in the fields of wind and solar energy. Alternative sources such as geothermal energy, hydropower and biomass are also introduced. At the end of the course the student is expected to be able to understand fundamentals of wind turbine and solar cell and schedule a cost-benefit analysis of wind farms and photovoltaic panel installations in Greece. Policies and finances towards the renewable energy deployment in Greece and the European Union are also discussed.

3. COURSE CONTENTS

1. Introduction in RES
2. Atmospheric boundary layer physics
3. Wind characteristics and vertical wind profile
4. Surface roughness impact on the wind flow
5. Wind energy
6. Technical characteristics of wind turbines
7. Solar energy
8. Fundamentals on PV cells
9. Geothermal energy-Biomass-Hydropower
10. Greek and EU policies in renewable energy deployment

4. TEACHING AND ASSESSMENT METHODS

TYPE OF LECTURES	In class lectures		
ICT USE	ICT use and e-class		
TEACHING STRUCTURE	Activity	Hours per semester	
	Lectures	39	
	Project	13	
	Studying	75	
	TOTAL	127	
ASSESSMENT METHODS	Assessment Language: Greek The basic assessment type of the course is the written examination at the end of the semester (3 hours) providing the 50% of the final grade. Assignments covering all topics addressed in this course with presentation and report of 3500 words are contributed to the rest of 50% of the final grade.		

5. RECOMMENDED READING

Lioki-Livada Iro and M. Assimakopoulou, 2008: *Aeolic and other renewable energy sources S.* Athanassopoulos publications, Athens, Greece (in greek).