COURSE OUTLINE

1. GENERAL

SCHOOL	ENVIRONMENT AND AGRICULTURAL ENGINEERING		
ACADEMIC UNIT	DEPARTMENT OF NATURAL RESOURCES DEVELOPMENT AND AGRICULTURAL ENGINEERING		
LEVEL OF STUDIES	Graduate		
COURSE CODE	3100	SEMESTER	7ο
COURSE TITLE	Soil Genesis and Classification		
INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits*		WEEKLY TEACHING HOURS	CREDITS
Lectures		3	3
Lab Exercises		2	2
Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).			
COURSE TYPE *general background, special background, specialised general knowledge, skills development*	Scientific field		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in English)		
COURSE WEBSITE (URL)	https://oeclass.aua.gr/eclass/courses/2698/		

2. LEARNING OUTCOMES

Learning outcomes

The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.

Consult Appendix A

- *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
- *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
- *Guidelines for writing Learning Outcomes*

Soils are open dynamic natural body, the result of a complex set of pedogenetic processes operating over a wide range of time scales. Understanding the soil as a natural system interacting with the environment is therefore important for many scientific disciplines as contemporary problems such as pollution, erosion, desertification and climate change are now issues of increasing global concern. This is the aim of the course Soil Genesis and Classification.

Upon successful completion of the course the student(s) will be able to:
Understand the concept of soil as an open, dynamic system.
Understand the physicochemical weathering process and the formation of soils from parent materials.
Understand the soil morphological properties.
Understand the pedogenetic process.
Understand the factors of soil formation.
Understand the soil classification systems, as the Soil Taxonomy and the WRB..
Understand the main orders of Greek soils: Entisols, Inceptisols, Alfisols, Vertisols

General Competences

Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?

Search for, analysis and synthesis of data and information, with the use of the necessary technology	*Project planning and management*
Adapting to new situations	*Respect for difference and multiculturalism*
Decision-making	*Respect for the natural environment*
Working independently	*Showing social, professional and ethical responsibility and sensitivity to gender issues*
Team work	*Criticism and self-criticism*
Working in an international environment	*Production of free, creative and inductive thinking*
Working in an interdisciplinary environment	*……*
Production of new research ideas	*Others…*
	…….

Search for, analysis and synthesis of data and information, with the use of the necessary technology
Adapting to new situations
Working independently
Team work
Respect for the natural environment

3. SYLLABUS

- Soil as an open natural dynamic system.
- Factors of soil formation ((parent material, climate, relief, organisms, time).
- Pedogenetic processes (addition, losses, transports, and transformations of soil material).
- Formation and concept of morphological features of the soil profile (color of soil horizons, redoximorphic features, clay coatings, slickensides).
- Formation of soil epipedons and diagnostic soil horizons (histic epipedon umbric epipedon, ochric epipedon, cambic horizon, calcic horizon, argilic horizon, natric horizon).
- Soil classification (The concept of pedon, basic elements of soil classification, categories and terminology of the Soil Taxonomy).
- Entisols (description, properties, soil formation factors and pedogenetic processes, sub-orders, use and management).
- Inceptisols (description, properties, soil formation factors and pedogenetic processes, sub-orders, use and management).
- Alfisols (description, properties, argilic horizon formation, soil formation factors and pedogenetic processes, sub-orders, use and management).
- Vertisols (description, properties, soil formation factors and pedogenetic processes, sub-orders, use and management).
- WRB: Categories, terminology, and examples of WRB; differences and similarities with the Soil Taxonomy

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	*Face-to-face and Distance learning*
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	Supporting the learning process by combining text, images, audio, video, animation and other interactive activities. Digital platform (open eclass).
TEACHING METHODS *The manner and methods of teaching are described in detail.* *Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.* *The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS*	

Activity	*Semester workload*
Lectures	50
Laboratory practice and field work study	50
Essay writing	25
Course total	125

STUDENT PERFORMANCE EVALUATION *Description of the evaluation procedure* *Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other* *Specifically-defined evaluation criteria are given, and if and where they are accessible to students.*	The evaluation will be conducted in Greek, except in the case of Erasmus postgraduate students, who will be assessed in English. I. Theory Multiple-choice test Written assignments Final written examination II. Laboratory part Written examination with problem-solving

5. ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

Buol, S.W., Southard, R.J., Graham, R.C., McDaniel, P.A., 2011. Soil Genesis and Classification, 6th ed. Wiley-Blackwell, Ames, IA.

Fanning, D.S. and Fanning M.C.B. 1989. Soil morphology, genesis, and classification. John Wiley & Sons, New York, NY.

- Related academic journals:

Geoderma, Catena, Journal of Plant Nutrition and Soil Science, Journal of Soil and Water Conservation, Journal of Soils and Sediments, European Journal of Soil Science, Journal of Soil Science and Plant Nutrition, Soil System, Geoderma Regional