COURSE OUTLINE

(1) GENERAL

SCHOOL	School of Agricultural Sciences		
ACADEMIC UNIT	Biosystems & Agricultural Engineering		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**BAE_240**	**SEMESTER**	**2nd**
COURSE TITLE	**INTRODUCTION TO AGRICULTURAL ENGINEERING SCIENCE**		

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	
Tutorials	2	
Laboratory	0	
TOTAL	**5**	**5**
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*	Background
PREREQUISITE COURSES:	There are no strictly prerequisite courses but for a better understanding of this course, students should have attended the first semester courses
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek .-For Erasmus students in English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes. Project work
COURSE WEBSITE (URL)	

(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*

The student, at the end of the relevant Learning Process, is able to:

• to: understand what Agricultural Engineering is and to have an overview of what this science is about.

• understand the correlation of Agricultural Engineering with the fundamental sciences

• understand the territorial systems, the main parameters that affect them and the types and methods of human intervention

• To know the modern agricultural machinery and their fields of use

• To be able to combine knowledge in the field of Agricultural Engineering with those of Biosystems Science.

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…*
	…….

At the end of this course the student will have further developed the following skills (general skills):

• Ability to demonstrate knowledge and understanding of concepts related to Agricultural Engineering and its sustainable applications.
• Ability to demonstrate knowledge and understanding of how Agricultural Engineering contributes to the utilization of natural resources and the positive interventions that can be achieved through its implementation
• Study skills needed for continuing professional development.
• Ability to interact with others in problems of an interdisciplinary nature.
• Ability to challenge the established but also to utilize existing knowledge in a direction of continuous creative research and reflection.

In general, upon completion of this course the student will have further developed the following general skills (from the list above):

Search, analysis and synthesis of data and information, using the necessary technologies, Adaptation to new situations, Decision making, Autonomous and team work, Respect for the natural environment, Promotion of free, creative and inductive thinking

(3) SYLLABUS

General principles, introductory description of the following:
Classification of crops. Cultivation systems for the main climatic and soil conditions. Production strategies. Modern cultivation techniques. Cultivation and soil management practices. Seeds and sowing practices. Irrigation and fertilizer planning. Plant protection measures. Harvest and after harvest. Principles and practices of dry land. Pruning and arranging the soil before cultivation. Engineering of agricultural holdings, Classification of agricultural machines. Primary and secondary plowing tools. Plowing methods. Sowing machines, planting and transplanting equipment. Manual and motorized plant protection equipment. Manual and motorized weed control. Manual and motorized harvesting tools. Excavators. Manure dispersion systems, crushers, chainsaws, harvesters and threshers. Loading and transporting machines. Development and utilization of appropriate tools and equipment. Efficient use of agricultural machinery
Water collection and retention. Ways and mechanisms of irrigation. Aerospace, Hydroponics and greenhouse units. Fruit storage, storage and processing. Utilization of agricultural residues.

Week 1 Crop classification. Cultivation systems for the main climatic and soil conditions.
Week 2: Production strategies. Modern cultivation techniques
Week 3 Cultivation and soil management practices. Seeds and sowing practices.
Week 4 Irrigation and fertilizer planning. Plant protection measures. Harvest and after harvest.
Week 5 Principles and practices of dry land. Pruning and arranging the soil before cultivation.
Week 6 Farm Engineering, Agricultural Machinery Classification ..
Week 7 Primary and secondary plowing tools. Plowing methods. Sowing machines, planting and transplanting equipment. Manual and motorized plant protection equipment.
Week 8 Manual and motor weed control. Manual and motorized harvesting tools. Excavators. Manure dispersal systems, crushers, chainsaws, harvesters and threshers. Loading and transporting machines.

Week 9 Development and utilization of appropriate tools and equipment. Efficient use of agricultural machinery
Week 10 Water collection and retention. Ways and mechanisms of irrigation.
Week 11 Aerospace, Hydroponics and Greenhouse Units
Week 12 Fruit storage, storage and processing.
Week 13: Utilization of agricultural residues. Use of biological processes for energy production.

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Teaching in the amphitheater: Lectures using electronic media which relate to the theory, exercises and applications in the area of Biosystems and Agricultural Engineering.
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY *Use of ICT in teaching, laboratory education, communication with students*	• Use of ICT (power point) in Teaching • Use of ICT (power point) in Laboratory Training • Use of ICT in Communication with students (Learning process support through the electronic platform e-class).
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 — 39 Tutorials — 26 Unguided study — 20 Coursework and Exams — 40 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.*	Written or oral final exam with physical presence or online with or without contribution of project work during the semester The evaluation is dynamic. It mainly involves problem solving. is done orally or in writing or with a combination of the two, with or without pre-examination on the basic principles of the course, with or without exculpatory advances and with other test or inventive methods, depending on the composition of the dynamics and the needs of the audience. 4. The above are done in the Greek language. For foreign language students (eg Erasmus students) conducted in English

(5) ATTACHED BIBLIOGRAPHY (IN GREEK)

- Κ. ΤΣΑΤΣΑΡΕΛΗΣ, ΑΡΧΕΣ ΜΗΧΑΝΙΚΗΣ ΚΑΤΕΡΓΑΣΙΑΣ ΤΟΥ ΕΔΑΦΟΥΣ & ΣΠΟΡΑΣ, Σ. ΓΙΑΧΟΥΔΗ, 2000 ΘΕΣ/ΚΗ , 7972
- Α. ΚΑΡΑΜΑΝΟΣ ΑΡΧΕΣ ΦΥΤΙΚΗΣ ΠΑΡΑΓΩΓΗΣ ΣΤΙΣ ΑΡΟΤΡΑΙΕΣ ΚΑΛΛΙΕΡΓΕΙΕΣ, ΠΑΠΑΖΗΣΗΣ, 2011 ΑΘΗΝΑ 5778
- https://www.ebooks4greeks.gr/gewrgikh-mhxanikh