COURSE OUTLINE

(1) GENERAL

SCHOOL	Agricultural Sciences		
ACADEMIC UNIT	AGRICULTURE		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	AGRI 704	**SEMESTER**	7ο
COURSE TITLE	HEALTH AND SAFETY IN AGRICULTURE		

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	1	
Laboratory	0	
TOTAL	**4**	**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*	Specialised general knowledge, Skills Development
PREREQUISITE COURSES:	There are no prerequisite courses. However, students must have basic knowledge of General and Inorganic Chemistry, Organic Chemistry, Agricultural Physical Chemistry, Agricultural Hydraulics and Irrigation
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek .-For Erasmus students in English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
COURSE WEBSITE (URL)	https://eclass.upatras.gr/courses/

(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 scope of the course is to inform the students about the current international, European and national legislation on issues of safety and hygiene at work and more specifically in agriculture. To present large-scale and significant past accidents involving agrochemicals, the immediate and long-term consequences they caused through water and soil contamination, and the impact they had on agriculture. To introduce them to issues of ergonomics in agriculture and toxicity and explosiveness of agrochemicals. To equip them with the basic

knowledge required to investigate and assess risks in both small and large scale applications with an emphasis on intrinsic safety.

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 general skills:
Search, analysis and synthesis of data and information, also using the necessary technologies
Adaptation to new situations
Decision making
Autonomous work
Teamwork
Generating new research ideas
Respect for the natural environment
Exercise criticism and self-criticism
Promotion of free, creative and inductive thinking

(3) SYLLABUS

1. The Legislative framework for safety & health in agriculture. Inherent safety principles.
2. Safety of buildings and ground. Basic requirements of workplaces (building requirements, lighting, ventilation, temperature, fall protection, sanitary equipment, fire protection, signage).
3. Hazards from electricity, machinery, hand tools. Means of personal protection.
4. Toxicity and Toxic Hazard. Hazard Analysis of Poisons. Categories of poisons. Way of entry and methods of their removal from the body. Toxicological studies. Substance dose limits-Threhold Limit Values & IDLH. TLV-TWA, PEL, OES, TLV-STEL, TLV-C, MEL: Maximum Exposure Limit, IDLH, Lethal dose, LD50, Lethal concentration, LC50. Risk quantification. Multiple toxic substances. Calculation of toxicity of simple substances and mixtures. Material Safety Data Sheets (MSDS-Material Safety Data Sheets &SDS). Detection of toxic substances. Monitoring. Control methods.
5. Principles of ergonomics. Noise, vibrations. Farm machines. Tractors. Towing.
6. Principles of Fire Protection. Fuel safety.
7. Analysis of the most serious accidents due to loss of thermal control of chemical (or nuclear) reactions (Flixborough, Seveso, Bhopal, etc.)
8. Explosions: Ammonium nitrate. Methane. Water hazards.
9. Security of grain storage. Supply, handling and storage of chemicals. Fueling operations Intraoperative transport-musculoskeletal problems.
10. Working around wild animals and harmful plants.
11. Introduction to risk assessment methods (HAZOP/HAZAN, fault trees, what if, …)
12. Information on Greek legislation on safety and health issues. Most important recent Greek laws. Safety Advisor and occupational doctor. Responsibilities of safety advisor. Responsibilities of the occupational physician. Maintenance of books (records). Structures of legislation related to health and safety.

European legislation. Definition of safety standards. Types of templates. Contractors. Changes at work with Change in Seasons

13. 13. Conclusions, revision

(4) TEACHING and LEARNING METHODS - EVALUATION

DELIVERY *Face-to-face, Distance learning, etc.*	Face to face deliveries.
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 • Video presentation • 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*	
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*	1. The main assessment criteria focus on understanding and correlating the knowledge that students gain from the course with knowledge from other courses. The evaluation is continuous and dynamic. It mainly includes short project work, solving problems or answering open questions. Exams are conducted orally or in writing or a combination of the two, with or without pre-examination of the key topics of the course, with or without progressions and by other inventive methods, depending on the dynamics and the needs of the audience

Activity	***Semester workload***
Lectures	39
Tutorials	13
Study and literature survey	30
Exams	10
Unguided study	33
Course total	**125**

Specifically-defined evaluation criteria are given, and if and where they are accessible to students. 1	

(5) RECOMMENDED LITERATURE in Greek

http://www.elinyae.gr
www.csb.gov
https://www.ilo.org/safework/info/standards-and-instruments/codes/WCMS_161135/lang--en/index.htm
https://agsafety.osu.edu/
https://www.osha.gov/agricultural-operations
https://www.cdc.gov/niosh/topics/aginjury/default.html

Κοντογιάννης Θ. 2021. ΕΡΓΟΝΟΜΙΑ ΚΑΙ ΣΥΣΤΗΜΑΤΑ ΔΙΑΧΕΙΡΙΣΗΣ ΑΣΦΑΛΕΙΑΣ ΚΑΙ ΥΓΕΙΑΣ, Εκδόσεις Τζιόλα, 3η Έκδοση, ΚΩΔΙΚΟΣ ΕΥΔΟΞΟΥ: 102072191
Κ. Παπακωνσταντίνου,Χρ. Μπέλιας, Υγιεινή και Ασφάλεια Εργασίας Προστασία Περιβάλλοντος
ISBN: 978-960-89407-0-3, Έκδοση: 2, ROSILI ΕΜΠΟΡΙΚΗ - ΕΚΔΟΤΙΚΗ Μ.ΕΠΕ
Ασσαέλ Μάρκος Ι.,Κακόσιμος Κωνσταντίνος Ε., Ανάλυση επικινδυνότητας, Έκδοση: 1η έκδ, 2007,
ISBN: 978-960-418-148-3, ΕΚΔΟΣΕΙΣ Α. ΤΖΙΟΛΑ & ΥΙΟΙ Ο.Ε.
K. J. Donham, R. Rautiainen, S. H Schuman, J. Lay, Agricultural Health and Safety Recent Advances, 2021 by CRC Press

Scientific Journals

Journal of Agricultural Safety and Health https://www.asabe.org/JASH