COURSE OUTLINE

1. GENERAL

SCOOL	ENVIRONMENT AND AGRICULTURAL ENGINEERING
DEPARTMENT	NATURAL RESOURCES MANAGEMENT AND AGRICULTURAL ENGINEERING
LEVEL OF STUDIES	UNDERGRADUATE

COURSE CODE	64		SEMESTER	9°

COURSE TITLE	COLD STORAGE OF AGRICULTURAL PRODUCTS

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
LABORATORY PRACTICES	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	SPECIAL BACKGROUND
PREREQUISITECOURSES:	- APPLIED THERMODYNAMICS - TRANSPORT PHENOMENA - HORTICULTURAL CROPS - THERMAL MACHINES– REFRIGERATION
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	GREEK
IS THE COURSE OFFERED TO ERASMUS STUDENTS	YES (IN CLASSES OF MORE THAN 5 STUDENTS)
COURSE WEBSITE (URL)	ELECTRONIC NOTES AND PRESENTATIONS OF THE COURSE ARE AVAILABLE FOR THE STUDENTS OF THE SEMESTER AT THE ADDRESS, https://oeclass.aua.gr/eclass

2. 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*

Specialised knowledge in the field of post-harvest technology: management of cold, refrigerated and ventilated fresh fruit and cereal warehouses. Within the framework of the course, students should become familiar with the biology of the harvested product and its management during preservation. Particular emphasis is placed on current trends in whole fruit and vegetable pre-cooling, refrigeration, controlled and modified atmosphere, and cold and refrigerated transport (by road, sea, rail and air).

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 Project planning and management information, with the use of the necessary technology Respect for difference and multiculturalism Adapting to new situations Respect for the natural environment	Search for, analysis and synthesis of data and Project planning and management information, with the use of the necessary technology Respect for difference and multiculturalism Adapting to new situations Respect for the natural environment

- Searching, analysing and synthesising data and information, using the necessary technologies
- Autonomous work
- Project planning and management
- Teamwork
- Decision-making
- Promoting free, creative and deductive thinking
- Design and management of related units.

3. SYLLABUS

Preservation of fresh vegetable products. Behaviour of live plant tissues during cold storage. Factors affecting cold storage. Effect of chilling on the organoleptic characteristics and nutritional value of horticultural crops. Harvesting and quality criteria. Post-harvest handling and related techniques and equipment (sorting, packing). Storage in controlled and modified atmosphere). Pre-cooling. Refrigerated transport. Regulation, control and operation of cold storage. Physiological anomalies and diseases during refrigeration. Special handling of fruit and vegetable storage. Types and characteristics of construction of cereals, tubers (potatoes) and bulbs (onions, garlic) stores. Storage and ventilation of cereals, tubers and bulbs. Artificial drying of agricultural fruits (equipment, drying time calculations and management).

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY Face-to-face, Distance learning, etc.	Face – to -face
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY Use of ICT in teaching, laboratory education, Communication with students	Use of ICT in teaching and communication with students
TEACHINGMETHODS 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	*Activities* | *Semester workload* Lectures | 75 *Laboratories* | 50

Activities	Semester workload
Lectures	75
Laboratories	50

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	*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.	I. Written examination in the theory of the course, including: - Multiple-choice questions on the semester's syllabus. - A solution to an exercise if applicable. II. Written examination in the laboratory part of the course, including: - Development, judgment and multiple-choice questions on the semester syllabus.	

5. ATTACHED BIBLIOGRAPHY

- E-NOTES
- Engineering for Storage of Fruits and Vegetables, 1st Ed. Cold Storage, Controlled Atmosphere Storage, Modified Atmosphere Storage. Chandra Gopala Rao, Elsevier 2015, ISBN: 978-0-12-803365-4.