COURSE OUTLINE

1. GENERAL

SCHOOL	Agricultural Sciences		
ACADEMIC UNIT	Animal Production, Fisheries & Aquaculture		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	AS_3002	**SEMESTER**	**9th - 10th**
COURSE TITLE	Aquacultural Facilities		

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**
	2 (lectures)	3
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
PREREQUISITE COURSES:	Aquaculture, Fish culture
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek, English
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes
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 evaluate general and special equipment for the needs of aquaculture units.

To understand technical plans for aquaculture facilities and equipment

To plan the maintenance of aquaculture units equipment.

To understand water purification equipment: mechanical filters, biological filters, UV, ozonator, protein separator, etc.

To understand water heating / cooling equipment: electric burners, refrigeration machines, heat exchangers, heat pumps, solar burners, and so on.

To understand the water oxygenation systems: surface aerators (eg wingers, etc.), saturation / desaturation columns, water-cooled ventilation, oxygen-oxygenated systems, etc.

To check the good operating condition of the equipment and identify its repair and maintenance needs.

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…*
	…….

Respect for the natural environment
Decision making
Autonomous work
Teamwork
Application of knowledge
Search, analyze and synthesize data and information, using the necessary technologies
Adapt to new situations

3. SYLLABUS

1. Inland and floating structures and support systems. Glossary.
2. Determination of requirements on a case by case basis (fish-breeding stations and freshwater or salt-water farming units).
3. Select a location. Water supply sources.
4. General organization of the system. Organization of Operation.
5. Types of tanks. Fish cages.
6. Calculations on water supply. Pump selection. Water circulation, drainage.
7. Separation of suspended particles. Sedimentation tanks
8. Heating and Cooling. Operation of water heating / cooling equipment.
9. Recycling of water. Mechanical, chemical and biological filters. Organization of Construction
10. Ventilation-oxygenation and gas removal. Function of water oxygenation systems.
11. Disinfection. Waste management,.
12. Operation of equipment for algae culture, fish culture.
13. Operation of shrimp culture and mussel farming equipment.

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*	**ICT in teaching and communication with students**
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*	

Activity	***Semester workload***
1. Lectures 2 hours x 13 weeks. 2. Further study, search and study of lecture	26

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*	material, associated with (1) (2 hours x 13 weeks)	26
	3. Self-assessment exercises in e-class (1 x 7 weeks)	7
	4. Writing of short work presentation (1 x 13 weeks)	13
	5. Final examination	3
	Course total	***75***
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.*	• Greek (Teaching, Examination) • English (Teaching, Exam) 1. Written Final Examination (Concluding) (A) Each case is graded on a scale of 0-10 Final Grade (TB): 1A A takes place during the current exam period, which is taught in the course and its iteration (September) . In case of failures of the course the student repeats the educational process.	

4. ATTACHED BIBLIOGRAPHY

-Suggested Bibliography:

- Brengballe J., 2015. A guide to Recirculation Aquaculture. FAO.
- Huguenin, J, E. & J. Colt, 1989. Design and operating guide for aquaculture seawater systems. Elsevier.
- Timmons, M. B. & M.T. Losordo, 1994. Aquaculture Water Reuse Systems: Engineering Design and Management. Elsevier Science B.V.
- Timmons, M. B., Ebeling, M. J., Wheaton, W. F., Summerfelt, T. S. & B. J. Vinci, 2001. Recirculating Aquaculture Systems. Cayuga Aqua Ventures, Ithaca, N.Y.
- Wheaton, W. F. 1993. Aquacultural Engineering. Krieger Publishing Co.
- Papoutsoglou, Sofr., 2004. Aquaculture Constructions. Stamoulis Publications SA Athena
- Hotos,, N.G., 2006. Aquaculture in Recycled Waters. TEI of Messolonghi. Department of Aquaculture and Fisheries.
- Hotos,, N.G., 2016. Intensive Aquaculture with Water Recycling. TEI Of Western Greece. Department of Fisheries and Aquaculture Technology.

Related scientific journals:

- Aquaculture
- Aquacultural Engineering