SCHOOL	FACULTY OF ENVIRONMENT		
ACADEMIC UNIT	FOOD SCIENCE AND TECHNOLOGY		
LEVEL OF STUDIES	UNDERGRADUATE		
COURSE CODE	**FST703**	**SEMESTER**	7
COURSE TITLE	**WINE AND ALCOHOLIC BEVERAGES SCIENCE AND TECHNOLOGY**		

INDEPENDENT TEACHING ACTIVITIES *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercise, 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	2	
	2	
Total	4	6
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/ Skills development
PREREQUISITE COURSES:	
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek
IS THE COURSE OFFERED TO ERASMUS STUDENTS	Yes (in Greek)
COURSE WEBSITE (URL)	

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*

Upon successful completion of the course the student will be able to:

- understand the technology of production of wines and other alcoholic beverages
- describe biochemical changes during the harvesting of raw materials and during wine production
- distinguish and perform white and red winemaking process
- carry out the analysis methods used in both the production process and the quality control.

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 *Adapting to new situations*	*Project planning and management* *Respect for difference and multiculturalism*

Decision-making *Working independently* *Team work* *Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*	*Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking* *.....* *Others...* *.....*

(1) Adapting to new situations
(2) Decision-making
(3) Working independently
(4) Team work
(5) Criticism and self-criticism
(6) Production of free, creative and inductive thinking
(7) Search for, analysis and synthesis of data and information, with the use of the necessary technology

SYLLABUS

Theoretical Part of the Course

Ripening and composition of grapes, white vinification, red vinification, production of rosé wines, sparkling wines, production of sweet wines, special vinification techniques. Wine microbiology: must and wine yeasts, lactic acid bacteria, acetate bacteria. Chemical composition of wine must: Aromatic ingredients, flavoring ingredients, phenolic ingredients. Changes and stabilization of wine: chemical and biological changes of grapes after its collection, oxidation and reduction effects of wine, use of sulfur dioxide in wine preservation, colloidal wine components, turbidity and precipitation of various compounds in wine, permitted oenological practices and treatments. Bottling. Hygiene of the winery. Technology and quality control of spirits (ouzo, brandy, brandy, vodka, whiskey, rum, liqueur).

Laboratory Part of the Course

1. Measurement of alcoholic strength with alcoholometer and diluent meter (use of tables).
2. Determination of sugar content in the must.
3. Determination of acidity and pH of the must.
4. Determination of pH, total and volatile acidity in wine.
5. Determination of ash in wine.
Determination of sulfite anhydride (free and total sulfite).
7. Modern chromatographic methods for the analysis of wine and spirits.
8. Enzymatic changes from the action of enzymes. Importance of the use of enzymes in vinification.
9. Use of selected doughs for the production of wines
10. Alcoholic fermentation - Physicochemical factors that affect the development of yeasts - process of alcoholic fermentation.
11. Problems of incomplete fermentations and ways of dealing with them.
12. Color determination

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 information technology on data collection and information, in teaching and communication. Communication with students via web, e-mail, e-class and online folder sharing options etc.**
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	78
Laboratory experiments	26
Total contact hours and training	**104**

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 Evaluation

ATTACHED BIBLIOGRAPHY

- Suggested bibliography:

1. Τσακίρης Α., Ποτογραφία, 2007

2. Σουφλερός Ε., Οίνος και αποστάγματα, 2000.

3. Τσακίρης Α., Οινολογία, από το σταφύλι στο κρασί, 2008.

4. ΣουφλερόςΕ., Οινολογία, Επιστήμη και Τεχνογνωσία, 2012.

5. Τζίτζη Μ., Κυπαρισσίου Π., Στοιχεία Οινολογίας, 2008.

Performance Statistics of the last 2years			
Grade (descending order)	**absolute frequency**	**relative frequency %**	**sum of success rates per class**
SCIENCE & TECHNOLOGY OF WINE AND SPIRITS			
10	4	12%	12%
9	7	21%	32%
8	9	26%	59%
7	10	29%	88%
6	4	12%	100%
	34	100%	