

COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCE		
DEPARTMENT	FOOD SCIENCE AND TECNOLOGY		
LEVEL OF COURSE	UNDERGRADUATE		
COURSE CODE	FST_701	SEMESTER OF STUDIES	Winter (7 TH)
COURSE TITLE	Technology of Alcoholic Beverages		
INDEPENDENT TEACHING ACTIVITIES <i>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</i>	WEEKLY TEACHING HOURS	ECTS CREDITS	
Lectures	3		
Exercises	2		
Total	5	5	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
COURSE TYPE <i>general background, special background, specialised general knowledge, skills development</i>	Scientific Area / Special Background / Skills Development		
PREREQUISITE COURSES:	None		
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek.		
IS THE COURSE OFFERED TO ERASMUS STUDENTS	No		
COURSE WEBPAGE (URL)	https://eclass.upatras.gr		

2. LEARNING OUTCOMES

<p>Learning outcomes</p> <p><i>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.</i></p> <p><i>Consult Appendix A</i></p> <ul style="list-style-type: none"> • <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i> • <i>Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i> • <i>Guidelines for writing Learning Outcomes</i> <p>Upon successful completion of the course the students will be able to:</p> <ul style="list-style-type: none"> • Know the basic features of beer, whiskey, brandy, ouzo, tsipouro, etc. • Have understood the basic and critical features related to the technological knowledge of alcoholic beverages preparation/production, their evaluation, and the processes they lead to their quality production. • Collaborate and plan the creation of a distillery unit with knowledge on the selection of the most appropriate distilling devices, premises, mechanical equipment, budget, etc. <p>General Competences</p>

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?

<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>	<i>Search for, analysis and synthesis of data and information, with the use of the necessary technology</i>
<i>Adapting to new situations</i>	<i>Adapting to new situations</i>
<i>Decision-making</i>	<i>Decision-making</i>
<i>Working independently</i>	<i>Working independently</i>
<i>Team work</i>	<i>Team work</i>
<i>Working in an international environment</i>	<i>Working in an international environment</i>
<i>Working in an interdisciplinary environment</i>	<i>Working in an interdisciplinary environment</i>
<i>Production of new research ideas</i>	<i>Production of new research ideas</i>

The general skills that the students of the Department of Food Science and Technology should have acquired and that the course is aimed at are:

- *Search, analyze and synthesize data and information, using the most necessary technologies.*
- *Decision making.*
- *Autonomous work.*
- *Teamwork.*
- *Promotion of free, creative and inductive thinking.*

3.SYLLABUS

- Historical development of alcoholic beverages (Chinese, Arabs, Incas, Ancient Greeks, Byzantium, Europeans, Alchemists).
- Ethyl alcohol, Physicochemical properties, Preparation methods (sugar cane- molasses, sugar beet, raisins, potato, grain, etc.).
- Distillation devices-Types of distillation devices (Traditional copper stills, Distillation columns).
- Alcoholic Beverages Legislation (European and National), Distillery-Distillery Installation Study-standards.
- Types of alcoholic beverages and spirits and their production technology. Ingredients of alcoholic beverages (derived from raw material- derived from alcoholic fermentation-derived from aging).
- Wine spirits (Cognac-Armagnac-Brandy). Technology and Methods of their preparation
- Grape seed spirits, Technology and Methods of their preparation (Tsipouro, grappa, eaux de vie demark, zivania, orujo distillation bagaceira, etc.).
- Fruit spirits, Production technology and methods, Calvados (apple spirit), Kirsch (spirit cherries), etc.
- Spirits and alcoholic beverages with anethole flavor, Technology and production methods Ouzo, Anis, Pernot, Absinthe, Sambuca. Trans-anethole-cis –anethole.
- Beer-Malting-Types of beer Soft drinks- Brewing technology from fruits and aromatic plants- (Limoncello)–Benedictine-Grand Marnier, etc.).
- Essential oils in the Food and Beverage Industry, Essential oil production technology-extraction and distillation of aromatic plants.
- Aging spirits-Types of aging barrels-Physicochemical aging processes. Organoleptic control of alcoholic beverages. Mixology (Cocktails) taste character evaluation charts.

Laboratory exercises

- Determination of browning index and effective acidity in beer.
- Determination of total acidity in brandy.
- Determination of fixed and volatile acidity in brandy.
- Determination of trans-anethole in ouzo.

- Essential oils in the Food and Beverage Industry, Essential oil production technology- extraction and distillation of aromatic plants.
- Use of active dehydrated yeast.

4. TEACHING AND LEARNING METHODS - EVALUATION

<p style="text-align: center;">DELIVERY</p> <p><i>Face-to-face, Distance learning, etc.</i></p>	Lectures, seminars and laboratory work face to face.	
<p style="text-align: center;">USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</p> <p><i>Use of ICT in teaching, laboratory education, communication with students</i></p>	<p>- Electronic communication with students.</p> <p>- Support of learning teaching using slides.</p> <p>The lectures content of the course for each chapter are uploaded on the internet, in the form of a series of .pdf files, where students can freely download them from the platform e-class.upatras.gr</p>	
<p style="text-align: center;">TEACHING METHODS</p> <p><i>The manner and methods of teaching are described in detail.</i></p> <p><i>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.</i></p> <p><i>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</i></p>	Activities	Work Load per semester
	Lectures (3 hours per week x 13 weeks)	39
	Individual work on a case study/Topics related to Technology and Quality control of foods of plant origin according to the literature	58
	Laboratory exercises	16
	Writing lab assignments exercises	12
<p style="text-align: center;">Total number of hours for the Course (25 hours of work-load per ECTS credit)</p>	125	
<p style="text-align: center;">STUDENT PERFORMANCE EVALUATION</p> <p><i>Description of the evaluation procedure</i></p> <p><i>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</i></p> <p><i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i></p>	<p>The evaluation of the students is done with a written final exam (evaluation) after the end of the semester (100%) in Greek which includes:</p> <p>i) Written exam at the end of the semester with questions of critical thinking,</p> <p>ii) Short answer questions and/or multiple-choice questions options, or a combination of the above,</p> <p>iii) Evaluation of laboratory work.</p> <p>Grading scale: 1 to 10. Minimum passing grade: 5. Examination time: 3 hours.</p>	

5. ATTACHED BIBLIOGRAPHY

- TSAKIRIS A. G.D. 2000. POTOGRAPHIA, PSIALOU PUBLICATIONS SA, ATHENS.
- Belitz, H.D., Grosch, W., Schieberle, P. (2006). Food Chemistry, 3rd Edition, TZIOLAS PUBLICATIONS, SA, ATHENS.

Related Scientific Journals

1. Food Chemistry,
2. Food Research International,
3. European Food Research and Technology
4. Australian Journal of Grape and Wine Research
5. Foods
6. Fermentation