

## COURSE OUTLINE

### 1. GENERAL

<b>SCHOOL</b>	AGRICULTURAL SCIENCES		
<b>DEPARTMENT</b>	FOOD SCIENCE AND TECHNOLOGY		
<b>LEVEL OF COURSE</b>	UNDERGRADUATE		
<b>COURSE CODE</b>	<b>FST_901</b>	<b>SEMESTER OF STUDIES</b>	9 <sup>th</sup>
<b>COURSE TITLE</b>	HYGIENE & SAFETY OF FOOD INDUSTRIES		
<b>INDEPENDENT TEACHING ACTIVITIES</b> <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>	<b>WEEKLY TEACHING HOURS</b>	<b>ECTS CREDITS</b>	
Lectures	3		
Lab. Exercises	2		
<b>Total</b>	<b>5</b>	<b>5</b>	
<i>Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (d).</i>			
<b>COURSE TYPE</b> <i>general background, special background, specialised general knowledge, skills development</i>	Specialized general knowledge		
<b>PREREQUISITE COURSES:</b>	Typically, there are not any prerequisite courses		
<b>LANGUAGE OF INSTRUCTION and EXAMINATIONS:</b>	Greek		
<b>IS THE COURSE OFFERED TO ERASMUS STUDENTS</b>	No		
<b>COURSE WEBPAGE (URL)</b>	<a href="https://eclass.upatras.gr/modules/auth/opencourses.php?fc=152">https://eclass.upatras.gr/modules/auth/opencourses.php?fc=152</a>		

### 2. LEARNING OUTCOMES

<p><b>Learning outcomes</b></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"> <li>• <i>Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area</i></li> <li>• <i>Descriptors for Levels 6, 7 &amp; 8 of the European Qualifications Framework for Lifelong Learning and Appendix B</i></li> <li>• <i>Guidelines for writing Learning Outcomes</i></li> </ul> <p><b>The aim of the course</b> is for students to understand the basic rules of good manufacturing/hygiene practice (GMP/GHP) applied in the food industry, as well as understanding the need to have a hygienic approach both when choosing the location of the building facilities of a food industry, as well as in the design of food processing equipment. Also, the course aims to highlight the importance of the role of sanitation for the food industry and the hygienic control of possible sources of food contamination from the environment (surfaces, water, air, waste).</p> <p>Finally, the course deals with elements of hygiene and safety in the food industry.</p>
--

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

- Know the basic rules of good manufacturing and good hygiene practice, as well as the basic elements for the production of healthy and safe foods.
- Realize the needs to install or improve the basic and functional hygiene infrastructure of a food industry.
- Understand the importance of cleaning and disinfection in the food industry.
- Recognize the sources of risk and occupational risk involved when working in the food industry.

**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*

*Decision-making*

*Working independently*

*Team work*

*Working in an international environment*

*Working in an interdisciplinary environment*

*Production of new research ideas*

*Project planning and management*

*Respect for difference and multiculturalism*

*Respect for the natural environment*

*Showing social, professional and ethical responsibility and*

*sensitivity to gender issues*

*Criticism and self-criticism*

*Promotion of free, creative and inductive thinking*

By the end of this course, the student will have acquired the following general competencies (from the list above):

- Search for analysis and synthesis of data and information, with the use of the necessary technology
- Adapting to new situations
- Decision-making
- Working independently
- Team work
- Project planning and management
- Respect for the natural environment
- Promotion of free, creative and inductive thinking

**3.SYLLABUS**

*- Lectures*

1. Introduction to food hygiene – Definitions
2. Sanitary design and location of food processing facilities
3. Sanitary design of food processing equipment
4. Good manufacturing and hygiene practice (GMP/GHP) in food processing
5. Cleaning and disinfection of food industries
6. Categories, properties and uses of detergents and disinfectants used in the food industry
7. Clean-in-place (CIP) and clean-out-of-place (COP) food processing equipment
8. Water in the food industry
9. Hygiene of food industry personnel
10. Food industry waste management
11. Health and safety at work – Legislative framework, Safety technician, Occupational doctor
12. Analysis of process risk sources and occupational risk assessment in the food industry
13. The ISO 45001 standard for the implementation of a health and safety management system at work

*-Laboratory exercises*

1. Examples of application of GMP/GHPs – Case study
2. Hygienic control of food processing surfaces
3. Air microbial load and control of airborne contamination of food
4. Determination of microbiological and physicochemical parameters of drinking water

5. Sanitary control of waste in the food industry
6. Hygiene of food industry personnel – Simulation and control of the effectiveness of hand washing by food handlers
7. Cross-contamination in food handling and processing simulation

#### 4. TEACHING AND LEARNING METHODS - EVALUATION

<b>DELIVERY</b> <i>Face-to-face, Distance learning, etc.</i>	Face-to-face	
<b>USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY</b> <i>Use of ICT in teaching, laboratory education, communication with students</i>	Use of Information and Communication Technologies (ICTs) (e.g., PowerPoint) in teaching. Communication with students: through e-mail, department's website and e-class platform. 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 ( <a href="https://eclass.upatras.gr/">https://eclass.upatras.gr/</a> ).	
<b>TEACHING METHODS</b>  <i>The manner and methods of teaching are described in detail.</i>  <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>  <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>	<b>Activities</b>	<b>Work Load per semester</b>
	Lectures (3 hours per week x 13 weeks)	39
	Lab. exercises (2 hours per week x 13 weeks)	12
	Case study (2 hours)	2
	Non-guided study	72
	<b>Total number of hours for the Course (25 hours of work-load per ECTS credit)</b>	<b>125</b>
<b>STUDENT PERFORMANCE EVALUATION</b>  <i>Description of the evaluation procedure</i>  <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>  <i>Specifically-defined evaluation criteria are given, and if and where they are accessible to students.</i>	<p>Students are evaluated through a written final exam (100%), which includes a total of 50 and 20 questions for lectures and laboratory exercises, respectively. The questions include the following:</p> <ul style="list-style-type: none"> <li>• Multiple-choice questions (60% of total questions)</li> <li>• True or False questions (35% of total questions)</li> <li>• Short answer questions (5% of total questions)</li> </ul> <p><u>Grading scale:</u> 0.5 to 10.0 <u>Minimum passing grade:</u> 5.0 <u>Examination time:</u> 3 hours</p> <p>The final grade for the course is the average of grades in the final written examination for lectures and laboratory exercises, provided that the minimum passing grade has been achieved (i.e., ≥ 5.0) for each part of the course.</p> <p>All performance evaluation criteria are announced in the introductory lecture of the course, which is posted and easily accessible by students on the online page of the course at the</p>	

	e-class platform.
--	-------------------

## 5. ATTACHED BIBLIOGRAPHY

- *Suggested bibliography:*

1. Lelieveld, H. L. M., Holah, J., & Napper, D. (2013). Hygiene in food processing. (2<sup>nd</sup> edn.) Woodhead Publishing: Elsevier.

- *Suggested scientific journals:*

1. International Journal of Environmental Health Research
2. International Journal of Environmental Research and Public Health