# Fruits and Vegetables Technology and Quality Control
## Course Outline

**General**

| | | | |
|---|---|---|---|
| **SCHOOL** | Agricultural Sciences | | |
| **DEPARTMENT** | Food Science and Nutrition | | |
| **ACADEMIC LEVEL** | *Undergraduate* | | |
| **CORSE CODE** | ME912 | **SEMESTER** | 9th |
| **COURSE TITLE** | Fruits and Vegetables Technology and Quality Control (Instructor: S. Lalas) | | |

| **INDEPENDENT TEACHING ACTIVITIES** *In case credits are awarded separately for different parts of the course (e.g., Lectures, Laboratory Exercises, etc.), if credits are awarded as a whole for the entire course, specify the weekly teaching hours and the total credits.* | **WEEKLY TEACHING HOURS** | **CREDITS** |
|---|---|---|
| **Lectures** | 3 | 5 |
| **Laboratory Exercises** | 3 | |

| | |
|---|---|
| **COURSE TYPE Background, General Knowledge, Scientific Area, Skill Development** | Scientific Area, Skill Development |
| **PREREQUISITE COURSES:** | - |
| **LANGUAGE OF INSTRUCTION AND EXAMINATION:** | Greek |
| **COURSE OFFERED TO ERASMUS STUDENTS:** | Yes |
| **COURSE WEBSITE (URL):** | - |

**LEARNING OUTCOMES**

**Learning Outcomes**

The course aims to comprehend the characteristics of fruits and vegetables that are associated with the quality of the final products, familiarize students with processing methods, and equip them with skills in assessing the quality characteristics and grading the final products (e.g., compost, jams, juices, dried fruits, coffee, dried aromatic herbs, etc.).

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

- Understand the morphological classification of fruits and vegetables.
- Comprehend the chemical composition, the relationship of components to nutritional value, and their impact on the quality of produced plant foods.
- Recognize the environmental and biological factors affecting the preservation of fruits and vegetables after harvesting and processing.
- Identify the quality characteristics of fresh fruits and vegetables intended for industrial processing and select appropriate varieties.
- Understand the stages of preparation (transport, washing, sorting).
- Gain knowledge about processing methods, including thermal treatment, juicing, refrigeration-preservation in modified atmosphere, irradiation, freezing, products with added sugar (jams), products preserved in brine, and more.
- Perform a comparative evaluation of methods.
- Conduct quality control of raw materials and final products, perform quality classification of final products based on specifications.
- Understand product alterations, potential sources of deviation, and critical control points (Hazard Analysis and Critical Control Points - HACCP).

**General Skills**

Search, Analysis, and Synthesis of Data and Information, Utilizing Necessary Technologies, Decision-Making, Autonomous Work, Collaborative Work, Critical Thinking Exercise, Theoretical Thinking, and the Ability to Translate Theory into Practice

**Course Content**

**1st Week:** Introduction - Safety Issues
**2nd Week:** Types of Vegetables for Processing
**3rd Week:** Factors Affecting Product Quality
**4th Week:** Market Specifications
**5th Week:** Market Specifications
**6th Week:** Freezing
**7th Week:** Canning
**8th Week:** Syrup and brine Production
**9th Week:** Dehydration
**10th Week:** Quality Determinations
**11th Week:** Production Technologies
**12th Week:** Production Technologies
**13th Week:** Production Technologies

**Teaching and Learning Methods - Evaluation**

| | |
|---|---|
| **Teaching Method** | Face-to-Face or Distance Learning |
| **Use of Information and Communication Technologies** | YES. The course lectures are supported by electronic slide presentations and other audio-visual materials. Supplementary notes are posted on the E-Class platform. |
| **Teaching Organization - Workload Activities of the Semester** | |

| ***Activity*** | ***Workload*** |
|---|---|
| Lectures | 39 |
| *Laboratory exercises* | 39 |
| *Self-study* | 47 |
| ***Total Course Workload (25 hours of workload per credit):*** | 125 |

| | |
|---|---|
| **Student Assessment** | Examination Language: Greek.<br>Students have access to supplementary notes posted on E-Class, but they also receive a textbook of their choice from those available in the EUDOXUS system.<br>The final grade for the course is determined by 50% from the assessment of the theoretical part (lectures) and 50% from the laboratory exercises. The exams (Theoretical and Laboratory parts) include multiple-choice questions. Specifically: Written examination with multiple-choice questions in the case of in-person assessment. Electronic examination through E-Class with multiple-choice questions in the case of distance assessment. |

**RECOMMENDED BIBLIOGRAPHY**

- *Recommended bibliography:* - Technology & Quality of Fruits & Vegetables, Anna Anagnostopoulou - Katerini Talleli, Publisher: New Technologies LLC
- Table Olive and Its Functional Role, Apostolos Kyritsakis. Self-published

- *Relevant scientific journals (indicative):*
  - Food Chemistry, Elsevier.
  - European Food Research and Technology, Springer.
  - Journal of Food Composition and Analysis, Elsevier.
  - International Journal of Food Science and Technology, Blackwell Publishing.
  - Food and Bioprocess Technology, Springer.