# - Food Technology Processes I

## Prof. Gianluca Giuberti

***Text under revision. Not yet approved by academic staff.***

COURSE AIMS AND INTENDED LEARNING OUTCOMES

The course aims to provide students with the necessary tools for understanding the main food technology processes, including the principles of food preservation and processing, with applicable references to certain products. Through knowledge of the phases and process parameters, students will acquire the tools for agri-food production chain interventions aimed at optimising the process and proposing innovative technologies. At the end of the course, students will possess the technical and scientific know-how for controlling the food process, including the use of innovative methodologies. Students will be able to: 1) define and identify the technological conditions to apply at each stage of the production process in order to guarantee the nutritional and/or technological quality of the finished product and minimise negative processing; 2) identify the quality parameters in different food products; 3) identify the relationship between qualitative characteristics and the technological conditions adopted; 4) collaborate with food technologists and sector operators both in choosing the optimal preservation and processing conditions, and in conducting the processes; 5) acquire an appropriate technical language.

COURSE CONTENT

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|  | ECTS |
| General section |  |
| Introduction to food technologies and food technology processes. | 1.0 |
| Process classification criteria with a view to providing the basic tools to be adopted in the study of the different production chains. | 0.5 |
| Food heat treatments: principles and main systems. | 1.0 |
| Applied section: examination of a few supply chains |  |
| Oil industry: unit operations, extraction systems, oil rectification, and the main by-products of the supply chain. | 0.5 |
| Vegetable drinks: unit operations and main technological aspects. | 0.5 |
| Beer: unit operations and main technological aspects. | 0.5 |
| Whole cured meats: processing and stabilisation technology. | 0.5 |
| Research & Development: strategies used and product innovation. | 0.5 |
| Practical activities | 1.0 |
| Group work on a number of production lines. |  |

READING LIST

RP Singh-DR Heldman, *Introduction to Food Engineering. Fourth edition*. Academic Press, Burlington, USA, 2009.

H. Ramaswamy-M. Marcotte, *Food Processing. Principles and Applications,* Taylor& Francis Group, New York, 2006.

DR Heldman-RW Hartel, *Principles of food processing,* Chapman & Hall, New York, copyright 1997.

JM Connor-WA Schiek, *Food Processing: an industrial powerhouse in transition,* New York [etc.], John Wiley & Sons, copyright 1997.

L. Grazia-F. Coloretti- C. Zambonelli*, Tecnologie dei salumi*, Edagricole, 2011.

L. Di Giovacchino, *Tecnologie di lavorazione delle olive in frantoio,* Tecniche Nuove, Milan, 2010.

Hui, YH, Evranus, O. *Handbook of Plant-Based Fermented Food and Beverage Technology*, 2nd Edition, CRC Press, 2012.

TEACHING METHOD

Lectures in the classroom using video projection support, and in the laboratory using equipment for the most important food technology analyses. The teaching materials used during lectures will be provided.

ASSESSMENT METHOD AND CRITERIA

A final written exam. Students will be given 90 minutes to answer open and closed theoretical questions on the course topics covered. On average 5 open questions will be included (maximum 4 marks each depending on the completeness) and 10 closed questions of equal weight (1 mark each). In case of no answer, no marks will be awarded. In the event that group work is carried out during the scheduled practical hours, students will be assessed on their final PowerPoint presentation of this work (from 0 to 2 marks, depending on the completeness and clarity of the presentation). The final mark will take into account both the written exam and the group work assessment.

NOTES AND PREREQUISITES

The course requires a knowledge of mathematics, food chemistry and microbiology, and of food industry plants.

Information on office hours available on the teacher's personal page at http://docenti.unicatt.it/.