

GENERAL TECHNOLOGY

Study Programme: MIMV Curricular Year: 5th Semester: 9th Compulsory Credits: 4.5 ECTS

Lecturer(s): António S. Barreto (CCP), Marília C. Ferreira (R), Maria João Fraqueza

1. Contact hours:

Lectures - 26h Practicals - 26h Total - 52h

2. Objectives: The study of food microbiology and factors influencing the development of agents responsible by food spoilage. Knowledge of unit operations and technological food processes with special reference to equipment used in the production of different foods of animal origin.

3. Programme:

Lectures- Foundations of food technology and applied food microbiology. Food additives and technological aids. Microbiological analysis of food. Water and waste waters. Unit operations and unit processes in food technology industries. Food preservation by heat processing. Lethal and non-lethal heating. Canned food. Equipment used for food heating and cooling. Food refrigeration and freezing. Expert examination of cooled and frozen food. Defrosting processes of food. Hurdle effect applied to packaging and distribution of minimally processed food. Proactive methods for safety assurance.

Practicals – Influence of intrinsic and extrinsic factors in the development of microorganisms in food. Sensorial analysis of food. Bromatological analysis of food. Reading and interpretation of results. Unit operations and processes. Production of canned food. Quality control of canned food. Application of pro-active safety systems to food products.

4. Bibliography:

Ash, M. & Ash, I. (2008). *Handbook of Food Additives*. 3rd Ed. Ed. Gower.

Brennan, J.G.; Butters, J.R.; Cowell, N.D. & Lilly, A.E.V. (1998). *Las operaciones de la ingeniería de los alimentos*. 3rd Ed. Editorial Acribia.

Wiley Online Library (2020). *Water Activity in Foods: Fundamentals and Applications*. 2nd Ed. Editores Gustavo V. Barbosa-Cánovas, Anthony J. Fontana Jr., Shelly J. Schmidt, Theodore P. Labuza. John Wiley & Sons, Inc.

Madrid Vicente, A. (2014). *La Carne y los Productos Cárnicos - Ciencia y Tecnología*. Ed. AMV

5. Assessment:

The students' knowledge is evaluated weekly with little tests about practical topics, group report and with a written final examination about theoretical subjects