

ACADEMIC YEAR: 2019-2020

COURSE: *Evaluation and management quality in food industry: module of quality and plant sanitation*

ACADEMIC YEAR: 2016/2017

TYPE OF EDUCATIONAL ACTIVITY: Characteristic

TEACHER: Fernanda Galgano

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ECTS: 6 (4 Lectures + 1 practicals)	n. of hours: 56 (40 h lesson and 16h tutorials/practice)	Campus: Potenza Dept./School: Scuola di Scienze Agrarie, Forestali, Alimentari ed Ambientali (SAFE) Program: Food Technology	Semester: II
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#### EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

The course aims to provide knowledge about quality management systems, safety and traceability applied to food industries. In particular, it will concern the rules concerning the implementation of the company's quality and environmental systems, product certification and obtaining of protected traditional names, as well as rules regarding the food safety. The course is also aimed at providing students with the knowledge useful to enable the correct handling of food production lines, in order to avoid that they themselves cause food contamination in the works or because of inefficiency of applied technological processes.

**Knowledge and understanding:** Quality and safety of food products. Evolution of the concept of quality and food law recalls. Knowledge of the operation of standardization, accreditation and system and product European and International certifications and the main certification schemes currently required by the international market (voluntary and regulated). Knowledge of the basic elements, supported by International standards, in relation to the concept of food quality and control, Quality Assurance and Management, in order to understand and implement the basic process control models and their interactions within of a business system. Knowledge of Management systems for quality ISO 9001: 2015; designing a quality system. Knowledge of Management systems for food safety according to UNI EN ISO 22000:2018 and for laboratories (ISO/IEC 17025), international Kosher, Halal, BRC and IFS, organic and NO-GMO certifications. Knowledge of process and product certification: standardization and accreditation. Knowledge of environmental management systems: Standards of series UNI EN ISO 14000 Traceability in the food industry: UNI EN ISO 22005:2008. Knowledge of sanitary problems in the food industry. The agents and the contamination vectors. Cleaning and sanitizing. The detergents: anionic, cationic, non-ionic. The complementary products. The biodegradability of detergents. The thermal disinfection. The chemical sanitizing: chlorine-based compounds; iodine; quaternary ammonium compounds; peroxides. Knowledge of pest control. Water impurities and associated problems. Knowledge of treatments of the water for use in cleaning and sanitation. The polluting power of sanitizing. Characteristics of food waste. Characteristics of the surface. Knowledge and understanding of methods, equipment and sanitizing operations of production facilities. Cleaning and sanitizing in the milk industry. Sanitation in the preservation industry. Cleaning and sanitizing in the wine industry. Sanitation in the meat industry. Cleaning and sanitizing in the fruit juices. Sanitation in bottling lines. Knowledge of waste disposal.

**Applying knowledge and understanding** Ability to design and evaluate a "Management Quality System"

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that complies with specific regulations. Ability to understand the basic principles and practices used for cleaning and sanitation of food process equipment. Ability to draw up specific detergent and sanitation plans for the main food industries, depending on the diversity of raw materials and the type of residues of processing plants.

**Making judgements** Ability to propose the most appropriate certification system depending on the company policy. Ability to identify the most suitable detergent and sanitizer type according to the considered food industry.

**Communication skills** Ability to communicate the importance of system or product certification applied to a certain company. Ability to communicate the importance of the impact of an adequate sanitation process on the hygiene and food safety. Ability to interact and communicate with food business operators in the development and implementation of quality management systems. Ability to communicate with representative of food safety agencies, official control agencies and quality certification agencies and during quality system audits.

**Learning skill** Ability to access, document and interpret data related to management quality system applied to a certain company, chain or product, as well as a sanitizing process applied to a certain food industry. Ability to document the standards of food quality systems and sanitation, by using technical and scientific literature.

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#### PRE-REQUIREMENTS

To understand the material presented in this course the following knowledge and skills are needed: food processing technologies.

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#### SYLLABUS

The group is divided in 6 teaching blocks.

##### Block 1. ( 8h, lectures)

General knowledge of the regulations concerning the implementation of quality systems for the design of a industrial quality system.

##### Block 2. ( 8h, lectures)

Specific knowledge of management systems for food safety according to UNI EN ISO 22000, environmental management systems standards such as UNI EN ISO 14040. Traceability in the food industry: UNI EN ISO 22005: 2008 standard.

##### Block 3. ( 8h, lectures)

Specific knowledge of international product certification Kosher, Halal, BRC, IFS and DPO standard.

##### Block 4. ( 8h, lectures)

Problems relating to the microbiological quality of finished food products and general information about the compounds used for the sanitation of the equipments.

##### Block 5. ( 8h, lectures)

Sanitation of plants of the main food industries.

##### Block 6. ( 16h, Practical activity)

The student will deepen the study regarding the hygiene problems of a specific equipment of food production, acquires data and information to develop a detailed plan for cleaning and disinfection company. A seminars with certification experts, within the food industry and catering have also been planned.

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#### TEACHING METHODS

The course is based on 56 teaching blocks and it includes 40 h lectures and 16 h practical tutorials, concerning examples on the application of rules and in-depth seminars on specific topics held by experts in the certification field.

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#### EVALUATION METHODS

The aim of examination is to verify the student achieved skills as previously listed.

The examination consists of an oral test designed to assess the student's ability to connect and compare different aspects covered during the course, through three questions each with a maximum grade of 10/30. To pass the test, it is necessary to provide correct answers to at least 2 questions on the 3 formulated.

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#### TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIAL

The reference didactic material consists of notes selected from reference texts and supplied to the students, integrated with teaching material produced by the teacher. All teaching material is provided punctually to students, even through a shared web folder .

The recommended textbooks, to further deepen the topics covered in the course, are the following:

1. Peri, C., Lavelli, V. (2004). *Qualità nelle aziende e nelle filiere agroalimentari*, Hoepli
2. Pavletic L. (2016). *Le nuove norme sui Sistemi di Gestione per la Qualità (UNI EN ISO 9001:2015) e Gestione Ambientale (UNI EN ISO 14001: 2015)*. Ed. Franco Angeli, Milano.
3. Tateo, F. (1977). *Detergenza e sanificazione nell'industria alimentare*. Edizioni AEB, Brescia.
4. Marriot, N.G. (1997). *Essentials of food sanitation*. Chapman & Hall, U.S.A.
5. Hui, Y.U., Bruinsma, B.L., Gorham, J.R., Wai-Kit, N., Phillip S. Tong, P.S., Ventresca, P. (2003). *Food Plant Sanitation*. Marcel Dekker, Inc., New York, U.S.A.

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#### INTERACTION WITH STUDENTS

At beginning of the course, the lecturer will explain to students the pre-requirements needed, the educational goals, the expected learning outcomes, the course syllabus (structure/organization), the evaluation methods and the reference textbooks. Subsequently, the contact details of the teachers are provided and acquired those of the students in order to facilitate the exchange of information. At the end of each lesson is left a space of time available to students for any question.

After each lesson, the teaching material (slide print-outs, exercises, further hand outs) will be made available to students by using a cloud storage system (Dropbox or Google Drive). The outcome of examinations will be made available at the end of the exam's session. For more information or for any other needs, the lecturer will be available to receive students on Monday (16.20-18.30), Wednesday (11.30-13.30) and Tuesday (16.30-18.30) in her office and/or even in other days, preferably after an E-mail contact.

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#### EXAMINATION SESSIONS

20/02/2020, 19/03/2020, 16/04/2020, 14/05/2020, 11/06/2020, 9/07/2020, 17/09/2020, 15/10/2020, 12/11/2020, 10/12/2020, 14/01/2021

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#### EVALUATION COMMITTEE

Prof. Fernanda Galgano (President), Dr. Marisa C. Caruso (member), Dr. Nicola Condelli (replacement member)

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SEMINARS BY EXTERNAL EXPERTS    SIX    NO

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