

COURSE ID SHEET



Course No.	5310	NTUA			
Semester:	8,10	Core		Elective	Specialization X

Title:	DESIGN OF THE FOOD INDUSTRIES – QUALITY AND SAFETY ASSURANCE OF FOODS
--------	--

Aim:	The course “Design of the food industries - Quality and safety assurance of foods” provides the necessary knowledge for the design and operation of the Food Industries as well as for the quality control and assurance in foods which is considered a cutting-edge field for chemical engineers. More specifically, the course is dealing with the design of the food processing facilities, the structure/operation of the food industry, the quality parameters and the hazards related to food safety, as well as with quality and safety assurance through systems such as ISO 9001 or HACCP. Familiarization with the above topics is complemented by appropriately designed laboratory exercises, projects and computational exercises.
------	---

Content:	• Design of a food industry plant: feasibility and construction study of a food plant, factory place and layout, constructive details and requirements of hygiene, facilities (requirements in water, oil, electricity, etc.) and equipment. Raw materials - Storage and handling - Processing - Design of processes - Flowsheet diagrams - Equipment diagrams (technical specifications) - Final product - Specifications. Waste management. • Quality of foods. Quality characteristics/properties of foods: Nutritional value - Physicochemical properties. Sensorial quality of foods/Sensory evaluation of foods. Food safety - Food hygiene - Food hazards. • HACCP. Hazard Analysis Critical Control Points - Prerequisites Hygiene programs (HACCP-PRPs) - Design and operational requirements of hygiene for food processing and food service industries - Case studies in typical food industrial sectors. Risk assessment - quantitative aspects. Quality and safety control of foods. Statistical Process Control (SPC) • Food industry. Structure and departments - Basic functions. Quality and safety assurance of foods (ISO 9001, ISO 22000). Research and development - Design of new food products. • Laboratory Exercises: – Sensory evaluation of foods. – Quality-Safety control of frying process and fried foods. – Monitoring of milk fermentation for yogurt production in terms of processing parameters. – Project: Design of a food industry. – Case study: HACCP - PRPs in the food industry. – Statistical Process Control (SPC).
----------	---

Hours per semester:	LECTURES	24	EXERCISES	-	LABORATORY	16	HOME-WORK	135	TOTAL HOURS: 175
---------------------	----------	----	-----------	---	------------	----	-----------	-----	------------------

Student
performance/
evaluation:

The evaluation of the students' performance is achieved through:

- A Final (written) Examination (FE), and
- Projects, laboratory and computational exercises (LE).

The Final Grade results as follows: Final Grade = 0.5 x (FE) + 0.5 x (LE)