Department of Food Science & Nutrition



## NEW PRODUCT RESEARCH AND DEVELOPMENT

# **COURSE OUTLINE**

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		WEEKLY HOURS	
course pleas	e enter the		
mber of crec	lits		
	TEACHING	2	4
ABORATORY	' EXERCISES	2	
GENERAL	KNOWLEDG	E	
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	FOOD SCI The under MK911 New Produ RESPONS parts of the course pleas mber of crec	FOOD SCIENCE AND N The undergraduate Foo MK911 SEMES New Product Research RESPONSIBLE: THEOF parts of the course e.g. course please enter the mber of credits TEACHING ABORATORY EXERCISES GENERAL KNOWLEDG	FOOD SCIENCE AND NUTRITION   The undergraduate Food Science and Nut   MK911 SEMESTER STUDIES   Ø'   New Product Research and Development   RESPONSIBLE: THEOFANIS GEORGOPOUL   parts of the course e.g.   weekLy HOURS   course please enter the   mber of credits   2   ABORATORY EXERCISES   2   GENERAL KNOWLEDGE

### LEARNING OUTCOMES

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During the course, students will be able to follow all the stages of the development of new food products since, divided into groups, they will be able to create their own new food based on specific prerequisites. The course will cover the process of creating new food products from the birth stage of the idea, its formation and develop ment, market research and its placement in it, packaging and increasing the scale of production. Particular emp hasis will be given to the methodology of developing new food recipes with the aim of creating the best and m ost widely accepted product. As a result, the participants will learn to recognize the different evolutionary stag es of the process through the team creation of their own new product, understand the importance of the para meters that regulate their successful outcome and will be able to organize and manage the development of ne w products. The familiarization, learning and use by participants of methods for the development and evaluatio n of novel food recipes will be a key point of reference

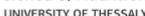
#### **General abilities**

The general competences that the student should have acquired and which the course aims at are: Search, analysis and synthesis of data and information, using the necessary technologies

- Decision making
- Group Task
- Production of new research ideas
- Project design and management
- Criticism and self-criticism
- Promotion of free, creative and inductive thinking

#### COURSE CONTENT

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### Introduction.

i. Definition of the creation of new/innovative food products, driving force of new food development, benefit s for industry.

ii. Stages of development of new food products and variations.

iii. Equalizing success as key components of successful development of new products.

iv. Failure factors of new products.

v. Organization of students in groups and clarification of how the course is conducted, expected results and t heir evaluation. vi. Components and structure of the final teamwork and presentation of a new food. vii. Brains torming session, recording the results.

Holistic approach to innovation, creation of a platform for the emergence and critical evaluation of new ideas, trends and needs, technology assessment, capabilities and company portfolio. vi. Critical evaluation of the ide as for new foods of each group (based on bibliographic sources etc.). Whether the team concept is in line with the conditions set. Preparation for the food formulation and development stage. 3. Development of the new pr oduct

• i. The role of research and development in the creation/synthesis of the new product.

ii. Design, testing and development of the production line. From workshop and grams to factory and tons. iii. Commercial viability costing the product. iv. The recipe of the product, its ingredients and their specifications, t he product specifications, the design of its production line and its capacity.

Market research before and after the development of a new or improved product. Selection of appropriate p hysico-

chemical and organoleptic characteristics (product profile). Description and importance of the properties in the ir contribution to the new product. Methods of quantifying them (select scale and measurement units).

Experimental design of synthesis treatments of new or improved product. Statistical evaluation of the action of the characteristics and optimization of the final product recipe. Confirmation of the validity of the results of the procedure and placing the product on the market in relation to competition.

Application of the methodology (experimental design and statistical analyses) to the product of each group an d critical evaluation of the parameters that influence the analysis.

To ensure the quality and safety of novel foods. i. Quality assurance mechanisms.

. Safety of novel foods and their shelf life. iii. Safeguards for the quality and safety of new products developed by each group (HACCP). Shelf life of new products.

Packaging and placing the product on the market. i. Past, present and future challenges and prospects of food packaging in terms of new product development. ii. Safety, usability on the part of transport – storage – prese ntation and consumer, nutritional and utility information, environment etc. iii. Placing the product on the mark et – packaging and website design. iv. Packaging of the new product of each group material specifications and New food and legislation.

i. Definition of novel foods under existing legislation.

ii. Review of national and European food law. iii. New product approved.

iv. Control of the new product of each group based on legislation and compliance. Future trends.

i. New technologies, functional foods and nutrition claims. ii. Data management and new product design syst ems. iii. Personalized diets and food products.

. Examples of new product failures. v. Presentations of new products by student groups.

Presentations of new products by student groups

l	FEACHING A	ND LEARNING	METHODS - EVA	LUATION	

METHOD LECTURE	Face to face
APPLICATION OF	Use H/Y, Internet, PowerPoint, e-
INFORMATION TECHNOLOGY AND	mail, search engines (googlechrome, googlescholar),
COMMUNICATION	e-class e-education,
	e-
	rating, use of audiovisual media, thematic Videos from foreign universi
	ty bases, photos, animations, chatroom for exchange
	students' views

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STRUCTURE OF LECTURE	ΑCTIVITY	PORTION OF WORK SEMESTER	
	Lectures	30	
	Bibliography & Analysis	20	
	Task Writing	25	
	Course Set (25 hours workload per credit)	75	
	Students take part in the Final Written Examination The total derived from		
	A) Written final examination (70%) B) W	ork (20%)	
	C) Participation in theoretical lectures (	10%)	

## SUGGESTED BIBLIOGRAPHY

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3. Literature in English: 1. Fuller G. W., 2011, New Food Product D evelopment from Concept to Marketplace (3rd ed), CRC Press [ISB N: 978-143981864].

4. Moskowitz H.R., Saguy I.S. and Straus T., 2009, An Integrated Approach to New Food Product Development, CRC Press [ISBN: 9 78-1-4200-6553-4].

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