NEW PRODUCT RESEARCH AND DEVELOPMENT

COURSE OUTLINE

GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	FOOD SCIENCE AND NUTRITION		
LEVEL COURSE	The undergraduate Food Science and Nutrition curriculum		
CODE COURSE	MK911	**SEMESTER STUDIES**	Θ΄
COURSE TITLE	New Product Research and Development RESPONSIBLE: THEOFANIS GEORGOPOULOS		

INDEPENDENT TEACHING ACTIVITIES in case the credits are awarded in separate parts of the course e.g. Lectures, Laboratory Exercises, etc. If credits are awarded single for the entire course please enter the weekly credits teaching hours and total number of credits	**WEEKLY HOURS**	**ECTS UNITS**
TEACHING	2	4
LABORATORY EXERCISES	2	

COURSE TYPE Background, General Knowledge, Scientific Area, Development Skills	GENERAL KNOWLEDGE
PREREQUISITE COURSES:	
ΓΛΩΣΣΑ ΔΙΔΑΣΚΑΛΙΑΣ και ΕΞΕΤΑΣΕΩΝ:	GREEK AND ENGLISH
ΤΟ ΜΑΘΗΜΑ ΠΡΟΣΦΕΡΕΤΑΙ ΣΕ ΦΟΙΤΗΤΕΣ ERASMUS	YES
INTERNET COURSE	

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 development, market research and its placement in it, packaging and increasing the scale of production. Particular emphasis will be given to the methodology of developing new food recipes with the aim of creating the best and most widely accepted product. As a result, the participants will learn to recognize the different evolutionary stages of the process through the team creation of their own new product, understand the importance of the parameters that regulate their successful outcome and will be able to organize and manage the development of new products. The familiarization, learning and use by participants of methods for the development and evaluation 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

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

TEACHING AND LEARNING METHODS - EVALUATION

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

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

SUGGESTED BIBLIOGRAPHY

1. Sflomos Konstantinos, Varzakas Theodoros (2019), Research and Development of new products and business plans, (K.V. Evdoxos: 77271644), Publisher: TSOTRAS PUBLICATIONS, ISBN: 978-618-5309-70-1.
2. Demetrius Nick. Petridis (2019), Applied Statistics, (C.V. Eudox us: 86055522), Publisher: BACK OFFICE Publications, ISBN: 978-618-82547-0-1
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].
5. Earle M., Earle R. and Anderson R. 2017, Food Product Develop ment, Woodhead Publishing Limited. Web Edition published by NZ IFST (Inc.) www.nzifst.org.nz/foodproductdevelopment/