FOOD PROCESSING AND NUTRITION

Basic data of the subject	
Academic Unit:	Faculty of Life and Environmental Sciences
Course title:	Food processing and nutrition
Study program:	Agribusiness
Level of study:	Bachelor (BSc)
Course status:	Elective (E)
Study year:	3 year / 5 semester
Number of hours per week:	2 + 2
Credit value – ECTS:	6 ECTS
Time/location:	To be announced
Lecturer:	Prof. asoc. dr. Shukri Maxhuni
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Course description:	This course is designed to serve students as an introduction to the basic principles of raw material processing of plant and animal origin as well as Nutrition. This course examines the application of international standards for the processing of foodstuffs of plant and animal origin, as well as Nutrition, management and up-to-date management of food quality from a managerial perspective and helps to implement the principles of standards: HACCP, ISO 22000, ISO14001, ISO9000, ISO 14000. Topics covered in this course include the use of state-of-the-art technologies for the processing of raw materials of animal and vegetable origin, as well as the provision of quality food to consumers. At the same time, this course provides students with knowledge of the problems and difficulties that may occur during the processing of raw material, as well as the alteration of the physicochemical properties of products, while managing the quality of food products. Much of the lecture time will be devoted to discussing the problems of raw material processing during technological processes and quality management by applying the principles of international standards mentioned above.
Course objectives:	The purpose of this course is to teach students to identify the most appropriate processes for processing raw material, as well as the key factors and optimal conditions needed for the management and preservation of food products of plant and animal origin, according to trends industry and meet customer requirements. Developing students' ability to know and understand processing processes, as well as maintaining the quality and physicochemical properties of the raw material during their technological processes.
Learning outcomes:	Upon completion of this course, students will be able to: ▪ Understand and use the key terminology and concepts of applying International Standards for the processing of raw

	materials during technological processes, such as Quality Management of Agricultural Products. ▪ To develop analytical skills of environmental conditions during technological processes of raw material processing, as well as quality assurance and management of agricultural products. ▪ Understand the importance of maintaining quality and managing the unchanged physico-chemical properties of agricultural products during technological processing processes, ▪ Identify the factors that influence the presentation of risks and risks that may occur during technological processing processes, as well as the quality management of agricultural products. ▪ Discuss the criteria and standards needed for the preservation of physico-chemical properties and properties during technological processing processes, as well as the quality management of agricultural products. ▪ To recognize and identify market needs for the quality required for agricultural products. ▪ Understand the basics of Crop Quality Management planning, including the ability to identify key elements of impact on Crop Quality Management, after processing plant and animal origin raw material of technological processes. ▪ Demonstrate ability to understand and understand Agricultural Product Quality Management, after their industrial processing. ▪ To know the machines and processes used to process raw materials from vegetable and animal origin.

Contribution on student load (must correspond with learning outcomes)			
Activity	**Hours**	**Days/week**	**Total**
Lectures	2	13	26
Exercise theoretical/laboratory	2	13	26
Practice work	/	/	/
Contact with lecturer/consultations	1	15	15
Field exercises	/	/	/
Mid-terms, seminars	2	1	2
Homework	1	14	14
Individual time spent studying (at the library or home)	2	15	30
Final preparation for the exam	2	10	20
Time spent in evaluation (tests, quiz, final exam)	1	13	13
Projects, presentations, etc.	2	2	4
Total			**150 hours (6 ECTS)**
Teaching methods:	Lectures, exercises, discussions, consultations, course projects, homework, midterm exam, final exam.		
Evaluation methods:	▪ Regular and active attendance: 10%, ▪ Midterm exam: 20%,		

	▪ Course project: 20%, ▪ Final exam: 50%.
Literature	
Basic Literature:	1.The food system and its impact on nutrition. Literature Review Findings, July 2008. 2.Dietrich Knorr and Heribert Watzke,Food Processing at a Crossroad. Front. Nutr., 25 June 2019 | https://doi.org/10.3389/fnut.2019.00085. 3.The Food System. Food classifcation. Public health. NOVA. The star shines brigt. World Nutriction. 2016. 4.Quality of agricultural products and protection of the environement: training, knowledge dissemination and certification. Luxembourg:Office for Official Publications of the European Communities, 2003.
Additional Literature:	5.J.-L.Multon (Editor). Quality Control for Food and Agricultural Products, January 1996. 6..Qyality and Quality Assurance in the Fresh Produce Sector.May 15, 2001. Chicago, USA. 7.John Humphrey, School of Business, Management and Economics University of Sussex. Food safety, trade, standards and integration of smallholders into value chains.IFAD 2017 8.Butrint Batalli, Doracak i Sistemeve te perzgjedhura menaxheriale sipas Standardeve Nderkombetare, Ministry for Foreign Affairs of Finland, UNDP. 9.ISO standardet. 10..HACCP Standardet

Designed study plan:		
Week	**Lectures**	**Exercises**
First week:	Introduction to basic concepts and principles of food processing and nutrition.	Distribution of the semestral project topics.
Second week:	Acceptance of raw material of vegetable and animal origin for processing.	Quizzes and case studies related to the topic of the first week lecture.
Third week:	Identify the factors that influence the occurrence of risks and risks that may occur during the process of processing vegetable and animal foods and nutrition.	Quizzes and case studies related to the topic of the second week lecture.
Fourth week:	Planning - Processing strategy and maintaining the quality of agricultural products.	Quizzes and case studies related to the topic of the third week lecture.
Fifth week:	The importance of maintaining quality during the process of processing agricultural products and not altering the physicochemical properties during these processes.	Quizzes and case studies related to the topic of the fourth week lecture.

Sixth week:	Implementation of International Standards during the processing of agricultural products.	Quizzes and case studies related to the topic of the fifth week lecture.
Seventh week:	Maintaining agricultural products in collection centers and managing their quality.	Quizzes and case studies related to the topic of the sixth week lecture.
Eighth week:	Midterm exam	Quizzes and case studies related to the topic of the seventh week lecture.
Ninth week:	Machines and processes used for the processing of raw materials with vegetable and animal origin.	Quizzes and case studies related to the topic of the eighth week lecture.
Tenth week:	Processing of products of plant origin.	Quizzes and case studies related to the topic of the ninth week lecture.
Eleventh week:	Processing of products of animal origin.	Quizzes and case studies related to the topic of the tenth week lecture.
Twelfth week:	Processing of agricultural products according to market needs.	Quizzes and case studies related to the topic of the eleventh week lecture.
Thirteenth week:	Marketing and importance of processing agricultural production.	Quizzes and case studies related to the topic of the twelfth week lecture.
Fourteenth week:	Distribution and supply of collection centers to final products.	Quizzes and case studies related to the topic of the thirteenth week lecture.
Fifteenth week:	Presentation of the semester projects.	Presentation of coursework projects.

Academic policies and rules of conduct:

- Student should be aware of and respect the institution and **Code of ethics**.
- Student should respect the schedule of lectures, exercises and be attentive.
- It is mandatory possess and present student ID card in the mid-terms and exam,
- During compilation of course projects, student must adhere the instructions given by the professor.
- During the exam is forbidden the use of mobile phones.