Course Unit Descriptor

Study Programme: Food Engineering / Carbohydrate Food Engineering (module)
Course Unit Title: Storage of cereal grains
Course Unit Code: UHO304
Name of Lecturer(s): Associate Professor Aleksandar Fišteš
Type and Level of Studies: Undergraduate Academic Studies
Course Status (compulsory/elective): Compulsory
Semester (winter/summer): Summer
Language of instruction: English
Mode of course unit delivery (face-to-face/distance learning): Face-to-face
Number of ECTS Allocated: 5
Prerequisites: None
Course Aims: Introduction to the scientific principles and engineering practices required for managing stored grain
Learning Outcomes: The ability to analyze and understand cereal grains quality and properties in order to implement appropriate storage techniques and practices in grain storage facilities to preserve grain quality and value
Syllabus: *Theory* Significance of cereals for human nutrition; Production of cereals; Grading systems; Quality parameters; Kernel structure, Physical and chemical properties of cereal grains and their impact on storage and processing; Biochemical and physiological processes during storage; Self-heating of grain; Impurities in grains; Grains diseases, Pest and microflora of grains; Kinds of storage facilities; Structural requirements of storage bins; Storage techniques and practices; Weighing, receiving, unloading and preliminary cleaning of grains; Conveying equipment; Dust control; Grain aeration; Drying of cereal grains; Control of stored grain. *Practice* Laboratory exercises: cereal grading systems, sampling, cleaning of grains, general structure of the kernel, physical and chemical parameters of grain quality. Computational exercises include calculations considering: capacity of storage facilities, conveying equipment, aspiration systems, aeration systems and drying systems.
Required Reading: 1. Carl Reed: *Managing Stored Grain to Preserve Quality and Value*, AACC International, 2006. 2. Saucer D.B. (Ed.): *Storage of Cereal Grains and Their Products*, 4th Edition, Am.Ass. of Cer. Chem., Eagan Press Books and Products, 1992.

Weekly Contact Hours: 5	**Lectures:** 3	**Practical work:** 2
Teaching Methods: Lectures, laboratory exercises, computational exercises		

Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points
Active class	5	written exam	

participation			
Practical work	15	oral exam	30
Test I	30	…….	
Test II	20		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			