Course Unit Descriptor

Study Programme: Food Engineering / Carbohydrate Food Engineering (module)			
Course Unit Title: Flour milling			
Course Unit Code: UHO 404			
Name of Lecturer(s): Professor Aleksandar Fišteš, PhD			
Type and Level of Studies: Undergraduate Academic Studies			
Course Status (compulsory/elective): Compulsory			
Semester (winter/summer): Winter			
Language of instruction: English			
Mode of course unit delivery (face-to-face/distance learning): Face-to-face			
Number of ECTS Allocated: 6			
Prerequisites: None			
Course Aims: Introduction to the theoretical foundations and engineering practices required for understanding cereal milling technology and management to process cereal grain products			
Learning Outcomes: The ability to analyze milling process and production requirements to manufacture cereal grain products with proper selection of production parameters and equipment types required to meet product specifications			
Syllabus: *Theory* Wheat cleaning and conditioning: methods of separating wheat impurities, theory and equipment for wheat conditioning, cleaning house flow sheet; Wheat Blending; Hardness, structural and mechanical properties of grain kernel; The grinding process: theory and laws of grinding, grinding machines, operation of the roller mill; factors influencing grinding; The sieving process: principles of sieving, sifting equipment, sifter flow; The purification process: principles of purification and equipment; Auxiliary equipment in the flour milling process; Basic principles and steps in mill flow sheet design; Air in the flour milling process: pneumatic conveying, equipment aspiration and environment in the mill; Flour storage: physical and chemical properties of flour as storage materials, types of storage facilities, flour blending and handling, flour stabilization, packaging and loading; Specialty milling. *Practice* Laboratory exercises: content and character of the grain impurities, technical efficiency of basic equipment in the mill: roller mills, sifters and purifiers, flour and intermediate streams particle size, laboratory milling, flour quality testing. Computational exercises include calculations considering: technical efficiency and specific load of wheat cleaning equipment, grain conditioning, blending of mill mixes, the influence of the grinding parameters on milling results, break release control and flour yield in the mill, specific load of roller mills and sifters, flour blending, flour homogeneity, pneumatic conveying system.			
Required Reading: Posner, Elieser S. Hibbs, Arthur N.: Wheat Flour Milling, American Association of Cereal Chemists, Inc, 2005			
Weekly Contact Hours: 6	**Lectures:** 3	**Practical work:** 3	
Teaching Methods: Lectures, laboratory exercises, computational exercises			
Knowledge Assessment (maximum of 100 points):			
Pre-exam obligations	points	**Final exam**	points

Active class participation		written exam	
Practical work	10	oral exam	30
Test I	30	…….	
Test II	30		
The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.			