	UNIVERSITY OF EAST SARAJEVO Faculty of Technology Zvornik	
	Study programme: *Chemical Engineering and Technology*	
	Study modul: *Food Technology*	
	Cycle I / Year IV	

Course title	Sugar and Starch Technology
Department	Department for Food Technology – Faculty of Technology Zvornik

Course code	**Course status**	**Semester**	**ECTS**
04-2-119-8	Elective	VIII	5

Teacher	Milan Vukic, PhD, Assistant Professor.
Teaching assistant	Milan Vukic, PhD, Assistant Professor.

Number of classes/ teaching workload (per week)			**Individual student workload (in hours per semester)**			**Student workload coefficient S_o**
Lectures	**Auditory exercises**	**Laboratory exercises**	**Lectures**	**Auditory exercises**	**Laboratory exercises**	**S_o**
3	0	2	45	0	30	1.00
3*15+0*15+2*15=75 hours			(3*15*1.00+0*15*1.00+2+15*1.00)=75 hours			
Total course workload 75 + 75 = 150 hours per semester						

Learning outcomes	After finishing the course, students will be able: 1. To participate in sugar production from various raw materials. 2. To participate in starch production from various raw materials. 3. To participate in modified starch production. 4. To participate in starch hydrolysate production. 5. To select control and critical control points in production.
Prerequisites	None
Teaching methods	Lectures, auditory and laboratory exercises, mid-term tests (colloquia).
Syllabus outline per week	1. Introduction. Carbohydrates, classification, and properties. 2. Sucrose production from sugar beet. Preparation for extraction. 3. Juice extraction and clarification. Juice concentration. 4. Crystallization and centrifugation. Post-centrifugation crystal treatment and storage. 5. Molasses - properties, uses, quality control. 6. Raw materials in starch production. Physical and chemical properties of starch. 7. Starch production from corn, potatoes, and wheat. 8. Modified starch production. 9. Enzymes in starch technology. Production of starch hydrolysates. 10. Production of maltodextrin, starch syrup, glucose syrup, maltose syrups. 11. High fructose syrup and fructose production. 12. Crystalline glucose production. 13. Production of sugar alcohols (polyols). 14. Product quality control. Legislation. 15. Waste materials from sugar and starch production and their disposal. Mid-term tests are taken after the 8th week and the 15th week. Semester verification is required after the 15th week.

Obligatory reading

Author	**Title, publisher**	**Year**	**Pages**
Van der Poel, P. W., Schiweck, H.,Schwartz, T.	Sugar Technology. Verlag Dr. Albert Bartens KG Berlin, Germany	1998	(1-343)
BeMiller, J. Whistler, R.	Starch: Chemistry and Technology, Third edition, Elsevier Inc. Oxford, UK:	2009	(745-829)

Additional reading

Author	**Title, publisher**	**Year**	**Pages**
Van der Poel, P. W., Schiweck, H.,Schwartz, T.	Sugar Technology. Verlag Dr. Albert Bartens KGBerlin, Germany	1998	(344-543)

Jane, J. L.	Starch functionality in food processing. In: Starch: Structure and Funcionality, RSC Publishing, Cambridge, UK	1997	(26-35)

	Type of student evaluation	Grade points	Percentage
Obligations, assessment methods and grading system	Pre-exam obligations		
	Attendance	6	6 %
	Mid-term test I	20	20 %
	Mid-term test II	20	20 %
	Laboratory exercises	24	24 %
	Final examination		
	Final examination (oral)	30	30 %
	Total	100	100 %
Web page	www.tfzv.ues.rs.ba		
Date	2023		