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| **Study program** Chemistry | | | | |
| **Course title** Food chemistry (H128C) | | | | |
| **Name of lecturer/lecturers** Snežana Č. Jovanović | | | | |
| **Type of course** Elective | | | | |
| **Number of ECTS allocated** 4 | | | | |
| **Course objectives**  Acquaint the student with the chemical composition of food (plant and animal origin), with a particular focus on ingredients food (distribution, role, reactivity, nutritional value), added substances (additives), pollutants, and substances that arise in various technological processes. | | | | |
| **Course outcomes**  Upon successful completion of this course, the student can:  - make a logical connection between the chemical composition of food (from raw material to finished product) and different physical, chemical, and microbiological factors;  - to recognize and describe the mechanisms of essential processes that take place in food during storage and processing;  - after experimental work, implement the basic techniques of food analysis. | | | | |
| **SYLLABUS**  *Lectures*  The influence of the raw material's chemical composition on the food product's quality. Studying the composition of the basic food raw materials (fruits, vegetables, milk, meat, eggs, cereals, etc.) in terms of structure, importance, and distribution of micro- and macronutrients (water, carbohydrates, lipids, proteins, minerals, and vitamins). Nutritive and energy value of food: the transformation of chemical energy and indirect and direct calorimetry methods. Sensory properties of food: flavors and pigments. Changes in chemical composition during food processing and storage: a) study the influence of physical and chemical factors; b) chemical and biochemical processes that can change food's textures, aromas, colors, and nutritional value. Food additives. Healthy food and sources of food contamination. Study the chemical composition of alcoholic beverages (brandy, wine, and beer). Types and mechanisms of alcoholic fermentation. Connecting the organoleptic properties of alcoholic beverages with the chemical properties’ composition of raw materials and biochemical reactions accompanying the technological processes of their production.  *Laboratory work*  Experimental and computational exercises for determining food raw materials and products' quality. 1.Organoleptic examination, determination of water and mineral substances. 2. Determination of carbohydrates. 3. Determination  of lipids. 4. Determination of amino acids and proteins. 5. Isolation and characterization of aroma compounds. 6. Isolation and characterization of pigments. 8. Qualitative and quantitative analysis of inorganic ingredients. 7. Qualitative and quantitative analysis of food additives. | | | | |
| **References**  1.S. Šiler Marinković, Hemija hrane, Tehnološko-metalurški fakultet, Beograd, 2015  2.V. Mitić, V. Stankov Jovanović, Analiza životnih namirnica, Prirodno-matematički fakultet Niš, 2015  3. J. Trajković, J. Baras, M. Mirić, S. Šiler, Analize životnih namirnica, Tehnološko-metalurški fakultet, Beograd, 1983  4.H.-D. Belitz, W. Grosch, P. Schieberle, Food Chemistry, Springer, 2009 | | | | |
| **Active teaching classes** | **Lectures** 15 | | **Laboratory work** 30 | |
| **Teaching mode** activity duringlectures, laboratory work, seminar | | | | |
| **ASSESSMENT METHODS AND CRITERIA (Max 100 points)** | | | | |
| **Pre exam duties** | **Points** | **Final exam** | | **Points** |
| Activity during lectures | 5 | Written examination | | 50 |
| Practical teaching | 10 | Oral examination | | / |
| Teaching colloquia | 30 |  | |  |
| Seminar | 5 |  | |  |