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| **Subject**  |  **Instrumental Methods in Food Control**  |
| Type Semester ECTS Code  |
|  Z 5 4 130IMF303 |
| **Course Lecturer** **CourseAssistant Course Tutor**  | Fisnik Laha/ Fidan Feka   |
| **ims and Objectives**  | First part of this course describes the basics of spectroscopic methods (IR, UV / VIS, NMR and MS) with a focus on the identification of natural organic compounds - food product ingredients. The rest includes chromatographic methods (classical LC, PC, GC and HPLC) and separation of biological system components. In this segment, the most important procedure is HPLC as a very wide application method in the characterization and separation of different analysts. Modern electro analytic methods are presented from non-electro analytical potentials and conductometry, and those of electoanalytic methods such as voltammetry, kulometry and amperometry, and biosensor amperometry. Acquisition of basic knowledge and skills, as well as the ability to solve the problems of separation, identification and quantitative determination of the most important analysts in food and agriculture is the purpose of this module.  |
| **Learning Outcomes**  |  At the end of this course, students should be able to: * explain the basic concepts and principles of selected electrochemical methods of analyte, potentiometry, conductometry and voltammetry.
* to select the appropriate electroanalytical method for determining the analyte in the given sample
* perform the conductometric and voltammetric analysis according to the instructions - - determine the structure of organic molecules using spectroscopic methods
* to compute the content of an analyte in the sample based on the data obtained from the determination method.

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| **Course Content**  | **Course Plan**  | **Week**  |
| Properties of electromagnetic radiation Ultraviolet and visible photometers and spectrophotometers Molecular absorption spectrometry Mass spectrometry Gas chromatography High-performance liquid chromatography  **Colloquium I**   | 1 2 3 4 5 6 7 |
|  | Adsorption chromatography  | 8  |
|  | Atomic absorption spectrometry  | 9  |
|  | Quantitative analytical methods  |  10  |
|  | Chemical stoichiometry  | 11 |
|  | Characterizing oxidation/reduction reactions  | 12  |
|  | Electrochemical cells **Colloquium II**  | 1314  |
|  | Final exam  |  |  | 15   |
| **Literature/References**  |  * D. A.Skoog, F. J.Holler i T. A. Nieman, Principles of Instrumental Analysis *,* Fort Worth, Saunders, 1992.
* R. M. Silverstein, F. X. Webster, Spectrometric Identification of Organic Compounds, New York, Wiley, 1998.
* I. Piljac, Elektroanalitičke metode, RMC, Zagreb, 1995.
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