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| Study program: Integrated Academic Studies in Pharmacy | | | |
| Course title: Basics of Rheology | | | |
| Teacher: Veljko S. Krstonošić, Dejan M. Ćirin | | | |
| Course status: elective | | | |
| ECTS Credits: 3 | | | |
| Condition: - | | | |
| Course aim Theoretical and practical knowledge of the basic assumptions and the importance of rheology. Introduction to the rheological behavior and specific characteristics of different systems. Gaining knowledge about the ways of determining the rheological parameters and the interpretation of results. | | | |
| Expected outcome of the course: Fundamental knowledge of the rheological behavior of the systems which are base for the pharmaceuticals. Application of theoretical knowledge in practice. | | | |
| Course description <i>Theoretical education</i> <ol style="list-style-type: none"> Newtonian and non-Newtonian systems. Scope and definition of rheology. Rheological models. Classification of the systems, the main properties. Types of flow and equations. Viscoelastic systems. Creep and recovery. Rheological measurements. Determination of flow curve and fitting parameters. Yield stress, definition and determination. Oscillatory measurements. Viscometers and rheometers. Rheological modifiers in pharmacy. <i>Practical education</i> <ol style="list-style-type: none"> Determination of flow curves and graphical presentation of results systems: dilute solutions of macromolecules, emulsions suspensions, gels. Determination of flow parameters. Oscillatory measurements of the systems: dilute solutions of macromolecules, emulsions suspensions, gels. Application of theoretical knowledge to the modeling of rheological systems. | | | |
| Literature <i>Compulsory</i> <ol style="list-style-type: none"> Mezger T. Applied rheology. Austria: Anton Paar GmbH; 2015. Barnes H. A Handbook of Elementary Rheology. University of Wales: Institute of Non-Newtonian Fluid Mechanics; 2000. Schramm G. A Practical Approach to Rheology and Rheometry. Karlsruhe: Gebrueder HAAKE GmbH; 2000. <i>Additional</i> <ol style="list-style-type: none"> Steffe J. Rheological Methods in Food Process Engineering. USA: Freeman Press; 1996. | | | |
| Number of active classes | | Theoretical classes: 30 | Practical classes: 15 |
| Teaching methods Lectures, practical classes | | | |
| Student activity assessment (maximally 100 points) | | | |
| Pre-exam activities | points | Final exam | points |
| Lectures | 5 | Written | 50 |
| Practices | | Oral | |
| Colloquium | 25 | | |
| Essay | 20 | | |