**DESCRIPTION OF A STUDY COURSE – SYLLABUS**

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| **Title of a course** | **Chemistry of grape must and wine** | | | | |
| **Study programme** | **Specialist Professional Study of Winemaking** | | | | |
| **Status of a course** | Obligatory | | | | |
| **Year of study** | 1 | **Semester** | W | **ECTS credits** | 6 |
| **Goals of a course** | | | | | |
| Introducing students to the structure, properties and chemical and biochemical changes of the compounds found in grape must and wine, with particular emphasis on the chemical reactions that take place during wine production. The exercises allow students to become acquainted with specific methods for determining physic-chemical parameters of wine. | | | | | |
| **Conditions for enrolling course** | | | | | |
| No conditions | | | | | |
| **Learning outcomes on a level of a study programme which includes course** | | | | | |
| Outcome 3: Compare and evaluate the results of instrumental evaluation of sensory properties of wine  Outcome 4: Evaluate the physiochemical composition of grape must and wine and evaluate their impact on the characteristics and quality of wine.  Outcome 5: Select the appropriate techniques and methods, determining the technological processes in the vinification of white, rose and red wine.  Outcome 7: Choose a specific production technology of autochthonous wine in order to preserve the variety specificities.  Outcome 8: Substantiate the influence of significant factors on the processes and concentration of the most significant wine components.  Outcome 9: Evaluate and determine the origin of the aromatic constituents and types of wine aroma.  Outcome 10: Define individual groups of chemical compounds and explain their influence on the characteristics and quality of wine. | | | | | |
| **Expected learning outcomes on a level of a course** | | | | | |
| 1. Interpret the chemical composition of grape must. 2. Explain the reaction mechanisms of the synthesis of the basic constituents of grape must. 3. Describe the transformation of grape must into wine through various forms of fermentation. 4. Interpret the chemical composition of wine. 5. Determine the oxidation reduction potential of wine. | | | | | |
| **Content of a course** | | | | | |
| Chemical composition of grape must: water, sugars, acids, nitrogen compounds, phenol compounds, volatile compounds and aroma compounds, enzymes, vitamins, minerals. Reaction mechanisms of the synthesis of the basic constituents of grape must. Transformation of grape must into wine - fermentations: alcoholic fermentation, low alcoholic fermentation, malolactic fermentation. Mechanisms of chemical reactions during fermentation. Chemical composition of wine: sugars, alcohols, acids, nitrogen compounds, phenol compounds, volatile compounds and aroma compounds, minerals. PH of wine. Oxidation-reduction potential of wine. Colloids in grape must and wine. The role of sulphur dioxide (SO2). Determination of physic-chemical parameters in wine | | | | | |
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