**DESCRIPTION OF A STUDY COURSE – SYLLABUS**

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| **Title of a course** | **Mathematics and statistics** | | | | |
| **Study programme** | **Professional undergraduate study Winemaking** | | | | |
| **Status of a course** | Obligatory | | | | |
| **Year of study** | 1. | **Semester** | W | **ECTS credits** | 5 |
| **Goals of a course** | | | | | |
| The aim of the course is to acquaint students with the basic concepts, results and methods of functions of a variable, descriptive statistics, economic and financial mathematics, and train them to apply them. | | | | | |
| **Conditions for enrolling course** | | | | | |
| No conditions | | | | | |
| **Learning outcomes on a level of a study programme which includes course** | | | | | |
| Outcome 6: Analyse the basic chemical composition of grape must and make corrections of crushed grapes, grape must and wine  Outcome 8: Apply the appropriate vinification technology for white, rose and red wine with monitoring and determining technological processes, and carries out physic-chemical and biological stabilization of wine.  Outcome 10: Apply basic technologies in the production of sparkling wine, liqueur wine and dessert wine by selecting the appropriate equipment and packaging for the production, processing and finalization of these wines.  Outcome 11: Present the wine professionally, using professional terminology in describing and evaluating the wine, and lead wine tasting by interpreting the sensory experiences of the wine. | | | | | |
| **Expected learning outcomes on a level of a course** | | | | | |
| 1. Explain the basic concepts of single variable functions (definition, parity, oddity, periodicity, boundary value and continuity), and apply them in solving problems. 2. Calculate the derivations of elementary functions and apply them in the analysis of some economic problems. 3. Explain simple schemes and calculations with application in economy and finance, and solve related tasks (percentage calculation, rule of three, division, mixture calculation, compound calculation, and loans repayment). 4. Define the basic concepts of descriptive statistics and process a set of statistical data (frequency distribution, mean values, dispersion measures, and linear regression). | | | | | |
| **Content of a course** | | | | | |
| Functions: term and features, composition of function, inverse function, elementary functions and their graphs, marginal value and continuity of functions, asymptotes.  Derivations: definition and geometrical meaning of derivation, rules of deriving, derivations of elementary functions, higher-order derivations, differential of function, L’Hospital’s rule, extremes and inflection points, flow of function, economic application of derivation.  Economic and financial maths: percentage and per mil calculi; rule of three, recursive calculus, division calculus, composition calculus, interest account, periodical sums, loan service.  Descriptive statistics: distribution of frequencies, inductive and deductive methods, average values; dispersion measures, asymmetry and flatness.  Correlation and regression: method of smallest squares, linear regression, linear correlation. | | | | | |
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