

### DESCRIPTION OF A STUDY COURSE – SYLLABUS

<b>Title of a course</b>	Chemistry of grape must and wine				
<b>Head of course</b>	PhD Igor Lukić, Senior Lecturer				
<b>Study programme</b>	Specialist Professional Study of Winemaking				
<b>Status of a course</b>	Obligatory				
<b>Year of study</b>	1	<b>Semester</b>	I	<b>ECTS credits</b>	6
<b>Teaching plan (L + E + S+ Pr)</b>	L- 2, E -2, S – 0 / I				
<b>Goals of a course</b>					
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 physico-chemical parameters of wine.					
<b>Conditions for enrolling course</b>					
No conditions					
<b>Learning outcomes on a level of a study programme which includes course</b>					
<p>Outcome 3: Compare and evaluate the results of instrumental evaluation of sensory properties of wine</p> <p>Outcome 4: Evaluate the physicochemical composition of grape must and wine and evaluate their impact on the characteristics and quality of wine.</p> <p>Outcome 5: Select the appropriate techniques and methods, determining the technological processes in the vinification of white, rose and red wine.</p> <p>Outcome 7: Choose a specific production technology of autochthonous wine in order to preserve the variety specificities.</p> <p>Outcome 8: Substantiate the influence of significant factors on the processes and concentration of the most significant wine components.</p> <p>Outcome 9: Evaluate and determine the origin of the aromatic constituents and types of wine aroma.</p> <p>Outcome 10: Define individual groups of chemical compounds and explain their influence on the characteristics and quality of wine.</p>					
<b>Expected learning outcomes on a level of a course</b>					
<ol style="list-style-type: none"> <li>1. Interpret the chemical composition of grape must.</li> <li>2. Explain the reaction mechanisms of the synthesis of the basic constituents of grape must.</li> <li>3. Describe the transformation of grape must into wine through various forms of fermentation.</li> <li>4. Interpret the chemical composition of wine.</li> <li>5. Determine the oxidation reduction potential of wine.</li> </ol>					
<b>Content of a course</b>					
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 (SO <sub>2</sub> ). Determination of physico-chemical parameters in wine					
<b>Teaching modes</b>	<input checked="" type="checkbox"/> lectures <input type="checkbox"/> auditory exercises <input checked="" type="checkbox"/> seminars and workshops <input type="checkbox"/> distance learning <input type="checkbox"/> field classes		<input checked="" type="checkbox"/> individual assignments <input type="checkbox"/> multimedia and network <input type="checkbox"/> laboratory <input type="checkbox"/> supervisor's work <input type="checkbox"/> other _____		
<b>Comments</b>					

Students' obligations						
Grading, evaluation and monitoring of students' work continuously during lectures and exams						
Grading is based upon evaluation of course's learning outcomes adoption. Grading is performed continuously during lectures and/or during exam, in compliance with the provisions of Regulation on the assessment of students.						
Continuous check-up:						
Outcomes	Pre-exam I	Pre-exam 2	Seminar work	Home assignment	Threshold	Max
Outcome 1						
Outcome 2						
Outcome 3						
Outcome 4						
Outcome 5						
Outcome 6						
Percentage of ECTS						
Total						
A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.						
Exam term:						
Outcomes	Written exam	Oral exam	Max			
Outcome 1						
Outcome 2						
Outcome 3						
Outcome 4						
Outcome 5						
Outcome 6						
Percentage of ECTS						
Total			100 %			
A student has passed the exam if he has acquired a percentage of credits for each learning outcome higher or equal to defined threshold.						
Grading:						
A student has passed the exam if he has acquired at least 50% of anticipated credits of a specific learning outcome.						
If a student has passed learning outcomes of all courses, the accomplished credits (percentages) of all passed learning outcomes are being added, while the final grade is defined upon following table:						
Range of credits (percentages)	Numerical grade	ECTS grade				
90,00 – 100,00	Excellent (5)	A				
75,00 – 89,99	Very good(4)	B				
60,00 – 74,99	Good(3)	C				
50,00 – 59,99	Sufficient (2)	D				
0,00 – 49,99	Insufficient (1)	F				
Obligatory literature						
Additional literature						

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