

DESCRIPTION OF A STUDY COURSE – SYLLABUS

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Title of a course	Grape must and wine aromas				
Head of course	PhD Sanja Radeka, College Professor				
Study programme	Specialist Professional Study of Winemaking				
Status of a course	Obligatory				
Year of study	1	Semester	I	ECTS credits	6
Teaching plan (L + E + S+ Pr)	2+0+2+0				
Goals of a course					
Through this course, students will significantly expand the already acquired knowledge and gain new knowledge about the formation of certain types of aromas (primary, secondary, tertiary aromas) and technological processes that better preserve and enhance these aromas. Students will be introduced to the chemical and biochemical processes that lead to the synthesis of volatile aromatic compounds (alcoholic fermentation, malolactic fermentation, esterification, hydrolysis, oxidation...), olfactory properties, and technological procedures that can increase the concentration of certain aromatic compounds, and enhance a certain aromatic profile according to the desired wine type or style. Exercises allow students to get acquainted with the sensory properties of aromatic compounds through sensory analysis of prepared model solutions, and the influence of a particular volatile aromatic compound or group of compounds on the sensory properties of different types 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 6: Identify yeasts and bacteria for alcoholic, malo-lactic and malo-ethanol fermentation.					
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.					
Outcome 11: Substantiate the development stage of wine and evaluate its commercial value.					
Expected learning outcomes on a level of a course					
1. Define the compounds of primary (varietal), secondary (fermentation) and tertiary aromas of grape must and wine					
2. Explain the origin, precursors and biosynthesis of chemical compounds of grape must and wine aroma components					
3. Interpret olfactory properties and olfactory thresholds for different aromatic wine profiles					
4. Link the influence of various factors on the concentration of wine aroma components					
5. Independently apply different technological procedures at different stages of vinification					
Content of a course					
Compounds of the primary (varietal) aroma of grape must and wine: terpenes, monoterpenes, C13 norisoprenoid derivatives, methoxypyrazines, volatile odour thiols; Secondary (fermentation) aroma compounds of wine: higher alcohols, volatile esters, fatty acids Tertiary aroma compounds of wine: aldehydes, ketones, lactones, volatile phenols; The origin, precursors and biosynthesis of chemical compounds of grape must and wine aroma components; Olfactory properties, olfactory thresholds, different aromatic profiles of wine (floral, fruit, grass,					

spice, etc.), Influence of various factors on the concentration of wine aroma components: grape raising, maceration of crushed grapes, pectolytic enzymes, glucosidases, yeasts, alcoholic fermentation, malolactic fermentation, wine maturation and aging, etc.

Teaching modes	<input checked="" type="checkbox"/> lectures	<input checked="" type="checkbox"/> individual assignments
	<input type="checkbox"/> auditory exercises	<input type="checkbox"/> multimedia and network
	<input checked="" type="checkbox"/> seminars and workshops	<input type="checkbox"/> laboratory
	<input type="checkbox"/> distance learning	<input type="checkbox"/> supervisor's work
	<input type="checkbox"/> field classes	<input type="checkbox"/> other _____

Comments

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				

