	Course: ENOLOGY	ourse: ENOLOGY			
Code	Status of the	Semester	ECTS	Lecture classes	
201107003	Course	VI	1	2D 1I	
29110/095 Acadomic Study Pr	Requireu	VI	4 rowing and Viticulture (stud	inc last 2 competers 180	
FCTS credits)	ogram: Dasic academ	ic studies - Fruit §	growing and viticulture (stud	les last 2 semesters, 100	
Prerequisites: No					
Course aims: Aca	uring knowledge abo	ut: wine product	ion the chemical compositi	ion of must and wine	
procedures of prim	ary processing of gr	anes and must	fermentation process wine	stabilization care and	
treatment of wine an	d determination of au	ality of wine	fermentation process, while	stabilization, care and	
Teacher and assistan	ts Prof Dr Radmila P	aiović-Šćepanovi	ć		
The course consist	s of Lectures labora	tory analyses pr	actical work in the winery	of Biotechnical faculty	
colloquiums, consult	tation, seminar paper a	nd final exam.	actical work in the which y	or Broteeninear facalty,	
,,		Course con	tent:		
Week for preparation	n Preparation and	a enrollment of st	idents:		
I week	Introducing stud	ents to the course	and importance of wine cultu	ıre;	
TT 1	The history of y	wine making; Int	roducing with the major win	ne-growing regions and	
II week	wine countries in	the world;	8	8 8 8 8	
Duration	Visit to the wine	Visit to the winery of Biotechnical faculty for introducing with technological process			
Practical	of wine producti	on;	, C	0 1	
III ala	Characteristics	Characteristics of grapes as base for wine production; Mechanical and chemical			
III week	composition of g	rapes;			
Practical	12: Analyses of mec	hanical compositi	on of grapes;		
IV week	Grapes ripening	Grapes ripening and harvesting; Primary processing of grapes;			
Practical	13: Analyses of cher	nical composition	of must (density and content	of sugar);	
V week	Vinification; Alc	oholic fermentati	on; The strains of wine yeasts	5;	
Practical	14: Analyses of acid	ity must and wine	(total acidity and pH);		
VI week	Colloquium I;				
VII week	The application	The application of SO_2 in wine production;			
Practical	15: Analyzes of total	Analyzes of total and free SO ₂ in wine;			
VIII week	Technology of p	Technology of producing white wine;			
Practical	16: Analyses of wine	Analyses of wine density and content of alcohol - fast methods;			
IX week	IX week Technology of production red and rose wine;				
Practical	17. Analyses of wi	Analyses of wine density and content of alcohol by using distillation unit and			
	hydrostatic balar	hydrostatic balance;			
X week	Maturation, care	Maturation, care and storage of the wine; Technological procedures and operations and			
	equipment;				
Practical	18: Visit to winery	Visit to winery "13 Jul Plantaze" for introducing with technological procedures,			
VI	Specific and def	Specific and defeate of wines Dresenting the amount of these processes in wines			
AI week	Sponage and der	ects of whe; Prev	d in wine (feet method and we	e processes in wine;	
VII wook	The technology of	ent of volatile act	Brocoss of producing of liquous	re and sporkling wines:	
Practical	10: Analyze of conte	special villineation	ar in wine:	is and sparking whies,	
XIII week	Colloquium II:	Colloquium II:			
	AIII WEEK Colloquium II, Quality evaluation of the wines: Sansory evaluation and analysis of the chemic			alvsis of the chemical	
XIV week	composition of y	vine [.]	Sensory evaluation and a	arysis of the enemical	
	Techniques of s	sensory evaluatio	n assessment of wines (OP	V official <i>method</i>) and	
Practical	11: Buxbaum method	Buxbaum method:			
XV week Protection designations and origin of names wines:					
Practical	12: Interpretation pa	rameters of the ch	emical composition of wine:		
XVI week	Final exam:				
End week	Verification of se	emester and enrol	lment of grade;		
XVIII-XXI week	Additional lesso	ns and extra exam	ination session.		
Student obligation:					

Weekly	In semester	
4 credits x $40/30 = 5$ hours 20 min	Teaching and the final exam: (5 hours 20 min) x $16 = 85$ hours 20 min	
Structure:	Preparation before the beginning of the semester (administration.	
- 2 hours of teaching	enrollment, etc) $2x(5 \text{ hours}) = 10 \text{ hours } 40 \text{ min}$	
- 1 hours of practical work including	Total work hours for the course: $4 \times 30 = 120$ hours	
colloquiums	Additional hours for preparing of examines in additional examination's	
- 1 hour 20 min of individual work	period 0-24 hours	
	Structure: 85 hours 20 min (lectures), 85 hours (preparation) and 24	
	hours (additional work)	
Literatura:		
1. Radovanović, V. (1986): Tehnolog	ija vina, Građevinska knjiga, Beograd.	
2. Daničić, M. (1988): Tehnologija vi	na – Praktikum, Poljoprivredni fakultet Beograd – Zemun.	
Stanka Herjavec Skripta »Tehnolog	rija vina«Agron <i>omski fakultet, Zagreb</i>	
4. C. Flanzy(1998). Oenologie. Fond	ements scientifiques et technologiques Tech.& Doc./Lavoisier, Paris.	
5. P. Ribereau-Gayon et al (2000).	, Handbook of enology, Vol 2. The Chemistry and wine stabilization and	
treatments, Chapman&Hall Dunoc	I, Paris.	
6. D. W. ZOECKIEIII, K. C. Fugelsang Englogy Library June 1995	, B. H. Gump, F. S. Nury, while Analysis and Production, The Chapman-Hair	
The forms of knowledge testing and g	ading.	
- Class attendance: 3 points	aung.	
- Colloquiums 2x20 40 points		
- Attendance at practices 3 points		
- Seminar 5 points		
-Final exam 49 points		
Passing grade gets after cumulative colle	ct at least 51 points.	
Teacher, which gave inform	ation: Prof. Dr Radmila Pajović-Šćepanović	
Special remarks for the course: The teaching is organized in their native language with the help of		
audio-visual devices		
Note:		
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Learning outcomes:		
The student have demonstrated the ability to:		

- Being familiar with culture of wine (wine regions, types and categories of wine);
- Analyze the parameters of the mechanical composition of grape and chemical composition of must;
- Determine the best moment for harvesting;
- Analyze the process of fermentation;
- Organize technological process in the producing of red and white wine;
- Organize technological process during the treatment, care, storage and aging of wine;
- Analyze the sensory properties of wine;
- Recognize the primary defects and spoilage of wine;
- Analyze the chemical properties of wine in laboratory.

	Course: ENOLOGY	Course: ENOLOGY WITH GRAPE PROCESSING			
Code	Status of the	Semester	ECTS	Lecture classes	
	course				
291107093	Required	Ι	5	3L+2L	
Academic Study Pr	ogram: Master acade	emic studies - Fru	it growing and Viticulture (s	studies last 4 semesters,	
240 ECTS credits)	0				
Prerequisites: No					
Course aims: Acqu	uring knowledge abo	ut: wine product	ion, the chemical compositi	ion of must and wine,	
procedures of prim	ary processing of gr	apes and must,	fermentation process, wine	stabilization, care and	
treatment of wine an	d determination of qua	ality of wine.	L /	,	
Teacher and assistan	ts: Prof. Dr Radmila P	ajović-Šćepanovi	ć		
The course consist	s of: Lectures, labora	tory analyses, pr	actical work in the winery of	of Biotechnical faculty,	
colloquiums, consult	ation, seminar paper a	nd final exam.	2	5,	
		Course con	tent:		
Week for preparation	n Preparation and	a enrollment of st	udents;		
I week	Introducing stud	ents to the course	and importance of wine cultu	ıre;	
1	The history of y	wine making; Int	roducing with the major wir	ne-growing regions and	
II week	wine countries ir	the world;	6	0 0 0	
	Visit to the wine	ery of Biotechnic	al faculty for introducing wit	h technological process	
Practical	1: of wine producti	on;			
	Characteristics	of grapes as bas	e for wine production; Me	chanical and chemical	
III week	composition of g	rapes:	r , ,		
Practical	2: Analyses of mec	hanical compositi	on of grapes:		
IV week	Grapes ripening	Grapes ripening and harvesting: Primary processing of grapes:			
Practical	3: Analyses of cher	nical composition	of must (density and content	of sugar):	
V week	Vinification: Alc	coholic fermentati	on: The strains of wine yeasts	S:	
Practical	4. Analyses of acid	ity must and wine	(total acidity and pH):	- ,	
VI week	Colloquium I	Colloquium I:			
VII week	The application (of SO_2 in wine pro	oduction:		
Practical	5. Analyzes of total	Analyzes of total and free SO_2 in wine:			
VIII week	Technology of n	Technology of producing white wine:			
Practical	6: Analyses of wine	Analyses of wine density and content of alcohol fast methods:			
IX week	Technology of n	roduction red and	rose wine:		
	Analyses of wi	Analyses of wine density and content of alcohol by using distillation unit and			
Practical	7: hydrostatic balar	hydrostatic balance:			
	Maturation care	Maturation care and storage of the wine: Technological procedures and operations and			
X week	equipment.	equipment			
	Visit to winerv	Visit to winery "13 Jul Plantaze" for introducing with technological procedures			
Practical	8: operations of fin	operations of finalization wine and equipment.			
XI week	Spoilage and def	Spoilage and defects of wine: Preventing the emergence of these processes in wine:			
Practical	9. Analyses of cont	Analyses of content of volatile acid in wine (fact method and with distillation unit):			
XII week	The technology of	The technology of special vinification: Process of producing of liqueurs and sparkling wines:			
Practical	10: Analyze of conte	Analyze of content of residual sugar in wine.			
XIII week	Colloquium II:	Colloquium II.			
Ouality evaluation of the wines: Sensory evaluation and analysis		alvsis of the chemical			
XIV week	composition of v	composition of wine:			
	Techniques of s	sensory evaluatio	n assessment of wines (OP	V official <i>method</i>) and	
Practical	11: Buxbaum method	Ruxhaum method.			
XV week	Protection design	Protection designations and origin of names wines:			
Practical	12: Interpretation pa	rameters of the ch	emical composition of wine		
XVI week	Final exam		enneur composition or whic,		
End week	Verification of se	emester and enrol	Iment of grade.		
XVIII-XXI week	Additional lesso	Additional lessons and extra examination session			

Student obligation:		
Weekly	In semester	
5 credits x $40/30 = 6$ hours and 40 min	Teaching and the final exam: (6 hours and 40 min) $x = 160$ hours	
Structure:	and 40 min	
- 3 hours of teaching	Preparation before the beginning of the semester: 2x(6 hours and 4	
- 2 hours of practical work including	\min) = 13 hours and 20 min	
colloquiums	Total work hours for the course: $5 \times 30 = 150$ hours	
- 2 hours and 40 min of individual	Additional hours for preparing of examines in additional examination's	
work	period 0-30 hours	
	Structure: 106 hours and 40 min. (lectures), 13 hours and 20 min.	
	(preparation) and 32 hours (additional work)	
Literatura:		
1. Radovanović, V. (1986): Tehnolog	ija vina, Građevinska knjiga, Beograd.	
2. Daničić, M. (1988): Tehnologija vina – Praktikum, Poljoprivredni fakultet Beograd – Zemun.		
3. Stanka Herjavec Skripta »Tehnologija vina«Agronomski fakultet, Zagreb		
4. C. Flanzy(1998). Oenologie. Fond	ements scientifiques et technologiques Tech & Doc./Lavoisier, Paris.	
5. P. Ribereau-Gayon et al (2000).	Handbook of enology, vol 2. The Chemistry and whe stabilization and	
ucaunems, Chapman&Hall Dunou, Paris. 6 R. W. Zoecklein, K. C. Eugelsong, R. H. Cump, F. S. Nury, Wine Analysis and Production. The Chapman Hall		
Enology Library. June 1995.		
The forms of knowledge testing and grading:		
- Class attendance: 3 points		
- Colloquiums 2x20 40 points		
- Attendance at practices 3 points		
- Seminar 5 points		
-Final exam 49 points		
Passing grade gets after cumulative collect at least 51 points.		
Teacher, which gave information: Prof. Dr Radmila Pajović-Šćepanović		
Special remarks for the course: The teaching is organized in their native language with the help of		
audio-visual devices		
Note:		
. . ,		

Learning outcomes:

The student have demonstrated the ability to:

- Being familiar with culture of wine (wine regions, types and categories of wine);
- Analyze the parameters of the mechanical composition of grape and chemical composition of must;
- Determine the best moment for harvesting;
- Analyze the process of fermentation;
- Organize technological process in the producing of red and white wine;
- Organize technological process during the treatment, care, storage and aging of wine;
- Analyze the sensory properties of wine;
- Recognize the primary defects and spoilage of wine;
- Analyze the chemical properties of wine in laboratory.

]	Course: QUALITY WINE AND WINE STORAGE			
Code	Status of the	Semester	ECTS	Lecture classes
cour	course	201103001	2015	
	optional	2	5	3P+2L
Academie Studu Dromono Master academie studice. Emit cremine Viticulture and Enclose (studice last 4				
Academic Study Program: Master academic studies - Fruit growing, Viticulture and Enology (studies last 4				
Proroquisites: No	(crearis)			
Course aims: To inte	oduce students with	wine production	methods of determining the	wality of wine (physico
chemical analysis an	d sensory evaluation	of wine) as well	as conditions and technique	s of care and storage of
wine	a sensory evaluation	or which, as well	as, conditions and teeninque	is of eare and storage of
Teacher and assista	nts: Prof. Dr Radmila	Paiović-Šćepano	vić	
The course consists	of: Lectures, practic	cal work – prepa	ration wines in the winerv	of Biotechnical faculty.
laboratory analyses, s	seminar paper and fina	al exam.		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	11	Course con	tent:	
Week for preparation	Preparation and a	a enrollment of st	idents:	
I week	Introducing stud	ents with course,	method and plan;	
II week	The parameters of	of the chemical co	mposition of grape, must and	l wine;
ъ. / I	1 Crushing of the	grapes, addition	of SO_2 in crashed grape,	and filling vessels for
Practical	1: fermentation;			C
III week	Factors of wine's	s quality; Physico	-chemical analysis parameter	s of wine quality;
Practical	2: Analyses of cher	Analyses of chemical composition must: sugar, total acidity and pH;		
IV week	Instrumental met	Instrumental methods of analysis parameters in wine (spectrophotometry and HPLC);		
Practical	3: Monitoring of th	Monitoring of the fermentation (measuring the specific density of must);		
V week	Quality evaluation	Quality evaluation of wine;		
Practical	4: Analysis of the f	Analysis of the fermentation process; Racking wine from the mark;		
VI week	Seminar paper I;	Seminar paper I;		
VII week	Sensory evaluati	Sensory evaluation characteristic of wine;		
Practical	5: Analyses of densit	y of wine and conte	nt of alcohol - fast methods;	
VIII week	The techniques of	The techniques of degustation of wine; the terms of the sensory evaluation of wine;		
Practical	6: Techniques of ser <i>method;</i>	Techniques of sensory evaluation assessment of wines (OIV official <i>method</i>) and <i>Buxbaum method</i> ;		
IX week	Legislation in the	Legislation in the field of wine's quality control;		
Practical	7: Racking wine fro	Racking wine from the sediment, aeration and it's filling in the closed vessels;		
Vwaak	Technological p	rocedures for bas	ic operations in the prepara	tion of wines and their
A WEEK	impact to the qua	ality of the wine;		
Practical	8: Analyses of densit balance;	y of wine and conte	nt of alcohol by using distillation	n unit and hydrostatic
XI week	Treatment of wir	ne during maturin	g and aging; Techniques of st	abilization of wine;
Practical	9: Spectrophotomet	Spectrophotometric analysis of polyphenol compounds in wine;		
XII week	Chemical change	Chemical changes in the wine during maturation and aging; Wine bottling;		
Practical 1	0: Interpretation par	Interpretation parameters of the chemical and sensorial composition of wine;		
XIII week	Wine cellars; Wi	Wine cellars; Wine barrels ; Equipment and installations in the winery;		
Practical	11 Visit wine cellar;	Visit wine cellar;		
XIV week	Technique of mi	Technique of microoxygenation wine, Storing wine in barrels bariqque;		
Practical	12 Second racking v	Second racking wine from the sediment;		
XV week	Seminar paper I	Seminar paper II;		
XVI week	Final exam;			
End week	Verification of se	Verification of semester and enrollment of grade;		
XVIII-XXI week	Additional lesso	ns and extra exam	ination session	

Student obligation		
Weekly	In semester	
5 credits x $40/30 = 6$ hours and 40 min	Teaching and the final exam: (6 hours and 40 min) x $16 = 160$ hours	
Structure:	and 40 min	
- 3 hours of teaching	Preparation before the beginning of the semester: 2x(6 hours and 40	
- 2 hours of practical work including	min) = 13 hours and 20 min	
colloquiums	Total work hours for the course: $5 \times 30 = 150$ hours	
- 2 hours and 40 min of individual	and 40 min of individual Additional hours for preparing of examines in additional examination'	
work	period 0-30 hours	
	Structure: 106 hours and 40 min. (lectures), 13 hours and 20 min.	
	(preparation) and 32 hours (additional work)	
Literature:		
1. M. Daničić (1988): Tehnologija v	ina – Praktikum, Poljoprivredni fakultet Beograd – Zemun;	
2. B. W. Zoecklein, K. C. Fugelsang	g, B. H. Gump, F. S. Nury, (1995): wine Analysis and Production, The Chapman-	
3 T Košmarel Milica Kač (2003	, 3): Osnovne kemijske analize mošta i vina: Laboratorijske vežbe za predmet	
Tehnologija vina, Biotehnički falu	iltet. Univerzitet u Liubliani:	
4. P. Ribereau-Gayon et al (2000)	., Handbook of enology, Vol 2. The Chemistry and wine stabilization and	
treatments, Chapman&Hall Dune	od, Paris;	
5. V. Radovanović (1986): Tehnolog	zija vina, Građevinska knjiga, Beograd.; .	
The forms of knowledge testing and g	grading:	
- Class attendance: 3 points		
- Colloquiums 2x20 40 points		
- Attendance at practices 3 points		
- Seminar 5 points		
-Final exam 49 points		
Passing grade gets after cumulative collect at least 51 points.		
Teacher, which gave info	rmation: Prof. Dr Radmila Pajovic-Scepanovic	
Special remarks for the c	ourse: The teaching is organized in their native language with the help of	
audio-visual devices		
L oorning outcomos:		
Learning outcomes.		
The students have demonstrated the ability to:		
Being familiar with procedure of preparation red wines in the winery;		
Analyze the parameters of the chemical composition of crushed grape/must;		
Analyze the process of the chemical composition of wine (classical reference methods and fast		
Analyze the parameters of the chemical composition of while (classical - reference methods and fast methods in cellar):		

methods in cellar); Analyze the sensory properties of wine; Organize technological process of producing white and red wines Organize technological process during the treatment, care, storage and aging of wine.