

DEPARTMENT OF FOOD TECHNOLOGY AND PROCESSING OF ANIMAL PRODUCTS

Study programme: OENOLOGY

Degree: Master of Agricultural sciences – OENOLOGY

I SEMESTER – first year				
Code	C O U R S E	Credits	Lectures	Total
2ZF200112	Methods in scientific research work	8	3+2+2	216
2ZF220112	General oenology	8	3+2+2	216
2ZF200312	Biostatistics	6	2+2+1	156
	Faculty elective course	4	2+1+1	120
	Faculty elective course	4	2+1+1	120
	Total:	30	12+8+7	828

II SEMESTER – first year				
Code	C O U R S E	Credits	Lectures	Total
2ZF215312	Wine grape varieties	8	3+2+2	216
2ZF220212	Technologies for wine	8	3+2+2	216
2ZF220312	Methods for quality control of wine	6	2+2+1	156
	Faculty elective course	4	2+1+1	120
	Faculty elective course	4	2+1+1	120
	Total:	30	12+8+7	828

III SEMESTER – second year				
Code	C O U R S E	Credits	Lectures	Total
2ZF220412	Sensory evaluation of wine	8	3+2+2	216
2ZF220512	Yeasts and alcohol fermentation	8	3+2+2	216
2ZF220612	Instrumental analysis of wine and grape	8	3+2+2	216
	University elective course	6	2+2+1	156
	Total:	30	11+8+7	804

IV SEMESTER – second year				
Code	C O U R S E	Credits	Lectures	Total
	Master thesis	30	0+0+26	818
	Total:	30	0+0+26	818

Code	Faculty elective course 1 semester			
2ZF220712	Grape preparations and products	4	2+1+1	120
2ZF205612	Equipment in the winery	4	2+1+1	120
2ZF215412	Designing the vineyards	4	2+1+1	120
2ZF205512	Marketing and promotion of grapes and wine	4	2+1+1	120
Faculty elective course 2 semester				
2ZF215612	Legislation in viticulture and winemaking	4	2+1+1	120
2ZF220812	Design of winery	4	2+1+1	120
2ZF215712	Processing and storage of grapes	4	2+1+1	120

2ZF212712	Growing organic grapes	4	2+1+1	120
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Appendix No.3 Syllabus for the first, second and third cycle of study				
1.	Course title		METHODS IN SCIENTIFIC RESEARCH WORK	
2.	Course code		2ZF200112	
3.	Study programme		Oenology	
4.	Organizer of the study programme (faculty, institute, group)		"Goce Delcev" University - Stip, Faculty of Agriculture, Stip, Department for plant and environmental protection macy	
5.	Level (first, second, third cycle)		Second cycle	
6.	Academic year / semester		First year / I semester	7. Number of ECTS credits
				8
8.	Professor		Prof. Ilija Karov , PhD	
9.	Preconditions for course enrollment		No	
10.	Goals of the course programme: Introduction to the basic rules and principles in science, the scientific research methods and characteristics that should possess the scientific worker.			
11.	Content of the course programme: Content of lectures: 1. Importance of scientific research 2. Selection of topic for scientific work, 3. Methodology of research 4. Literature and working hypothesis 5. Planning of experiment 6. Conducting the experiment 7. Methodology and experimental technique of field experiment 8. An overview of important procedures in the experimental technique 9. Methodology and technique of conducting experiments in containers 10. Processing and displaying the results 11. Technique of writing master's, specialist and scientific papers and citing the literature 12. Preparation of a scientific paper for printing. Content of exercises: 1. Introduction 2. Setting the hypothesis 3. Studying the literature 4. Performing of experiment 5. Field trials 6. Laboratory experiments 7. Experiment in containers 8. Processing of the experimental results 9. Displaying obtained results 10. Literature citation, 11. Writing a scientific paper 12. Presenting a scientific paper.			
12.	Methods of study: lectures, theoretical and practical exercises, consultations, independent paper work, home learning, preparatory classes for exams and mid-term tests, consultations.			
13.	Total amount of available time		216 hours	
14.	Distribution of the available time		3+2+2	
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	3
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2
16.	Other forms of activities	16.1.	Team projects	1
		16.2.	Individual projects	1
		16.3.	Individual study	
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		30
	17.2.	Project activities (oral and written presentation)		50
	17.3.	Other forms of studying activities		20

18.	Criteria for assessment (points / grade)	to 50 points	5 (five)	(F)	
		from 51 to 60 points	6 (six)	(E)	
		from 61 to 70 points	7 (seven)	(D)	
		from 71 to 80 points	8 (eight)	(C)	
		from 81 to 90 points	9 (nine)	(B)	
		from 91 to 100 points	10 (ten)	(A)	
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions			
20.	Language in which classes are conducted	Macedonian			
21.	Method of monitoring the quality of instruction	Self-evaluation			
22.	Literature				
22.1.	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Проф. д-р. Илија Каров, Асс. Билјана Ковачевиќ	Методи на научно истражувачката работа (скрипта)	УГД-Штип	2010
	2.	Ketryn L. Allen	Study skills. A student survival guide. (translation of the Macedonian language)	Goce Delcev University, Stip	2010
22.2.	Additional literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Dr. Slavko Borojevic	Metodologija eksperimentalnog naucnog rada	Radnicki Univerzitet "Radivoj Cirpanov"	1974

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	GENERAL OENOLOGY			
2.	Course code	2ZF220112			
3.	Study programme	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delčev" – Štip, Faculty of Agriculture, Department of food technology and processing of animal products			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	First year/ first semester	7.	Number of ECTS credits	8
8.	Professor	Assistant Professor Violeta Ivanova-Petropulos, PhD			
9.	Preconditions for course enrollment	/			

10.	Goals of the course programme: Acquiring knowledge of oenology, including harvest conditions and grape quality, chemical composition of grapes and wine, technological processes for production of wine, legislation and geographical origin of wines.			
11.	Content of the course programme: A) Content of lectures: 1. Introduction to oenology; 2. Harvest; 3. Basic chemical composition of grape and wine; 4. Specific substances in grape and wine; 5. Fermentation; 6. Postfermentation treatments; 7. Wine aging; 8. Specific wine styles; 9. Bottling; 10. Geographical origin of wines; 11. Wine legislation; 12. Wine and health. B) Content of exercises: Mechanical and chemical composition of grapes; 2. Grape harvest; 3. Processing of grapes; 4. Maceration; 5. Fermentation; 6. Wine treatments; 7. Drawing off; 8. Clarification; 9. Bottling; 10. Wine aging; 11. Tasting of white wines; 12. Tasting red wines.			
12.	Methods of study: Lectures and laboratory exercises, consultations, individual and team projects; e-learning.			
13.	Total amount of available time	216		
14.	Distribution of the available time	3+2+2		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2
16.	Other forms of activities	16.1.	Team projects	1
		16.2.	Individual projects	1
		16.3.	Individual study	1
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		70
	17.2	Project activities (oral and written presentation)		10
	17.3.	Other forms of studying activities		20
18.	Criteria for assessment (points / grade)	to 50 points		5 (five) (F)
		from 51 to 60 points		6 (six) (E)
		from 61 to 70 points		7 (seven) (D)
		from 71 to 80 points		8 (eight) (C)
		from 81 to 90 points		9 (nine) (B)
		from 91 to 100 points		10 (ten) (A)
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions		

20.	Language in which classes are conducted	Macedonian
21.	Method of monitoring the quality of instruction	Self-evaluation

22.	Literature				
	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
22.1.	1.	Jackson R	Wine Science, Principles & Applications, 3th Ed.	Elsevier	2008
	2.	Margalit J.	Concepts in wine technology	USA	2004
	Additional literature				
	Ordinal No.	Author	Title	Publisher	Year
22.2.	1.	Violeta Ivanova-Petropulos	Authorized lectures of General Oenology, for the students at Faculty of Agriculture	UGD - Štip	2012

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	BIOSTATISTICS			
2.	Course code	2ZF200312			
3.	Study programme:	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	Department for plant and environmental protection Faculty of Agriculture University "Goce Delcev"- Štip.			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second year/ first semester	7.	Number of ECTS credits	6
8.	Instructor	Prof. Tatjana Atanasova Pacemska, PhD			
9.	Preconditions for course enrollment				
10.	Goals of the course programme: Getting more detailed knowledge about the use of statistical methods in agricultural practice				
11.	Content of the course programme: Content of lectures: 1. Introduction to statistics (mathematics and statistics science) 2. Basic statistical techniques 3. Types of statistical methods 4. Data processing 5. Statistics, variability and distribution 6. Discrete equal distribution. 7. Elements of statistical conclusion. 8. T test and F test 9. Analysis of variance (ANOVA) 10. Factorial experiment, two				

	factorial experiment 11. Linear regression and correlation 12. Experimental Design - practical application of methods in agricultural research. Content of exercises: 1. Mathematics and statistics science 2. The use of basic statistical techniques 3. Types of statistical methods 4. Practical ways of data processing 5. Statistics, variability and distribution 6. Discrete equal distribution. 7. Elements of statistical conclusion. 8. T test and F test 9. Analysis of variance (ANOVA) 10. Factorial experiment, two factorial experiment 11. Linear regression and correlation 12. Experimental Design - practical application of methods in agricultural research.				
12.	Methods of study: Lectures, theoretical and practice exercises, consultations; individual work; home learning; preparatory classes for exams and mid-term tests: consultation;				
13.	Total amount of available time		156 hours		
14.	Distribution of the available time		2+2+1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2	
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2	
16.	Other forms of activities	16.1.	Team projects	1	
		16.2.	Individual projects	-	
		16.3.	Individual study	-	
17.	Forms of assessment				
	17.1.	Exams (midterm exams, exam, electronic testing)			30
	17.2.	Project activities (oral and written presentation)			50
	17.3.	Other forms of studying activities			20
18.	Criteria for assessment (points / grade)		to 50 points		5 (five) (F)
			from 51 to 60 points		6 (six) (E)
			from 61 to 70 points		7 (seven) (D)
			from 71 to 80 points		8 (eight) (C)
			from 81 to 90 points		9 (nine) (B)
			from 91 to 100 points		10 (ten) (A)
19.	Condition for getting a signature and taking the final exam		60% of term activities		
20.	Language in which classes are conducted		Macedonian		
21.	Method of monitoring the quality of instruction		Self-evaluation		
22.	Literature				
	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
22.1.	1.	Graham Currell, Antony Dowman	Essential mathematics and statistics for science		2009
	2.	Nelmut van Emden	Statistics for terrified biologists		2008

		3.	Calvin Dytham	Choosing and Using Statistics		2003
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Appendix No.3		Subject programme from second cycle studies				
1.	Course title	Wine grape varieties				
2.	Course code	2ZF215312				
3.	Study programme:	Oenology				
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev"- Stip. Faculty of agriculture / Department of viticulture and fruit growing				
5.	Degree (first cycle)	Second cycle				
6.	Academic year / semester	firs year/second semester	7.	Number of ECTS credits	8	
8.	Professor	Prof. Violeta Dimovska, Ph.D				
9.	Preconditions for course enrollment	No				
10.	Goals of the course programme: Acquiring knowledge agro-biological and technological characteristics of grape varieties for wine production.					
11.	Content of the course programme: 1. Introduction. Origin and meaning of varieties for wine production. 2.Reonization and classification of varieties for wine production. 3.Varieties for the production of red wines. 4. Varieties for the production of red wines. 5.Varieties production of red wines. 6.Varieties producing withe wines 7. Varieties producing withe wines 8.Varieties producing withe wines. 9.Varieties producing mucsat wine. 10.Indigenous varieties. Regional varieties. 11. International varieties. 12.Clones B) Exercises: 1.Elements (botanical description of varieties). 2.Elements of agro-biological properties of varieties. 3. Elements of the technological characteristics of the varieties. 4. Mechanical composition of the cluster and berries. 5.Determining the structure of the cluster and berry. 6.Ripening of grapes 7.Degree of ripeness of the grape varieties 8.Kategorization.					
12.	Methods of study: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations					
13.	Total amount of available time	216				
14.	Distribution of the available time	3 +2 +2				
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	3		
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2		
16.	Other forms of activities	16.1.	Team projects			
		16.2.	Individual projects	1		

		16.3.	Individual study		/
17.	Forms of assessment				
17.1.	Exams (midterm exams, exam, electronic testing)				30
17.2.	Project activities (oral and written presentation)				50
17.3.	Other forms of studying activities				20
18.	Criteria for assessment (points / grade)		to 50 points	5(five) (F)	
			from 51 to 60 points	6(six) (E)	
			from 61 to 70 points	7(seven) (D)	
			from 71 to 80 points	8(eight) (C)	
			from 81 to 90 points	9(nine) (B)	
		from 91 to 100 points	10(ten) (A)		
19.	Condition for getting a signature and taking the final exam		/ 60% of term activities or minimum 42 points from 2 midterm exams, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted		Macedonian		
21.	Method of monitoring the quality of instruction		Self-evaluation		
22.	Literature				
	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
22.1.	1.	Zvonimir Bozinovic	Ampelography	Agrinet DOO Skopje	2010
	2.	Cindric P., Korac Nada, Kovac V.	Grape varieties	Prometej-Novi Sad	2000
	3.	Kerridge, George, Antcliff, Allan	Wine grape varieties	CSIRO	1999
	Additional literature				
	Ordinal No.	Author	Title	Publisher	Year
22.2.	1.	INRA	Catalogue of selected wine grape varieties and clones in France	ENTAV-INRA	2007
	2.	Avramov, L. Zunic D.	Ampelography	Faculty of agriculture, Belgrade	2001

Appendix No.3		Subject programme from second cycle studies	
1.	Course title	Technologies for wine	
2.	Course code	2ZF220212	

3.	Study programme:	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev"- Stip. Faculty of agriculture			
5.	Degree (first cycle)	Second cycle			
6.	Academic year / semester	second year/second semester	7.	Number of ECTS credits	8
8.	Professor	Professor George Micev, PhD			
9.	Preconditions for course enrollment	No			
10.	Goals of the course programme: Knowledge for the production of red wines, ranging from crushing the grapes, fermentation, pressing, machining wines clarification, filtration, stabilization, bottling and regulations that regulate the production of wine.				
11.	<p>A) Content of the course programme: 1.Introduction, as wine industry in our country and the world. 2. Monitoring the quality and determination of harvest time. 3. Crush the grapes, treatment of grape pulp, yeasts, selected using 4. Application of enzyme preparations 5. Maceration 6. Fermentation and types fermentation. 7 clarification. Use, fining and filtration 8. Pressing 9. Filtration 10. Stabilization 11. Production of sparkling, dessert wines and liqueurs 12. Maturing of wine terms, putting the bottle</p> <p>B) Exercises: Transport the grapes to the winery; 2.Mashini for crushing the grapes, transport to the grape mash fermentation containers and treatments.2. Preparation, selected yeasts and use them. 3. Use of enzymes for the extraction of color. 4. Alcoholic fermentation. 5. Maceration. 6. Extrusion presses. 7. Clarification. 8. Filtering and filters. 9. Stabilization of wine. 10. Wine aging, ripening conditions and vessels.11. Packaging, labeling and bottling of wine. 12. Organoleptic evaluating wine.</p>				
12.	Methods of study: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations				
13.	Total amount of available time	216			
14.	Distribution of the available time	3 +2 +2			
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	3	
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2	
16.	Other forms of activities	16.1.	Team projects	/	
		16.2.	Individual projects	1	
		16.3.	Individual study	1	
17.	Forms of assessment				
	17.1.	Exams (midterm exams, exam, electronic testing)			30
	17.2.	Project activities (oral and written presentation)			50
	17.3.	Other forms of studying activities			20
18.	Criteria for assessment (points / grade)	to 50 points		5(five) (F)	
		from 51 to 60 points		6(six) (E)	

		from 61 to 70 points	7(seven) (D)			
		from 71 to 80 points	8(eight) (C)			
		from 81 to 90 points	9(nine) (B)			
		from 91 to 100 points	10(ten) (A)			
19.	Condition for getting a signature and taking the final exam	/ 60% of term activities or minimum 42 points from 2 midterm exams, project activities and attending to lectures and discussions				
20.	Language in which classes are conducted	Macedonian				
21.	Method of monitoring the quality of instruction	Self-evaluation				
22.	Literature					
	Compulsory literature					
	Ordinal No.	Author	Title	Publisher	Year	
	22.1.	1.	Karin Kovacevic	Technologies for wine	Zagreb	2006
	22.2.	Additional literature				

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	METHODS FOR QUALITY CONTROL OF WINE			
2.	Course code	2ZF220312			
3.	Study programme	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delčev" – Štip, Faculty of Agriculture, Department of food technology and processing of animal products			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	First year/ second semester	7.	Number of ECTS credits	6
8.	Professor	Assistant Professor Violeta Ivanova-Petropulos, PhD			
9.	Preconditions for course enrollment	/			
10.	Goals of the course programme: Acquiring knowledge about the methods used for quality control of wine, as well as knowledge of the parameters that determine quality.				
11.	Content of the course programme: A) Content of lectures: 1. Introduction to quality control of wine; 2. Analytical methods for quality control of wine; 3. Safety in the laboratory; 4. Alcohol and extract, methods for determination; 5. Total acid and pH, methods for their determination; 6. Volatile acids and methods for determination; 7. Sulfur dioxide and determination; 8. Carbohydrates and methods for determination; 9. CO ₂ , bitartarate and protein stability, methods for determination; 10. Other important parameters for wine quality control and methods for determination; 11. Total polyphenols and color methods for determination; 12. Reagents and standardization.				

	B) Content of exercises: 1. Introduction to the parameters responsible for the wine quality; 2. Introduction to methods for quality control of wine; 3. Safety in laboratory; 4. Determination of alcohol and extract; 5. Determination of total acid and pH; 6. Determination of volatile acids; 7. Determination of free and total SO ₂ ; 8. Determination of reducing sugars; 9. Determination of CO ₂ and protein stability; 10. Bentonite and gelatin; 11. Determination of color; 12. Standardization of solutions.			
12.	Methods of study: Lectures and laboratory exercises, consultations, individual and team projects; e-learning.			
13.	Total amount of available time	156		
14.	Distribution of the available time	2+2+1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	1
16.	Other forms of activities	16.1.	Team projects	1
		16.2.	Individual projects	1
		16.3.	Individual study	-
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)	70	
	17.2	Project activities (oral and written presentation)	10	
	17.3.	Other forms of studying activities	20	
18.	Criteria for assessment (points / grade)	to 50 points	5 (five) (F)	
		from 51 to 60 points	6 (six) (E)	
		from 61 to 70 points	7 (seven) (D)	
		from 71 to 80 points	8 (eight) (C)	
		from 81 to 90 points	9 (nine) (B)	
		from 91 to 100 points	10 (ten) (A)	
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of instruction	Self-evaluation		
22.	Literature			

Compulsory literature					
	Ordinal No.	Author	Title	Publisher	Year
22.1.	1.	Jacobson J.L.	Introduction to Wine Laboratory Practices and Procedures	Springer	2008
	2.	Zoecklein B., Fugelsand K.C., Gump B.H., Nury F.S.	Wine analysis and production	Chapman & Hall, New York	1995
22.2.	Additional literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Violeta Ivanova-Petropulos	Authorized lectures of Methods for quality control of wine, for the students at Faculty of Agriculture	UGD - Štip	2012

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	SENSORY EVALUATION OF WINE			
2.	Course code	2ZF220412			
3.	Study programme	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delčev" – Štip, Faculty of Agriculture, Department of food technology and processing of animal products			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second year/ third semester	7.	Number of ECTS credits	8
8.	Professor	Assistant Professor Violeta Ivanova-Petropulos, PhD			
9.	Preconditions for course enrollment	/			
10.	Goals of the course programme: Acquiring knowledge in the field of sensory evaluation of wines, determination of the wine quality by assessing the appearance, smell and taste, recognition of unpleasant odors and faults of wine, wine and food.				
11.	Content of the course programme: A) Content of lectures: 1. Introduction to sensory evaluation of wine; 2. Wine quality parameters; 3. Testing rooms; 4. Testing groups; 5. Evaluation of appearance; 6. Evaluation of odor; 7. Evaluation of taste; 8. Methods and tests for sensory				

	analysis; 9. Processing of analysis data; 10. Faults of wine, 11. Styles and types of wines, 12. Wine and food. B) Content of exercises: 1. Introduction; 2. Chemical composition of wine and influence of sensory properties; 3. Visit of tasting room; 4. Introduction with basic rules of wine tasting; 5. Evaluation of appearance; 6. Assessment and recognition of odor; 7. Assessment and recognition of taste; 8. Comparing pairs; 9. Duo-trio test; 10. Test to triangle; 11. Identification of faults in wine; 12. Combining wine with food.			
12.	Methods of study: Lectures and laboratory exercises, consultations, individual and team projects; e-learning.			
13.	Total amount of available time	216		
14.	Distribution of the available time	3+2+2		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	3
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2
16.	Other forms of activities	16.1.	Team projects	1
		16.2.	Individual projects	1
		16.3.	Individual study	-
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)	70	
	17.2	Project activities (oral and written presentation)	10	
	17.3.	Other forms of studying activities	20	
18.	Criteria for assessment (points / grade)	to 50 points		5 (five) (F)
		from 51 to 60 points		6 (six) (E)
		from 61 to 70 points		7 (seven) (D)
		from 71 to 80 points		8 (eight) (C)
		from 81 to 90 points		9 (nine) (B)
		from 91 to 100 points		10 (ten) (A)
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of instruction	Self-evaluation		

22.	Literature				
22.1.	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Flamini R	Hyphenated Techniques in Grape and Wine Chemistry	John Wiley & Sons	2008
	2.	Flamini R, Traldi T.	Mass Spectrometry in Grape and Wine Chemistry	John Wiley & Sons	2010
22.2.	Additional literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Violeta Ivanova-Petropulos	Authorized lectures of Sensory evaluation of wine, for the students at Faculty of Agriculture	UGD - Štip	2012

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	Yeasts and alcohol fermentation			
2.	Course code	2ZF220512			
3.	Study programme	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delčev" – Štip, Faculty of Agriculture, Department of food technology and processing of animal products			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second year/ third semester	7.	Number of ECTS credits	8
8.	Professor	Prof. Ilija Karov, PhD			
9.	Preconditions for course enrollment	/			
10.	Goals of the course programme: Introduction to microorganisms (yeasts,bacteria), their morphology, physiology, biochemistry and systematics and their importance in the production of wine.				
11.	Content of the course programme: C) Content of lectures: 1. Basic microbiological processes fermentation production yeastes and construction yeastes cell.2.Characteristics and significance of wine yeasts of Saccharomyces cerevisiae – (ellipsoideus, oviformis, cerevisiae);3. Characteristics and significance of wine yeasts of Zygosaccharomyces (bailii, rouxii) and rase Schizosaccharomyces (pombe, acidodevorax, malidevorans);4.Characteristics and significance of wine yeasts of rase Hanseniaspora, Kloeckera и Saccharomycodes; 5.Characteristics and significance of wine yeasts of Brettanomyces, Torulaspora и Rhodotorula; 6. .Characteristics and significance of wine yeasts of under Pichia, Candida and				

	<p>Hansenula.7.Milk acid bacteria.Classification and characteristic primary types.8.Vinegar acids bacteria – characteristics the genus Acetobacter and Gluconobacter.Metabolism and growth factors. 9.Impact of physical factors the action of yeasts – temperature and moisture content.10.Influence of chemical factors – oxygen,concentration of sugars,impact of vitamins and unsaturated fatty acids;11.Impact of biological factors – between yeasts, yeasts and vinegar acids bacteria and between yeasts and milk acid bacteria;12.Environment of the yeasts.</p> <p>D) Content of exercises: Preparation the nutritional of yeasts;2.Preparation the nutritional of wine bacteria;3.Methods for isolation of pure cultures yeasts;4.Selection of yeasts for red wines – stages and criterion.5. .Selection of yeasts for the wines – stages and criterion.6.Methods for identification for pure yeast cultures;7.Pure culture yeast for the production of red wines;8. Pure culture yeast for the production of withe wines;9.Breeding of yeasts;10.Entry of yeasts in grape pulp;11.Methods for microbiological examination the wine;12.Methods for microbiological examination the cork;</p>			
12.	Methods of study: Lectures and laboratory exercises, consultations, individual and team projects; e-learning.			
13.	Total amount of available time	216		
14.	Distribution of the available time	3+2+2		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	3
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2
16.	Other forms of activities	16.1.	Team projects	1
		16.2.	Individual projects	1
		16.3.	Individual study	-
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		70
	17.2	Project activities (oral and written presentation)		10
	17.3.	Other forms of studying activities		20
18.	Criteria for assessment (points / grade)	to 50 points	5 (five)	(F)
		from 51 to 60 points	6 (six)	(E)
		from 61 to 70 points	7 (seven)	(D)
		from 71 to 80 points	8 (eight)	(C)
		from 81 to 90 points	9 (nine)	(B)
		from 91 to 100 points	10 (ten)	(A)
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions		

20.	Language in which classes are conducted	Macedonian
21.	Method of monitoring the quality of instruction	Self-evaluation

22.	Literature				
	Compulsory literature				
22.1.	Ordinal No.	Author	Title	Publisher	Year
	1.	Ilija Karov	Yeasts and alcohol fermentation	UGD-Stip	2012
	2.	Fidanka Ilieva			
	Additional literature				
22.2.	Ordinal No.	Author	Title	Publisher	Year
	1.	Bambalov G.,	Microbiology of wine production	Hr.Danov Plovdiv	1981
	Ordinal No.	Author	Title	Publisher	Year
	1.	Fungelsang K., Ch. Edwards	Wine microbiology	Champan and Hall, New York	1997

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	INSTRUMENTAL ANALYSIS OF WINE AND GRAPE			
2.	Course code	2ZF220612			
3.	Study programme	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delčev" – Štip, Faculty of Agriculture, Department of food technology and processing of animal products			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second year/ third semester	7.	Number of ECTS credits	6
8.	Professor	Assistant Professor Violeta Ivanova-Petropulos, PhD			
9.	Preconditions for course enrollment	/			
10.	Goals of the course programme: Acquiring knowledge in the field of instrumental methods of analysis of wine and grapes and their application for analysis of various components.				
11.	Content of the course programme:				

	<p>A) Content of lectures: Introduction to instrumental methods for analysis of grapes and wine; 2. Liquid and gas chromatography; 3. MALDI-TOF and electrophoresis; 4. Atomic absorption spectrometry and spectrophotometry; 5. Analysis of polyphenols with liquid chromatography and liquid chromatography-mass spectrometry; 6. Analysis of tannins and elagotannins using different techniques; 7. Gas chromatography and aromas in wine and grapes; 8. Analysis of the components responsible for the defects of wine; 9. Analysis of contaminants in grapes and wine: ochratoxin A and biogenic amines; 10. Analysis of pesticide residues in grape and wine; 11. Analysis of proteins and peptides in grape and wine 12. Analysis of the elements in grapes and wine.</p> <p>B) Content of exercises: Basic instrumental methods; 2. Introduction to the fundamentals of liquid chromatography; 3. Introduction to the fundamentals of gas chromatography; 4. Introduction to the fundamentals of atomic absorption spectrometry and spectrophotometry; 5. Spectrophotometric determination of anthocyanins, color and hue of wine; 6. Spectrophotometric determination of total polyphenols 7. Analysis of anthocyanins by HPLC; 8th Analysis of aroma with GC-MS; 9. Analysis of ochratoxin A; 10. Analysis of pesticide residues; 11. Protein stability 12. Analysis of heavy metals.</p>			
12.	Methods of study: Lectures and laboratory exercises, consultations, individual and team projects; e-learning.			
13.	Total amount of available time		156	
14.	Distribution of the available time		2+2+1	
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	1
16.	Other forms of activities	16.1.	Team projects	1
		16.2.	Individual projects	1
		16.3.	Individual study	-
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		70
	17.2	Project activities (oral and written presentation)		10
	17.3.	Other forms of studying activities		20
18.	Criteria for assessment (points / grade)	to 50 points		5 (five) (F)
		from 51 to 60 points		6 (six) (E)
		from 61 to 70 points		7 (seven) (D)
		from 71 to 80 points		8 (eight) (C)
		from 81 to 90 points		9 (nine) (B)

		from 91 to 100 points	10 (ten)	(A)
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of instruction	Self-evaluation		

22.	Literature				
	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
22.1.	1.	Flamini R	Hyphenated Techniques in Grape and Wine Chemistry	John Wiley & Sons	2008
	2.	Flamini R, Traldi T.	Mass Spectrometry in Grape and Wine Chemistry	John Wiley & Sons	2010
	Additional literature				
	Ordinal No.	Author	Title	Publisher	Year
22.2.	1.	Violeta Ivanova-Petropulos	Authorized lectures of Instrumental analysis of wine and grape, in ppt format, for the students at Faculty of Agriculture	UGD - Štip	2012

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	GRAPE PREPARATIONS AND PRODUCTS			
2.	Course code	ZZF220712			
3.	Study programme	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delčev" – Štip, Faculty of Agriculture, Department of viticulture and fruitgrowing			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	First year/first semester	7.	Number of ECTS credits	4
8.	Professor	Associate Professor Violeta Dimovska, PhD Assistant Professor Violeta Ivanova-Petropulos, PhD			

9.	Preconditions for course enrollment	/		
10.	Goals of the course programme: Acquiring knowledge about the use of grape as raw material in the manufacturing industry, types of processing and production technologies.			
11.	<p>Content of the course programme:</p> <p>Content of lectures: 1. Introduction. Production of grapes in the world and in our country. Economic and technological value; 2. Types of processed 3. Juices and concentrated juices 4. Compotes, candies, jams and marmalades; 5. Wine (red, white, table, quality, premium) 6. Special wines: Sparkling wine, Jerez/Xérès/Sherry wines, Liqueur wines or Fortified wines, Dessert wines, Aromatized wines or Vermouth; 7. Distillates: types of brandies; 8. Seeds oil and phenolic substances (tannins and anthocyanins); 9. Vinegar; 10. Wine sediment, tartaric acid; 11. Seeds phenolic extract; 12. Preparations used in cosmetics and confectionary industry.</p> <p>Content of exercises: 1. Determining the quality of raw materials; 2. Mechanical and chemical analysis of grapes; 3. Visit of a factory for production of beverages, soft drinks and other grape products. Introducing of technological processes; 4. Visit of a factory for production of alcohol and distillates; 5. Visit of a winery and introducing of wine technologies; 6. Visit of pharmaceutical company that manufactures grapes used in cosmetics; 7. Visit of factory for confectionery products; 8. Making a survey about the use of processed grapes within a category of users.</p>			
12.	Methods of study: Lectures and laboratory exercises, consultations, individual and team projects; e-learning.			
13.	Total amount of available time	120		
14.	Distribution of the available time	2+1+1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	1
16.	Other forms of activities	16.1.	Team projects	-
		16.2.	Individual projects	0.5
		16.3.	Individual study	0.5
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		70
	17.2	Project activities (oral and written presentation)		10
	17.3.	Other forms of studying activities		20
18.		to 50 points	5 (five)	(F)

	Criteria for assessment (points / grade)	from 51 to 60 points	6 (six)	(E)
		from 61 to 70 points	7 (seven)	(D)
		from 71 to 80 points	8 (eight)	(C)
		from 81 to 90 points	9 (nine)	(B)
		from 91 to 100 points	10 (ten)	(A)
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of instruction	Self-evaluation		

22.	Literature				
22.1.	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Nikićević N., Tešević V	Spirits	Beograd	2008
	2.	Jovic S, Milisavljevic M	Grape and wine	Beograd	2004
22.2.	Additional literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Göktürk Baydar N, Akkurt M	Oil content and oil quality properties of some grape seeds	<i>Turkish Journal of Agriculture and Forestry</i> 25	2001
	2.	Cajkovic M	Cosmetology	Naklada Spal, Zagreb	2000

Appendix No.3		Subject programme from second cycle studies
1.	Course title	Equipment in the winery
2.	Course code	2ZF205612
3.	Study programme:	Oenology
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev"- Stip. Faculty of agriculture / Department of viticulture and fruit growing
5.	Degree (first cycle)	Second cycle

6.	Academic year / semester	first year/second semester	7.	Number of ECTS credits	4
8.	Professor	Prof. Risto G.Kukutanov, Ph.D			
9.	Preconditions for course enrollment	No			
10.	Goals of the course programme: Gaining knowledge and skills about handling and maintenance the equipment used in technological processes in different production technologies.Students will be able to apply acquired knowledge in practice Ordinal in put new modern technical – technological solutions.				
11.	Content of the course programme: 1.Introduction to the basic features of the machines and equipment used in manufacturing process: 1.Equipment in receipt throat.Control probe measurement content of sugar.2.Types the grinding the grape.Transportes of grapes.Sulfur dozers.3.Pumps fluid.Pumps for cluj;4.Types of strains of withe grapes;5.Types presses withe and black grapes.Transporters for marc.6.Systems vinification the black grapes.7.Systems controlled fermentation.8.Cooling systems.9.Filters for wine.Filters for sediment.10.Systems stabilization of wine.11.Lines charging of wine. Lines charging spirits.12.Lines for packaging.Machinery palletisers and machinery and equipment for internal and external transport.Exploitation characteristics of machines.				
12.	Methods of study: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations				
13.	Total amount of available time	120			
14.	Distribution of the available time	2 +1 +1			
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2	
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	/	
16.	Other forms of activities	16.1.	Team projects		
		16.2.	Individual projects	1	
		16.3.	Individual study	/	
17.	Forms of assessment				
	17.1	Exams (midterm exams, exam, electronic testing)			30
	17.2	Project activities (oral and written presentation)			50
	17.3	Other forms of studying activities			20
18.	Criteria for assessment (points / grade)		to 50 points	5(five) (F)	
			from 51 to 60 points	6(six) (E)	
			from 61 to 70 points	7(seven) (D)	
			from 71 to 80 points	8(eight) (C)	
			from 81 to 90 points	9(nine) (B)	

		from 91 to 100 points	10(ten) (A)		
19.	Condition for getting a signature and taking the final exam	/ 60% of term activities or minimum 42 points from 2 midterm exams, project activities and attending to lectures and discussions			
20.	Language in which classes are conducted	Macedonian			
21.	Method of monitoring the quality of instruction	Self-evaluation			
22.	Literature				
	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
22.1.	1.	Prof. Ph.D Risto G.Kukutanov	Mechanization in agricultural production Aveilable in electronic form	UGD	
	2.	Prof. Ph.D Risto G.Kukutanov	Pacticum in mechanization in agricultural production Aveilable in electronic form	UGD	
	3.	Prof. Ph.D Risto G.Kukutanov	Internal script Process technique	UGD	
	Additional literature				
22.2.	Ordinal No.	Author	Title	Publisher	Year
	1.				
	2.				

Appendix No.3		Subject programme from second cycle studies			
1.	Course title	Designing the vineyards			
2.	Course code	2ZF215412			
3.	Study programme:	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev" - Stip. Faculty of agriculture / Department of viticulture and fruit growing			
5.	Degree (first cycle)	Second cycle			
6.	Academic year / semester	First year/second semester	7.	Number of ECTS credits	4
8.	Professor	Prof. Violeta Dimovska, Ph.D			
9.	Preconditions for course enrollment	No			
10.	Goals of the course programme: Student to enable the collection and preparation of materials (pedological maps, climate data, data analysis of soil) necessary for				

	construction of the project. Students equip themselves to be able to prepare an elaborate project for raising grape plants.			
11.	<p>Content of the course programme: Climate and soil conditions. Structure-investment Vineyard. Location of new plantings. Choosing the sorting. Dimanic the boot. 2.Tehnological processes for raising plantation. Preparation the surface before planting. Measures to improve soil fertility. Ways of rigolovanje soil. 3.Technical-tecnological solutions. Determining the distance of planting, direction and length of the lines. 4.Systems and support structures. 5.Selection of plant material. Preparation of seedlings. Time and ways of planting. 6.Sitting of the supporting structures. 7.Growing the young plantation in the first three years. 8.Technological processes in plantation in full yield. 9. Cutting, maintenance of soil, green cutting, nutrition, protection from disease and low temperatures, the grape harvest. 10.The total cost for regular production. Expected yields. 11. Means for raising plantation in the first three years.12. Total costs of raising grape plants including advisory services.</p> <p>B) Exercises: Making project based on the given element. Practical field performance based on finished project.</p>			
12.	Methods of study: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations			
13.	Total amount of available time	120		
14.	Distribution of the available time	2 +1 +1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	/
16.	Other forms of activities	16.1.	Team projects	
		16.2.	Individual projects	1
		16.3.	Individual study	/
17.	Forms of assessment			
	17.1	Exams (midterm exams, exam, electronic testing)		30
	17.2	Project activities (oral and written presentation)		50
	17.3	Other forms of studying activities		20
18.	Criteria for assessment (points / grade)	to 50 points		5(five) (F)
		from 51 to 60 points		6(six) (E)
		from 61 to 70 points		7(seven) (D)
		from 71 to 80 points		8(eight) (C)
		from 81 to 90 points		9(nine) (B)
		from 91 to 100 points		10(ten) (A)
19.	Condition for getting a signature and taking the final exam	/ 60% of term activities or minimum 42 points from 2 midterm exams, project activities and attending to lectures and discussions		

20.	Language in which classes are conducted	Macedonian			
21.	Method of monitoring the quality of instruction	Self-evaluation			
22.	Literature				
	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Vulic T., Sivcev B., Aleksic V., Rumi M., Urosevic M.	Elevation of the new plantations	University of Belgrade, Faculty of agriculture	2004
	2.	Kuljancic, M	Viticulture	Prometej, Novi Sad	2007
	3.	Milanov M. Martinovska Stojcevska A.	Expenses and calculations in agriculture	Faculty of agriculture	2002
	Additional literature				
22.2	Ordinal No.	Author	Title	Publisher	Year
	1.	Avramov L.	Viticulture	Belgrade	1991
	2.	Milosavljevic M	Biotechnical of vine	Research institute in agriculture	1998

Appendix No.3		Subject programme from second cycle studies			
1.	Course title	Marketing and promotion of grapes and wine			
2.	Course code	2ZF205512			
3.	Study programme	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev"- Stip, Faculty of Agricultural - Department for viticulture and fruit growing			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second year/ second semester	7.	Number of ECTS credits	4
8.	Professor	Ass. prof. Elenica Sofijanova, PhD			
9.	Preconditions for course enrollment	No			
10.	Goals of the course programme: Introducing the students with marketing access and marketing concept of wine and grapes production for all marketing activities and assortments.				
11.	Content of the course programme: A) <i>Content of lectures:</i> 1. Introduction, concept, definition and meaning of marketing; 2. Marketing - activities and marketing – concepts; 3. Product selection programme and agricultural assortment of grapes and wine; 4. Headlines way of selling grapes and wine; 5. Highlights priced grapes and wine; 6. Analysis of demand and supply of grapes and wine; 7. Mechanism and market organization of grapes and wine; 8. Market institutions in				

	the supply of grapes and wine; 9. Market indicators and conditions of supply of grapes and wine; 10. World market for grapes and wine; 11. The Republic of Macedonia in the foreign - trade with grapes and wine; 12. Market research on grapes and wine; B) <i>Content of exercises</i> : 1. Basic principles, concepts and notions of marketing; 2. Use of marketing activities and concepts to promote a new product market (wine); 3. Tracking global turned selection of the best and sought after product; 4. Methods for determination the way of selling grapes and wine; 5. Development of methods for determining prices of grapes and wine; 6. Examples analysis of demand and supply of grapes and wine; 7. Functioning of mechanism and organization of the market of grapes and wine 8. Examining the market institutions in the supply of grapes and wine; 9. Development of indicators and market conditions the supply of grapes and wine; 10. Graphic displays of world producers grapes and wine; 11. Graphic display of the largest trade partners of Macedonia grapes and wine; 12. Case study research in a global market for grapes and Wine.				
12.	Methods of study: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations.				
13.	Total amount of available time		120 hours		
14.	Distribution of the available time		2 +1 +1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2	
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	1	
16.	Other forms of activities	16.1.	Team projects	1	
		16.2.	Individual projects		
		16.3.	Individual study		
17.	Forms of assessment				
	17.1.	Exams (midterm exams, exam, electronic testing)			30
	17.2.	Project activities (oral and written presentation)			50
	17.3.	Other forms of studying activities			20
18.	Criteria for assessment (points / grade)		to 50 points	5(five) (F)	
			from 51 to 60 points	6(six) (E)	
			from 61 to 70 points	7(seven) (D)	
			from 71 to 80 points	8(eight) (C)	
			from 81 to 90 points	9(nine) (B)	
			from 91 to 100 points	10(ten) (A)	
19.	Condition for getting a signature and taking the final exam		60% of term activities, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted		Macedonian		
21.	Method of monitoring the quality of instruction		Self-evaluation, Periodic tests students; Survey		
22.	Literature				
	22.1.	Compulsory literature			
		Ordinal No.	Author	Title	Publisher

		1.	Bosko Jakovski	Marketing	Economic Faculty - Skopje	1997
		2.	Tomin A., Gjorovic M.	Tržište i promet poljoprivrednih i agroindustrijskih proizvoda	NIR „Zadruga“ Beograd.	2000
	22.2.	Additional literature				
		Ordinal No.	Author	Title	Publisher	Year
		1.	Filip Kotler and Geri Amstrong	Principles marketing	Academic press	2010

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	LEGISLATION IN VITICULTURE AND WINEMAKING			
2.	Course code	2ZF215612			
3.	Study programme	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delčev" – Štip, Faculty of Agriculture, Department of viticulture and fruitgrowing			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second year/second semester	7.	Number of ECTS credits	4
8.	Professor	Associate Professor Violeta Dimovska, PhD Assistant Professor Violeta Ivanova-Petropulos, PhD			
9.	Preconditions for course enrollment	/			
10.	Goals of the course programme: Acquiring knowledge about the use of grape as raw material in the manufacturing industry, types of processing and production technologies.				
11.	Content of the course programme: 1. Meaning of cadastre for vineyards; 2. List of varieties. Recommended, permitted and prohibited; 3. Legal norms-conditions for production and trade with seedlings; 4. Method of production and control of raw materials and grape seedlings; 5. Standards for grape quality seedlings; 6. Standards for quality of table grapes for fresh consumption; 7. Introduction to the wine law. National strategy for wine development; 8. Wine production; 9. Market and trade with wine; 10. Classification of wines. Wines with geographic origin; 11. Description, designation and protection of wine; 12. Quality control. Rules for quality of wine.				
12.	Methods of study: Lectures and laboratory exercises, consultations, individual and team projects; e-learning.				
13.	Total amount of available time	120			
14.	Distribution of the available time	2+1+1			
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2	

		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	1
16.	Other forms of activities	16.1.	Team projects	0.5
		16.2.	Individual projects	
		16.3.	Individual study	0.5
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		70
	17.2	Project activities (oral and written presentation)		10
	17.3.	Other forms of studying activities		20
18.	Criteria for assessment (points / grade)		to 50 points	5 (five) (F)
			from 51 to 60 points	6 (six) (E)
			from 61 to 70 points	7 (seven) (D)
			from 71 to 80 points	8 (eight) (C)
			from 81 to 90 points	9 (nine) (B)
			from 91 to 100 points	10 (ten) (A)
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of instruction	Self-evaluation		

22.	Literature					
	22.1.	Compulsory literature				
		Ordinal No.	Author	Title	Publisher	Year
		1.	Official Gazette of RM No. 39/06, 89/08, 171/10	Law on Seeds and Seedlings	MZSV	2006, 2008, 2010
2.		Official Gazette of RM No. 103/09 (EU Directive 2002/53/EC)	Regulations for registration of variety in the National Variety List and	MZSV	2009	

				keeping of National Variety List		
		3.	Official Gazette of RM No. 53	Wine low	MZSV	2011
		4.	Official Gazette of RM No. 116/11 (EU Directive 68/193/EEC)	Regulation for trade with material for vegetative propagation of vine	MZSV	2011
		5.	Official Gazette of RM No. 53/11	Wine low	MZSV	2010
22.2.	Additional literature					
	Ordinal No.	Author		Title	Publisher	Year
	1.	Official Gazette of RM No. 91/11 M		Regulation of the minimum standards for fruit and vegetables intended for processing and specific marketing standards for quality of fresh fruits and vegetables	MZSV	2011

Appendix No.3		Subject programme from second cycle studies			
1.	Course title	Design of winery			
2.	Course code	2ZF220812			
3.	Study programme:	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev"- Stip. Faculty of agriculture			
5.	Degree (first cycle)	Second cycle			
6.	Academic year / semester	firs year/second semester	7.	Number of ECTS credits	4
8.	Professor	Professor George Micev, PhD			
9.	Preconditions for course enrollment	No			
10.	Goals of the course programme: Acquiring knowledge of wine production, the influence of the type of winery based economy in the operation of the winery, through energy saving cooling performance of the alcoholic fermentation, losses in maturing the wine and the like.				
11.	A) Content of the course programme: 1. Introduction to design the winery, influence the economy cellar conditions needed to build winery. 2. Types of wine cellars (cellars for primary processing, commercial wineries, surface cellars, dug cellars) and their characteristics. 3. Design packaging and labels, impact on sales 4. Design tanks for fermentation, storage and aging of wine; impact of packaging on transport costs 5. The				

	<p>design of glasses for tasting (shape, size, thickness of glass) 6. Assortment of production 7. Production of wines with protected geographical got sweaty; 8. Production of special, dessert, flavored, sparkling wines, organic wine 9. Production of wine organic 10. Editing area winery; 11. Deployment of the equipment and organization of production in the winery. 12. Low regulations</p> <p>B) Exercises: 1. Building a winery, choice of location, type and size 2. Equipment in the wine cellar. 3. Selection of raw material for the realization of production. 4. Monitoring the quality of raw material during the ripening of the grapes and the determination of terms of harvest. 5. Selection of appropriate technology for processing, processing and finishing. 6. Oenological means and procedures for the processing of grape must and wine 7. Maturing of wine, choice of dishes and maturing technologies 8. Putting the wine in the bottle, choice of appropriate packaging and packing 9. Designing packaging (bottle) packaging and labels. 10. Designing a room for aging the wine in bottles. 11. Designing facilities for quality control. 12. Low regulations.</p>			
12.	<p>Methods of study: Lectures, Laboratory exercises, e-learning, individual and team projects, consultations</p>			
13.	Total amount of available time	120		
14.	Distribution of the available time	2 +1 +1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	1
16.	Other forms of activities	16.1.	Team projects	/
		16.2.	Individual projects	0.5
		16.3.	Individual study	0.5
17.	Forms of assessment			
	17.1	Exams (midterm exams, exam, electronic testing)	30	
	17.2	Project activities (oral and written presentation)	50	
	17.3	Other forms of studying activities	20	
18.	Criteria for assessment (points / grade)	to 50 points	5(five) (F)	
		from 51 to 60 points	6(six) (E)	
		from 61 to 70 points	7(seven) (D)	
		from 71 to 80 points	8(eight) (C)	
		from 81 to 90 points	9(nine) (B)	
		from 91 to 100 points	10(ten) (A)	
19.	Condition for getting a signature and taking the final exam	/ 60% of term activities or minimum 42 points from 2 midterm exams, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of instruction	Self-evaluation		
22.	Literature			

	22.1.	Compulsory literature				
		Ordinal No.	Author	Title	Publisher	Year
		1.	Karin Kovacevic	Technologies for wine	Zagreb	2006
	22.2.	Additional literature				
		Ordinal No.	Author	Title	Publisher	Year
		1.	Milenko Blesic	Technologies for wine	Saraevo	2006
		2.	Mihail Petkov	Oenology	Skopje	2010
			Borimir Vojnoski	authorized lectures Wine production PDF	UGD-Stip	2011

Appendix No.3		Subject programme from second cycle studies			
1.	Course title	Processing and storage of grapes			
2.	Course code	2ZF215712			
3.	Study programme:	Oenology			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev"- Stip. Faculty of agriculture			
5.	Degree (first cycle)	Second cycle			
6.	Academic year / semester	second year/second semester	7.	Number of ECTS credits	4
8.	Professor	Prof. Violeta Dimovska, Ph.D			
9.	Preconditions for course enrollment	No			
10.	Goals of the course programme: Acquiring knowledge about the technologies of production of grapes. Acquisition of the opportunities and taking care of the individual varieties of grapes				
11.	<p>A) Content of the course programme: .Introduction. 2. Conditions in production of grapes in the world and in our country. 3. Technologies in the production of grapes. 4. Chois of the size, variety and healthy planting material. 5. Usung of agro-technical measures. 6.Usung the ampelo-technical measures. 7. Determining the time and ways to harvest. 8. Packaging of grapes for processing and storage market. 9. Condition and ways to save on wine grapes. 10. Condition and ways to save on table grapes. 11. Ways to use the excess and the remainder from grapes.12.Organoleptic evaluation of grapes.</p> <p>B) Exercises: 1.Methods for determining the structure of the bunch and berry. 2. Methods for determining the mechanical properties of bunch and berry (transported). 3. Methods for determining the degree of maturity of the grapes. 4. Methods the organoleptic evaluation of grapes. 5. Techniques in green operations. 6. Techniques the preparation and packaging of table grapes (for storage, directly to the market).</p>				
12.	Methods of study:				

	Lectures, Laboratory exercises, e-learning, individual and team projects, consultations					
13.	Total amount of available time		120			
14.	Distribution of the available time		2 +1 +1			
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2		
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	/		
16.	Other forms of activities	16.1.	Team projects			
		16.2.	Individual projects	1		
		16.3.	Individual study	/		
17.	Forms of assessment					
	17.1	Exams (midterm exams, exam, electronic testing)			30	
	17.2	Project activities (oral and written presentation)			50	
	17.3	Other forms of studying activities			20	
18.	Criteria for assessment (points / grade)		to 50 points	5(five) (F)		
			from 51 to 60 points	6(six) (E)		
			from 61 to 70 points	7(seven) (D)		
			from 71 to 80 points	8(eight) (C)		
			from 81 to 90 points	9(nine) (B)		
			from 91 to 100 points	10(ten) (A)		
19.	Condition for getting a signature and taking the final exam		/ 60% of term activities or minimum 42 points from 2 midterm exams, project activities and attending to lectures and discussions			
20.	Language in which classes are conducted		Macedonian			
21.	Method of monitoring the quality of instruction		Self-evaluation			
22.	Literature					
	22.1.	Compulsory literature				
		Ordinal No.	Author	Title	Publisher	Year
		1.	Zvonimir Bozinovic	Ampelography (general part)	Agrinet DOO Skopje	2010
		2.	Aleksandar Nakalamic, Nebojsa Markovic	General Viticulture (general part)	Faculty of agriculture Belgrade	2009
	3.	Fabio Mencarelli, Andrea Bellincontro	Grape-postharvest operation	Department of Food Science and Technology,	2005	

					University of Viterbo, Italy	
	22.2.	Additional literature				
		Ordinal No.	Author	Title	Publisher	Year
		1.	Fazinic, N., Fazinic M.	Table grape varieties (general part)	Zadar	1990
		2.	Comision regulation (EC) N _o 912/2001, N _o 1221/2008	Ofical Jurnal of the European Communities. Laying down the marketing standard for table grape	EY	1999, 2001, 2008

Appendix No.3		Syllabus for the first, second and third cycle of study				
1.	Course title	Growing organic grapes				
2.	Course code	2ZF212712				
3.	Study programme	Oenology				
4.	Organizer of the study programme (faculty, institute, group)	Faculty of Agriculture, University "Goce Delcev"-Stip, Department for viticulture and fruit growing				
5.	Level (first, second, third cycle)	Second cycle				
6.	Academic year / semester	First year/ second semester	7.	Number of ECTS credits	4	
8.	Professor	Prof. Ljupco Mihajlov, PhD				
9.	Preconditions for course enrollment	No				
10.	Goals of the course programme: Students will be able to understand the techniques in production of grapes according to the standards of organic principles. Students will develop competences about specifics of conversion, certification and organic grapes growing according to the ruling Law and By-laws in the Republic of Macedonia.					
11.	Content of the course programme: Lectures: (1) Introduction of the principles of growing organic grapes; (2) Legal status of organic grapes production; (3) Influence of organic growing principles on environment; (4) Standards and law in organic grapes production; (5) Conversion procedures in organic grapes growing; (6) Multi functionality of organic grapes growing; (7) Growing techniques and plant protection in organic grapes production; (8) Vine nutrition according to organic growing principles; (9) Bio pesticides and bio fertilizers in organic grapes growing; (10) Integral methods for protection in organic grapes production; (11) Certification in organic grapes growing; (12) Methods for development of organic grapes growing. Practices: (1) Specifics of growing techniques in organic farming; (2) Pre-conditions for establishing organic grapes production; (3) Specifics in terrain preparation for organic grapes production; (4) Guidelines of organic grapes production; (5) Planting material and cultivars; (6) Conversion from conventional into organic grapes growing; (7) Training systems; (8) Specifics in growing table grapes cultivars; (9) Specifics in growing wine					

	grapes cultivars; (11) Specifics of plant protection in organic grapes growing; (12) Visit to organic grapes production farm.				
12.	Methods of study: Lectures, theoretical and laboratory exercises, consultations, e-learning, individual and team projects, e-learning, prepare lecture for exams.				
13.	Total amount of available time		120 hours		
14.	Distribution of the available time		2+1+1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2	
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	1	
16.	Other forms of activities	16.1.	Team projects	0.5	
		16.2.	Individual projects	/	
		16.3.	Individual study	0.5	
17.	Forms of assessment				
	17.1.	Exams (midterm exams, exam, electronic testing)			30
	17.2.	Project activities (oral and written presentation)			50
	17.3.	Other forms of studying activities			20
18.	Criteria for assessment (points / grade)		up to 50 points	5 (five) (F)	
			from 51 to 60 points	6 (six) (E)	
			from 61 to 70 points	7 (seven) (D)	
			from 71 to 80 points	8 (eight) (C)	
			from 81 to 90 points	9 (nine) (B)	
			from 91 to 100 points	10(ten) (A)	
19.	Condition for getting a signature and taking the final exam		60% success level on all pre-exam activities		
20.	Language in which classes are conducted		Macedonian		
21.	Method of monitoring the quality of instruction		Self-evaluation		
22.	Literature				
22.1.	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Expert group of Ministry of agriculture, forestry and water management, Republic of Macedonia	Guidelines for organic production	Ministry of agriculture, forestry and water management	2008
	2.	IFOAM	Basic standards organic production and processing	Overall Assembly of IFOAM, Basel Swiss	2006

		3.	Nic Lampin et all.	Manual to guide the organic farms OP	Government of the Republic of Macedonia, Project for translate of 500 books	2009	
	22.2.	Additional literature					
		Ordinal No.	Author	Title	Publisher	Year	
		1.	Vasko Zlatkovski	Guides for organic grapes production	Ministry of agriculture, forestry and water management	2005	
		2.	Borivoj Šarapatka, Jiri Urban et.al.	Organic agriculture	Ministry of Agriculture of the Czech Republic	2009	
		3.					

LIST OF UNIVERSITY COURSES (Second cycle studies, Faculty of Agriculture)

Appendix No 3		Syllabus for the first, second and third cycle of study				
1.	Course title	Promotion				
2.	Course Code	UGD200312				
3.	Study programme					
4.	Organizer of the study programme (unit, institute, department, section)	Faculty of Economics				
5.	Level of Cycle of studies (I, II, III cycle)	II cycle of studies				
6.	Academic year / term		7.	ECTS credits	6	
8.	Professor	Prof. Riste Temjanovski, PhD				
9.	Preconditions of the course enrollment					
10.	Goals of the course programme: Students are familiar with the meaning, usage, use of promotion					
11.	Content of the course: In contemporary economic science study of promotion becomes necessary and imperative in contemporary work. The purpose of the programme is available in a clear and acceptable way to meet the needs and application of this element of the marketing mix through the study of the process of marketing communication, the forms of promotional activities, i.e individual specifics of economic promotion, personal selling, sales promotion and publicity and public relations.					
12.	Methods of study					
13.	Total amount of available time	156				
14.	Distribution of the available time	2+2+1				
15.	Forms of teaching activities	15.1.	Teaching-theoretical lectures	2		
		15.2.	Practical (laboratorial,	2		

			auditorium), seminars, team working	
16.	Other forms of activities	16.1.	Learning of teaching material	1
		16.2.	Preparation for practical	
		16.3.	Consultations	
17.	Forms of assessment			
	17.1.	Tests & mid-term tests		
	17.2.	Seminar work/ project (presentation: written and oral)		10 scores
	17.3.	Active role & activity and participation		20 scores
18.	Criteria for assessment (points / grade)	under 50 scores		5 (five) (F)
		from 51 to 60 scores		6 (six) (E)
		from 61 to 70 scores		7 (seven) (D)
		from 71 to 80 scores		8 (eight) (C)
		from 81 to 90 scores		9 (nine) (B)
		from 91 to 100 scores		10 (ten) (A)
19.	Precondition for getting a signature and taking the final exam	Success of 60% of the colloquiums and the final exam		
20.	Language in which classes are conducted	Macedonian, English		
21.	Method of monitoring the quality of instruction	Self evaluation		

22.	Literature					
	22.1.	Compulsory literature				
		Ordinal number	Author	Title	Publisher	year
		1.	Jakovski B, Jovanovska - Ristovska S.	Marketing	EF	2004
		2.	Jakovski B, Ciuniva-Suleska A.	Marketing management	EF	2004
		3.				
	22.2.	Additional literature				
		Ordinal number	Author	Title	Publisher	Year
		1.	Kotler & Armstrong	Principles of marketing, eight edition	Prentice-Hall international	1999
		2.	Philip Kotler, Gary Armstrong, Jon	Principles of Marketing	Pearson Education	2003

		Saunders, Veronica Wong			
	3.				

Appendix No 3		Syllabus for the first, second and third cycle of study				
1.	Course title	Organizational behavior				
2.	Course code	UGD200412				
3.	Study programme	Management and Entrepreneurship				
4.	Organizer of the study programme (unit, institute, department, section)	Faculty of Economics				
5.	Level of studies (I, II, III cycle)	I cycle of studies				
6.	Academic year / term		7.	ECTS credits	6	
8.	Professor	Prof. Trajko Miceski, Ph.D.				
9.	Preconditions for course enrollment					
10.	Goals of the course programme: The aim of this course is to help students in understanding the behavior of the people in the today's complex organizations. The syllabus of this course mainly focuses its attention to the following questions: the man as an individual, motivation, groups and behavior of groups, leadership theories, authority, power, politics, culture and organizational changes					
11.	Content of the course: Introduction; Organizational behavior in a global context, Behavior of the individual; Organizational behaviour and the organization; Groups in the organization; Motivation; Power, The individual and the organization; Leadership; The nature of the organizational behavior.					
12.	Methods of study					
13.	Total amount of available time	156				
14.	Distribution of the available time	2+2+1				
15.	Forms of teaching activities	15.1.	Teaching-theoretical lectures	2		
		15.2.	Practical (laboratorial, auditorium), seminars, team working	2		
16.	Other forms of activities	16.1.	Learning of teaching material	1		
		16.2.	Preparation for practical			
		16.3.	Consultations			
17.	Forms of assessment					
	17.1.	Tests&mid-term tests			60	
					scores	
	17.2.	Seminar work/ project (presentation: written and oral)			20 scores	
17.3.	Active role &activity and participation			20 scores		

18.	Criteria for assessment (points/ grade)	under 50 scores	5 (five) (F)
		from 51 to 60 scores	6 (six) (E)
		from 61 to 70 scores	7 (seven) (D)
		from 71 to 80 scores	8 (eight) (C)
		from 81 to 90 scores	9 (nine) (B)
		from 91 to 100 scores	10 (ten) (A)
19.	Precondition for getting a signature and taking the final exam	Success of 60% of the colloquiums and the final exam	
20.	Language in which classes are conducted	Macedonian, English	
21.	Method of monitoring the quality of instruction	Self-evaluation	

22.	Literature					
	22.1.	Compulsory literature				
		Ordinal number	Author	Title	Publisher	year
		1.	prof. Ljubomir Drakulevski	Leadership-base for effective strategic management	Faculty of Economics, Skopje	1999
		2.				
		3.				
	22.2.	Additional literature				
		Ordinal number	Author	Title	Publisher	Year
		1.	Kinicki, Angelo, Robert Kreitner	Organizational Behavior, key concepts, skills & best practices	McGraw-Hill, Irwin, Hightstown	2006
		2.	Roobbins, Stephen P.	Bitni elementi organizatsikog ponasanja	MATE, Zagreb	1995
		3.				

Appendix No.3		Syllabus for the first, second and third cycle of study
1.	Course title	Applied Electrical Engineering
2.	Code	UGD200512
3.	Study Programme	
4.	Organizer of the study programme (unit or institute, Faculty, department)	University Goce Delcev Faculty of Electrical Engineering

5.	Level of study (first, second and third cycle)	Second cycle			
6.	Academic year / semester	Second / third semester	7.	Number of credits	6
8.	Professor (s)	Assistant Professor Vasilija Sarac, PhD			
9.	Preconditions for course enrollment	Obtained 180 or 240 ECTS credits			
10.	Goals of the course programme: Enhancement of knowledge in applied electrical engineering in manufacturing and technological process and its apply in modern electrical appliances and devices.				
11.	Content of the course programme: Electric potential. Voltage. Modern measurement instruments for electrical variables measurement. Methods for measurement of electrical parameters. Power converters, basic principles of operation of devices for conversion of electrical energy parameters. Construction of electrical installations and electrical lighting. Electrical devices and appliances. Basic principles of transformer operation, dc and ac machines. Regulation in industrial processes. Usage of microprocessor based devices in control and regulation of technological processes. Usage of power converters in modern controlled industrial processes. Usage of special electrical machines in industrial processes.				
12.	Methods of study: – Lectures, practical exercises, seminar work				
13.	Total amount of available time	156			
14.	Distribution of the available time	2+2+1			
15.	Forms of teaching activities	15.1.	lectures / theoretical - contact teaching, e-teaching	2 hours	
		15.2.	theoretical and practical exercises, e-exams, preparation of independent seminar work	2 hours	
16.	Other forms of activities	16.1.	Project tasks	1 hours	
		16.2.	Individual tasks	hours	
		16.3.	Home learning	hours	
17.	Forms of assessment				
	17.1.	Tests / oral exams		30 points	
	17.2.	Seminars (paper / project - presentation: written and/or oral)		50 points	
	17.3.	Activity and participation		20 points	
18.	Criteria for assessment (points / grade)	up 50 points		5 (five) (F)	
		51 to 60 points		6 (six) (E)	
		61 to 70 points		7 (seven) (D)	
		71 to 80 points		8 (eight) (C)	
		81 to 90 points		9 (nine) (B)	
		91 to 100 points		10 (ten) (A)	

19.	Precondition for getting a signature and taking the final exam	Obtained minimum 42 points from midterms, seminar work and attending to lectures and practical exercises
20.	Language in which classes are conducted	Macedonian
21.	Method of monitoring the quality of teaching	Self- evaluation and evaluation

22.	Literature					
	22.1.	Compulsory literature				
		No.	Author	Title	Publisher	Year
		1.	George Haberl	Switching, Protection and Distribution in Low- Voltage Networks	Publicis MCD Verlag	1994
		2.	M. Zadar	Arhitektura upravljackih microracunala i njihovo povezivanje s okolinom	Skolska knjiga	2002
	3.	W. Shepherd, Li. Zhang	Power Converter Circuits	Marcel Dekker Inc	2004	
	22.2.	Additional literature				
		No.	Author	Title	Publisher	Year
		1.	R. Firoozian	Servo Motors and Industrial Control Theory	Springer	2009
		2.				
3.						

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	Agroecology			
2.	Course code	UGD200612			
3.	Study programme	University selective courses			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev"- Stip,			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second / III	7.	Number of ECTS credits	8
8.	Professor	Prof. Liljana Koleva-Gudeva, PhD			
9.	Preconditions for course enrollment	No			
10.	Goals of the course programme: Acquisition of theoretical and practical knowledge of life processes and throughout the life cycle of plants depending on environmental conditions. Research in the field of eco physiology connects the living conditions and the ability of plants depending on environmental conditions, through positive and negative impacts.				
11.	Content of the course programme: Content of the lectures:				

	<p>1. Introduction to agroecology. 2 Notion of aerosphere, agrobiotope, agrobiocenose. 3 Key Features of crop production. 4 General rules in various activities of environmental factors - biotic and abiotic. 5 Measures for rational use of solar energy. 6 Autonomic space. 7 Water as agro-environment factor. 8 Physiology of stress. 9 Global climatological changes. 10 Global warming. 11 Emissions. 12 Effect of "Glass Valley".</p> <p>Content of exercises (practical and laboratory):</p> <p>1. Providing optimal index plate surface. 2 Utilization of production area. 3 Laws of returns. 4 Methods for assessment of humidity / acidification of climate in agriculture. 5 Determination of temperature thresholds for the beginning and end of vegetation. 6 The impact of climate change on agro ecosystems. 7 Resistance of plants to different stress factors. 8 Analysis of agro-ecological factors at the farm level. 9 Standards for sustainable agricultural production. 10 Sustainable agro ecosystems - organic farming. 11 Field exercise. 12 Presentation of papers.</p>					
12.	<p>Methods of study: Lectures, Theoretical exercises, Laboratory exercises, E-learning, individual and team projects, consultations for the final exam, Final exam.</p>					
13.	Total amount of available time		156 hours			
14.	Distribution of the available time		2 + 2 + 1			
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2		
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2		
16.	Other forms of activities	16.1.	Team projects			
		16.2.	Individual projects	1		
		16.3.	Individual study			
17.	Forms of assessment					
	17.1.	Exams (midterm exams, exam, electronic testing)			30	
	17.2.	Project activities (oral and written presentation)			50	
	17.3.	Other forms of studying activities			20	
18.	Criteria for assessment (points / grade)		to 50 points		5 (five) (F)	
			from 51 to 60 points		6 (six) (E)	
			from 61 to 70 points		7 (seven) (D)	
			from 71 to 80 points		8 (eight) (C)	
			from 81 to 90 points		9 (nine) (B)	
			from 91 to 100 points		10 (ten) (A)	
19.	Condition for getting a signature and taking the final exam		60% of term activities, project activities and attending to lectures and discussions			
20.	Language in which classes are conducted		Macedonian			
21.	Method of monitoring the quality of instruction		Self-evaluation			
22.	Literature					
	Compulsory literature					
		Ordinal No.	Author	Title	Publisher	Year
	22.1.	1.	Liljana Koleva Gudeva	Plant Physiology	UGD - Stip	2010
		2.	Liljana Koleva Gudeva	Agro ecology ppt presentation unpublished lessons	UGD, Stip	2010
22.2.	Additional literature					

	Ordinal No.	Author	Title	Publisher	Year
	1.	Volter Larcer	Plant Eco Physiology	Government Project – translation of 500 scientific books	2009

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	Organic production			
2.	Course code	UGD200712			
3.	Study programme				
4.	Organizer of the study programme (faculty, institute, group)	University choose subject, Faculty of Agriculture, University "Goce Delcev"- Stip, Department of Plant production			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second year/ third semester	7.	Number of ECTS credits	6
8.	Professor	Prof. Ljupcho Mihajlov, PhD, Prof. Verica Ilieva, PhD			
9.	Preconditions for course enrollment	No			
10.	Goals of the course programme: Students gain knowledge and skills for application of techniques for organic production. They gain skills for specifics conversion, certification and organic production of field crops based on law and current regulations in the Republic of Macedonia.				
11.	Content of the course programme: Lectures: 1. Introduction in organic production; 2. Low statute for organic method of plant production; 3. Impact of organic production on the outer environment, 4. Standards and regulations for the production of organic food; 5. Process of conversion to organic production; 6. Multi functionality of organic production; 7. Agro technique and protection in organic production; 8. Crops nutrition under methods for organic production; 9. Bio pesticides and fertilizer allowed in organic crops production; 10. Integral methods for protection of crops in organic production; 11. Ccertification in organic production; 12. Methods for development of organic production. Practices: 1. Specifics in basic agro-technical measures in organic production; 2. Ways for preparation of projects related to organic production; 3. Guide for organic production of soybeans; 4. Guide for organic production of potato; 5. Guide for organic production of cabbage; 6. Guide for organic production of alfalfa; 7. Utilization the symbiotic azotofixation in organic production; 8. Conversion of conventional to organic production; 9. Prerequisites that must meet the seeds for organic production of various crops; 10. Specifics in protection for organic production; 11. Specifics for fertilization in organic production; 12. Visit an organic farm.				
12.	Methods of study: Lectures, theoretical and laboratory exercises, consultations, e-learning, individual and team projects, e-learning, prepare lecture for exams.				
13.	Total amount of available time	156 hours			
14.	Distribution of the available time	2+2+1			

15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2
16.	Other forms of activities	16.1.	Team projects	1
		16.2.	Individual projects	/
		16.3.	Individual study	/
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		30
	17.2.	Project activities (oral and written presentation)		50
	17.3.	Other forms of studying activities		20
18.	Criteria for assessment (points / grade)	up to 50 points		5 (five) (F)
		from 51 to 60 points		6 (six) (E)
		from 61 to 70 points		7 (seven) (D)
		from 71 to 80 points		8 (eight) (C)
		from 81 to 90 points		9 (nine) (B)
		from 91 to 100 points		10 (ten) (A)
19.	Condition for getting a signature and taking the final exam	60% success level on all pre-exam activities		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of instruction	Self-evaluation		
22.	Literature			
22.1.	Compulsory literature			
	Ordinal No.	Author	Title	Publisher
	1.	Expert Group on Ministry of Agriculture Forestry and Water Economy Republic of Macedonia	Quinines for organic production	Ministry of Agriculture Forestry and Water Economy R. of Macedonia
	2.	Veladžić M, Čaklavica F. Fejzić N.	Food organic production	IK >>Liljan<< Sarajevo
	3.	Nic Lampin et all.	Manual to guide organic farms OP	Government of R. of Macedonia. Project translate on 500 books.
4.				
22.2.	Additional literature			
	Ordinal No.	Author	Title	Publisher
	1.	Ljupcho Mihajlov	Guide for organic production of soybeans	University Goce Delchev - Stip
			Year	2011

		2.	Borivoj Šarapatka, Jiri Urban et.al.	Organic agriculture	Ministry of Agriculture of the Czech Republic	2009
		3.	Franc and Martina Bavec	Organic production and utilization of crops	Government of Republic of Macedonia. Project translate on 500 books	2009

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	Copyright and Related Rights			
2.	Course code	UGD201012			
3.	Study programme	University selective courses			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev" - Stip,			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second / III	7.	Number of ECTS credits	6
8.	Professor	Prof. Vojo Belovski, PhD			
9.	Preconditions for course enrollment	No			
10.	<p>Goals of the course programme:</p> <p>The purpose of this study programme is to familiarize students with the basic tools copyright and smaller segment of intellectual property rights - industrial property. To see primarily the role that this discipline has in modern conditions of trade operations. After overcoming These thematic units, students will be able to locate problems this matter, both give the same proposed solutions. Given the attractiveness of this discipline in terms of property rights, the focus will be on the protection of copyright, and sanctions for violations of these rights.</p>				
11.	<p>Content of the course:</p> <p>PART. CONCEPT, DEVELOPMENT AND SOURCES OF COPYRIGHT</p> <p>I. Definition of intellectual property</p> <p>II. Definition of Copyright</p> <p>III. Meanings of copyright</p> <p>III.1. Copyright in objective terms</p> <p>III.1.1. Relationship with other legal branches</p> <p>III.2. Copyright in subjective terms</p> <p>III.2.1. Relationship with other subjective rights</p> <p>IV. Development of Copyright</p> <p>V. Sources copyright</p> <p>V.1. Constitution</p> <p>V.2. law</p> <p>V.3. International sources of copyright</p> <p>V.3.1. International standards for copyright protection</p> <p>V.3.2. Berne Convention for the Protection of Literary and Artistic Works</p> <p>V.3.3. Universal Copyright Convention</p> <p>V.3.4. Copyright Agreement</p>				

V.3.5. Convention for the protection of performers, producers of phonograms and broadcasting organizations

V.3.6. Convention for the protection of producers of phonograms of illicit Duplication of Their Phonograms

V.3.7. Contract interpretation and Phonograms

V.3.8. TRIPS

V.3.9. EU Regulation

PART TWO. COPYRIGHT

VI. Author and carrier

VI.1. Definition of author

VI.2. co

VI.3. Bonded parts

VI.4. The copyright holder

VII. Subjectively copyright

VII.1. Personally legal powers

VII.2. Property and legal powers

VII.2.1. Using the work in physical form

VII.2.2. Using the work in the form beztelesna

VII.3. Other powers

VII.3.1. Access to a copy of the work

VII.3.2. Right of resale

VII.3.3. Right of priority processing of architectural work

VII.3.4. Right to fair compensation for audio or visual recording and pho → tokopiranje the copyrighted work

VII.4. Limitation of subjective right Author

VII.4.1. statutory licenses

VII.4.2. permitted use

VII.5. Battery subjective Copyright

VIII. copyright Case

VIII.1. Definition of copyrighted work

VIII.2. Legal Terms of copyright protection act

VIII.3. Title of the copyrighted work

VIII.4. Types of works

VIII.4.1. voice works

VIII.4.2. Theatre works

VIII.4.3. musical works

VIII.4.4. films

VIII.4.5. Works of fine and applied art

VIII.4.6. computer Programme

VIII.4.7. Copyrighted work from employment

IX. Turnover of copyright

IX.1. Translativen and constitutional transfer IX.2. Turnover of copyright on contract

IX.2.1. Definition of copyright agreement

IX.2.2. Principles, form and interpretation of copyright contracts

IX.2.3. Named copyright agreements

IX.2.3.1. publishing agreement

IX.2.3.2. Contract Ordinal of copyrighted work

IX.2.3.3. Contract to perform the copyrighted work

IX.2.3.4. Agreement for film work

IX.2.3.5. Contract processing of copyrighted work

	IX.2.3.6. License Agreement IX.3. Inheritance of Copyright PART THREE. Of copyright X. Individual exercise of rights XI. Of rights XI.1. Organizations for collective administration of rights XI.1.1. Status, and establishing prestanik organizations XI.1.2. Agreements concluded that organizations are XI.1.3. Control of Organizations XI.2. international cooperation PART FOUR. RELATED RIGHTS XII. Definition of Related Rights XIII. Rights of performers XIV. Rights of producers of phonograms XV. Rights of producers of video grams XVI. Rights of producers of shows XVII. Rights of producers of databases XVIII. Broadcaster works via satellite PART FIVE. PROTECTION OF COPYRIGHT AND RELATED RIGHTS XIX. Violation of Rights XIX.1. immediate injury XIX.2. indirect injury XX. Civil Remedies XX.1. Plaintiff and defendant XX.2. claims XX.2.1. Determination of injury XX.2.2. Termination of injury XX.2.3. Destroying objects XX.2.4. Announcement of verdict XX.2.5. Compensation XX.2.5.1. civil penalty XXI. Administrative Remedies XXI.1. BOrdinal measures XXII. Criminal justice			
12.	Methods of study: Lectures, Theoretical exercises, Laboratory exercises, E-learning, individual and team projects, consultations for the final exam, Final exam.			
13.	Total amount of available time	216 hours		
14.	Distribution of the available time	2 + 2 + 1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (auditorial), teamwork	2
16.	Other forms of activities	16.1.	Team projects	
		16.2.	Individual projects	1
		16.3.	Individual study	
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		30
	17.2.	Project activities (oral and written presentation)		50
	17.3.	Other forms of studying activities		20

18.	Criteria for assessment (points / grade)	to 50 points	5 (five) (F)		
		from 51 to 60 points	6 (six) (E)		
		from 61 to 70 points	7 (seven) (D)		
		from 71 to 80 points	8 (eight) (C)		
		from 81 to 90 points	9 (nine) (B)		
	from 91 to 100 points	10 (ten) (A)			
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions			
20.	Language in which classes are conducted	Macedonian, English			
21.	Method of monitoring the quality of instruction	Self-evaluation			
22.	Literature				
22.1.	Compulsory literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Professor. Dr.. Jadranka Dabovic-Anastasovska and Doc. Dr. Valentin Pepeljugovski	Copyright	Faculty of law "Justinian I"-Skopje	2006
22.2.	Additional literature (Laws)				
	Ordinal No.	Author	Title	Publisher	Year
	1.	Law on Copyright Law and related laws			1996, and changes (1998,2002)
	2.	Law on Industrial property			2002

Appendix No.3		Syllabus for the first, second and third cycle of study			
1.	Course title	International Criminal Law			
2.	Course code	UGD201212			
3.	Study programme	University selective courses			
4.	Organizer of the study programme (faculty, institute, group)	University "Goce Delcev"- Stip,			
5.	Level (first, second, third cycle)	Second cycle			
6.	Academic year / semester	Second / III	7.	Number of ECTS credits	6
8.	Professor	Prof. Todor Vitlarov, PhD			
9.	Preconditions for course enrollment	No			

10.	Goals of the course programme			
11.	<p>Content of the course:</p> <p>First-week -term, subject to IPC, repressive vlast the state, Second week-limits jurisdiction state and types of international cooperation, Third-week international legal assistance exchange of information notices prakugranichno observation, controlled delivery, using undercover agents, Fourth-week joint investigation teams interception test by telephone and videoconference conference, confiscation The five-week download and transfer of prosecution Ecstadiction Six weeks-execution of criminal judgments and transfer of inmate Seventh-week Asylum Eight-week international police cooperation and basic features of international offenses Nine-week Genocit, Torture asparticular crime and aggression Tenth-week international terrorism ascrime and war crimes Eleventh-week International criminal courts. Nuremberg Tribunal and Tokiski. Hague war crimes tribunal in the former Twelve-week Permanent International Criminal Court (the Rome Statute)</p>			
12.	<p>Methods of study:</p> <p>Lectures, Theoretical exercises, Laboratory exercises, E-learning, individual and team projects, consultations for the final exam, Final exam.</p>			
13.	Total amount of available time	156 hours		
14.	Distribution of the available time	2 + 2 + 1		
15.	Forms of teaching activities	15.1.	Lectures - theoretical training	2
		15.2.	Exercises (laboratory, auditory), workshops, outreach and teamwork	2
16.	Other forms of activities	16.1.	Team projects	
		16.2.	Individual projects	1
		16.3.	Individual study	
17.	Forms of assessment			
	17.1.	Exams (midterm exams, exam, electronic testing)		30
	17.2.	Project activities (oral and written presentation)		50
	17.3.	Other forms of studying activities		20
18.	Criteria for assessment (points / grade)	to 50 points	5 (five) (F)	
		from 51 to 60 points	6 (six) (E)	
		from 61 to 70 points	7 (seven) (D)	
		from 71 to 80 points	8 (eight) (C)	
		from 81 to 90 points	9 (nine) (B)	
		from 91 to 100 points	10 (ten) (A)	
19.	Condition for getting a signature and taking the final exam	60% of term activities, project activities and attending to lectures and discussions		
20.	Language in which classes are conducted	Macedonian, English		
21.	Method of monitoring the quality of instruction	Self-evaluation		
22.	Literature			
	22.1.	Compulsory literature		

Ordinal No.	Author	Title	Publisher	Year
1.	V. Kambovski	International criminal law	Prosvetno delo Skopje	1998
2.	A. Kaseze	International criminal Law	Prosvetno delo Skopje	2009
3.		Law for international cooperation criminal matter, Official Journal br.124/2010		
Additional literature (Laws)				
Ordinal No.	Author	Title	Publisher	Year
1.				

Appendix No. 3		Syllabus for the first, second and third cycle of study		
1.	Course title	Finite Element Method		
2.	Course code			
3.	Study programme			
4.	Organizer of the study programme (faculty, institute, group)			
5.	Level (first, second, or third study cycle)	Second cycle		
6.	Academic year / semester	7.	Number of ECTS credits	
8.	Professor	Assoc. Professor Gicev Vlado, PhD/ Professor Jordan Zivanovik, PhD		
9.	Preconditions for course enrollment	No		
10.	Goals of the course programme: Able for scientific research			
11.	Content of the course programme: <ul style="list-style-type: none"> - Variation formulation. Aproximate methods. - Direct method. Residual method. Accuracy and convergence. - Finite elements and interpolation functions. Lagrange and Hermitian polinoms. Serendipity elements. - Natural coordinates. - Interpolation functions for some elements in natural coordinate system. - Curvilinear finite elements - Isoparametric elements. Numerical quadrature. - 2-D and 3-D problems. - Axial symmetric problems. 			
12.	Methods of study: Lectures, Discussions, Labs, Numerical exercises, e-learning, individual and team projects, office hours.			
13.	Total amount of available time	156 hours		
14.	Distribution of the available time	24 hours-lectures; 36 hours-discussions; 96 hours other forms of activities		

15.	Forms of the lecturing activities	15.1.	Lectures	24 hours
		15.2.	Discussions (auditorial, numerical exercises)	36 hours
16.	Other forms of activities	16.1.	Team and individual projects	48 hours
		16.2.	Office hours and e-learning	12 hours
		16.3.	Individual study	36 hours
17.	Forms of assessment			
	17.1.	Mid-term and Final exams		30 points
	17.2.	Project activities (oral and written presentation)		50 points
	17.3.	Active contribution in lectures and labs		20 points
18.	Criteria for assessment (points / grade)	Up to 50 points		5 (five) (F)
		from 51 to 60 points		6 (six) (E)
		from 61 to 70 points		7 (seven) (D)
		from 71 to 80 points		8 (eight) (C)
		from 81 to 90 points		9 (nine) (B)
		from 91 to 100 points		10 (ten) (A)
19.	Condition for getting a signature and taking the final exam	none		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of instruction	Selfevaluation		

22.	Literature				
	22.1.	Compulsory literature			
Ordinal No.		Author	Title	Publisher	Year
1.		R.D. Cook, D.S. Malkus, M.E. Plesha, R.J.Witt	Concepts and applications of Finite Element Analysis	John Wiley & Sons Inc	2001
22.2	Additional Literature				
	Ordinal No.	Author	Title	Publisher	Year
	1.	K-J. Bathe	Finite Element Procedures	Prentice Hall	1995

Appendix No.3		Syllabus for the first, second and third cycle of study
1.	Title of the Course	Applied Data Analysis
2.	Code	
3.	Study Programme	All study programmes on second cycle studies at the University "Goce Delcev"
4.	Organizer of the study programme (unit or institute, Faculty, department)	University "Goce Delcev" - Stip

5.	Level of studies (first, second and third cycle)	Second cycle			
6.	Academic year / semester	2012/2013 / III	7.	Number of credits	6
8.	Professor (s)	Prof. Tatjana Atanasova Pacemska, PhD			
9.	Preconditions for course enrollment	/			
10.	Goals of the course programme: Students on the second cycle studies will be enabled to plan and implement the applied research, and for using of the results of specific operational problems and making decisions. They will be able to use the software package SPSS (or other, depending on the needs) applied for data analysis based on the methods of mathematical statistics. Students will gain research skills and knowledge about interpretation of the results of studies that will prepare them for a successful preparation of the master thesis.				
11.	Content of the course programme: <ul style="list-style-type: none"> • Usually versus applied research (definition, goals, ways of implementation, the process of research ...) • Statistics - collection, classification and presentation of data • Random variables, types of random variables • Statistics sampling distributions • Data analysis • Descriptive Statistics • Hypotheses testing – parametric and nonparametric tests • Linear and nonlinear regression • Analysis of variance (ANOVA) • Experimental design • Case studies (examples in the programme SPSS, Excel, Mathematica according to the needs of the profession) 				
12.	Methods of study: <ul style="list-style-type: none"> – Lectures, – e-learning, – individual and team projects – Consultations. 				
13.	Total available time	156			
14.	Distribution of available time	2+2+1			
15.	Forms of teaching activities	15.1.	lectures / theoretical - contact teaching, e-teaching	2	

		15.2.	theoretical and practical exercises, e-exams, preparation of independent seminar work	2
16.	Other forms of activities	16.1.	Project tasks	1
		16.2.	Individual tasks	
		16.3.	Home learning	
17.	Forms of assessment			
	17.1.	Project task		30 points
	17.2.	Seminars (paper / project - presentation: written and/or oral)		50 points
	17.3.	Activity and participation		20 points
18.	Criteria for assessment (points / grade)		up 50 points	5 (five) (F)
			51 to 60 points	6 (six) (E)
			61 to 70 points	7 (seven) (D)
			71 to 80 points	8 (eight) (C)
			81 to 90 points	9 (nine) (B)
		91 to 100 points	10 (ten) (A)	
19.	Condition for getting a signature and taking the final exam	60% of pre - exam activities		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of teaching	Self-evaluation, external evaluation		

22.	Literature				
22.1.	Compulsory literature				
	No.	Author	Title	Publisher	Year
	1.	Forthofer, R.N., Lee, E.S.	Introduction to Biostatistics: A Guide to Design, Analysis and Discovery	Academic Press, London	1995
	2.	Soldik-Aleksik J.	Primenjena analiza podataka	Ekonomski Fakultet-Beograd	2011
3.	Njubold, P., Karlson L.V., Torn B.	Statistika za biznis I ekonomija	Magor – 1000 prevodi od vlada na RM	2010	
22.2.	Additional literature				
	No.	Author	Title	Publisher	Year
1.	Montgomery, D.C.	Design and Analysis of Experiments	John Wiley and Sons	2001	

					Inc., New York	
		2.				
		3.				

Appendix No.3		Programme of the Course - second cycle studies				
1.	Title of the Course	Industrial Engineering				
2.	Code	UGD203112				
3.	Study Programme	Mining, Logistics, Environmental Engineering, Architecture and Design				
4.	Organizer of the study programme (unit or institute, Faculty, department)	University Goce Delcev Faculty of Natural and technical sciences Department of mining, Departments of Logistics, Environmental Engineering, Architecture and Design				
5.	Cycle (first, second and third cycle)	Second cycle				
6.	Academic year / semester	I/II	7.	Number of credits	6	
8.	Professor (s)	Prof. Boris Krstev, PhD				
9.	Preconditions for course enrollment					
10.	Goals of the course programme: Students learn the anticipated contents or methods used in study programme to investigate and control of the processes, as well as to apply them to solve problems in appropriate conditions.					
11.	Content of the course programme: Introduction; Aims and Tasks; Industrial Engineering (unorganic, organic, petrochemical, food, mineral technology, mining, services) etc.					
12.	Methods of study: Lectures, laboratory exercises, numerical exercises, e-learning, seminar work, teamwork, project consultation					
13.	Total amount of available time	120 hours				
14.	Distribution of the available time	36 lectures + 24 exercises + 40 others activities / per week				
15.	Forms of teaching / learning activities	15.1.	lectures / theoretical - contact teaching, e-teaching			36 hours
		15.2.	theoretical and practical exercises, e-exams, preparation of independent seminar work			24 hours
16.	Other forms of activities	16.1.	Project tasks			24 hours
		16.2.	Individual tasks			24 hours
		16.3.	Home learning			12 hours
17.	Forms of assessment					
	17.1.	Tests / oral exams			70 points	
	17.2.	Seminars (paper / project - presentation: written and/or oral)			10 points	

	17.3. Activity and participation	20 points
18. Criteria for assessment (points / grade)	up 50 points	5 (five) (F)
	51 to 60 points	6 (six) (E)
	61 to 70 points	7 (seven) (D)
	71 to 80 points	8 (eight) (C)
	81 to 90 points	9 (nine) (B)
	91 to 100 points	10 (ten) (A)
19. Condition for getting a signature and taking the final exam		
20. Language of teaching / study	Macedonian	
21. Method of monitoring the quality of teaching	Self-evaluation	

22. Literature					
22.1.	Required literature				
	No.	Author	Title	Publisher	Year
	1.	BORIS KRSTEV	Industrial Engineering	UGD-Stip	2012
	2.				
	3.				
22.2.	Additional literature				
	No.	Author	Title	Publisher	Year
	1.	E-books			
	2.	Internet			
	3.				

Appendix No. 3		Syllabus for the first, second and third cycle of study		
1.	Title of the Course	Natural resources		
2.	Code	UGD203312		
3.	Study Programme	Geology (University course)		
4.	Organizer of the study programme (unit or institute, Faculty, department)	University Goce Delcev Faculty of Natural and Technical Sciences Institute of Geology, Department of Mineral deposits and economic geology		
5.	Cycle (first, second and third cycle)	Second cycle		
6.	Academic year / semester	2 (second) / III (third)	7. Number of credits	6
8.	Professor (s)	Prof. Todor Serafimovski, PhD (and Prof. Blažo Boev, PhD)		
9.	Preconditions for course enrollment	none (elective course)		
10.	Goals of the course programme: Study of natural phenomena related to the resources, mainly, of solid and fluid potentials and eventual use as mineral resources, architectural and building stones, thermal and thermo mineral waters etc.			
11.	Content of the course programme: 1. General features of natural resources 2. Regional distribution of natural resources			

	3. Classification of natural resources 4. Types and categories of natural resources 5. Natural resources at the territory of the Republic of Macedonia 6. Mineral resources as natural resources 7. Metallic and non-metallic resources as natural resources 8. Architectural and building stone as natural resources 9. Solid natural energy resources 10. Thermo mineral natural resources 11. Geothermal natural resources 12. Alternative natural resources			
12.	Methods of study: – Lectures followed by computer presentations, discussions, simulations, study of practical cases, seminars			
13.	Total amount of available time	120 hours		
14.	Distribution of the available time	40 hours-lectures; 40 hours – practicals, 40 hours of other forms of activities		
15.	Forms of teaching activities	15.1.	lectures / theoretical - contact teaching, e-teaching	40 hours
		15.2.	theoretical and practical exercises, e-exams, preparation of independent seminar work	40 hours
16.	Other forms of activities	16.1.	Project tasks	20 hours
		16.2.	Individual tasks	10 hours
		16.3.	Home learning	10 hours
17.	Forms of assessment			
	17.1.	Tests / oral exams		30 points
	17.2.	Seminars (paper / project - presentation: written and/or oral)		50 points
	17.3.	Activity and participation		20 points
18.	Criteria for assessment (points / grade)	up 50 points		5 (five) (F)
		51 to 60 points		6 (six) (E)
		61 to 70 points		7 (seven) (D)
		71 to 80 points		8 (eight) (C)
		81 to 90 points		9 (nine) (B)
		91 to 100 points		10 (ten) (A)
19.	Condition for getting a signature and taking the final exam	60% success from all pre-final exam activities or 42 points from both mid-term tests, seminar, attendance to lectures and practicals.		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of teaching	Self-evaluation		
22.	Literature			

		Compulsory literature				
		No.	Author	Title	Publisher	Year
22.1.	1.	Тодор Серафимовски	Минерални ресурси - 2	Факултет за природни технички науки, Универзитет "Гоце Делчев"-Штип, 328 стр.	2011	
	2.	Боев, Б и Лепиткова, С	Архитектонско градежен камен	Факултет за природни технички науки, Универзитет "Гоце Делчев"-Штип, 181 стр.	2008	
	3.	Gupta, K. H. and Roy, S.,	Geothennal Energy: An Alternative Resource for the 21st Century.	Elsevier, Netherlands, 279 p.	2007	
		Additional literature				
		No.	Author	Title	Publisher	Year
22.2.	1.					
	2.					

Appendix No. 3		Syllabus for the first, second and third cycle of study				
1.	Title of the course	Business systems in tourism and hospitality				
2.	Code of the course	UGD203412				
3.	Study Programme	Business logistics				
4.	Organizer of the study programme (unit, Institution, department)	Faculty of tourism and business logistics				
5.	Level of studies (first, second, third)	2				
6.	Academic Year/ semester	1	7.	Number of ECTS credits	4	
8.	Professor	Assistant Professor Nako Taskov, PhD				
9.	Preconditions for course enrolment	Accomplished undergraduate studies				
10.	Goals of the course programme: Obtaining theoretical knowledge for business systems in tourism and hospitality and its practical application.					
11.	Content of the course programme: 1. Theoretical approach in researching business systems in tourism and hospitality 2. Business processes in tourism and hospitality 3. Analysis and management with business systems in tourism and hospitality 4. Supply chain in tourism and hospitality 5. International business systems in tourism and hospitality					

	6. Development of business systems 7. On-line business systems 8. Marketing of business systems 9. Hospitality in business systems 10. Hospitality services as a component of business systems 11. Models of business systems in tourism and hospitality 12. Business systems in Macedonia					
12.	Methods of study: PPP lectures, laboratory, essays, exercises, consultations					
13.	Total amount of available time			120		
14.	Distribution of the available time			2+1+1		
15.	Forms of teaching activities	15.1.	Lectures - theory	2		
		15.2.	Exercises (laboratory, audio), seminars, team work	2		
16.	Other form of activities	16.1.	Projects	1		
		16.2.	Self-standing projects	1		
		16.3.	Home work	1		
17.	Forms of assessment					
	17.1.	Projects			30	
	17.2.	Essay (presentation: written and oral)			50	
	17.3.	Activity and participation			20	
18.	Criteria for assessment(points/grade)		till 50 points		5 (F)	
			from 51 till 60 points		6 (E)	
			from 61 till 70 points		7 (D)	
			from 71 till 80 points		8 (C)	
			from 81 till 90 points		9 (B)	
		from 91 till 100 points		10 (A)		
19.	Precondition for getting a signature and taking the final exam		Minimum 42 points			
20.	Language in which classes are conducted		Macedonian			
21.	Method of monitoring the quality of teaching		Self-evaluation			
22.	Literature					
	22.1.	Compulsory literature				
		No	Author	Title	Publisher	Year
		1.	Buhalis, D., Costa, C., eds.	"Tourism business frontiers: consumers, products and industry",	Elsevier,	2006
2.		Coles, T., Hall, M., eds.	"International business and tourism: global issues, contemporary interactions",	Routledge,	2008	

		3.	Eastham, J., Sharples, L., Ball, S., eds.	"Food supply chain management: issues for the hospitality and retail sectors",	Butterworth- Heinemann,	2001
	22.2.	Additional literature				
		No	Author	Title	Publisher	Year
		1.				
		2.				
		3.				

Appendix No. 3		Syllabus for the first, second and third cycle of study			
1.	Title of the Course	Tourism Planning			
2.	Code	UGD203612			
3.	Study Programme				
4.	Organizer of the study programme (unit or institute, Faculty , department)	University Goce Delcev Faculty of Tourism and Business Logistics Department of Tourism			
5.	Cycle (first, second and third cycle)	Second cycle			
6.	Academic year / semester		7.	Number of credits	6
8.	Professor (s)	Biljana Petrevska, PhD, Assistant Professor			
9.	Preconditions for course enrollment	Accomplished undergraduate studies			
10.	Goals of the course programme: Obtaining knowledge for the concept, forms, approaches and obstacles in tourism planning.				
11.	Content of the course programme: <ul style="list-style-type: none"> - Tourism policy - Concept of tourism planning - Strategic tourism planning - Tourism development – concept, structure and process - Tourism development plan – introduction, characteristics, phases and mistakes - Essentials of tourism research and marketing - Measuring tourism economic impacts - Tools and techniques in tourism planning - Forecasting tourism demand – process, phases, obstacles and meaning - Qualitative and quantitative methods for forecasting tourism demand - Current tourism planning practices - Tourism planning in the third millennium 				
12.	Methods of study: <ul style="list-style-type: none"> - PPP lectures, - laboratory, - essays, - exercises, - consultations 				
13.	Total amount of available time	120			
14.	Distribution of the available time	2+1+1 / per week			

15.	Forms of teaching activities	15.1.	lectures / theoretical - contact teaching, e-teaching	2
		15.2.	theoretical and practical exercises, e-exams, preparation of independent seminar work	1
16.	Other forms of activities	16.1.	Project tasks	1
		16.2.	Individual tasks	1
		16.3.	Home learning	1
17.	Forms of assessment			
	17.1.	Tests / oral exams		70 points
	17.2.	Seminars (paper / project - presentation: written and/or oral)		10 points
	17.3.	Activity and participation		20 points
18.	Criteria for assessment (points / grade)		up 50 points	5 (five) (F)
			51 to 60 points	6 (six) (E)
			61 to 70 points	7 (seven) (D)
			71 to 80 points	8 (eight) (C)
			81 to 90 points	9 (nine) (B)
			91 to 100 points	10 (ten) (A)
19.	Condition for getting a signature and taking the final exam	Minimum 42 points		
20.	Language in which classes are conducted	Macedonian		
21.	Method of monitoring the quality of teaching	Self-evaluation		

22.	Literature				
22.1.	Compulsory literature				
	No.	Author	Title	Publisher	Year
	1.	Edgell, D., DelMastro Alen, M., Swanson, J.	Tourism Policy and Planning: Yesterday, Today and Tomorrow	Butterworth-Heinemann	2008
	2.	Goeldner, C. and Ritchie, B.	Tourism – Principles, Practices and Philosophies	John Wiley & Sonns Inc	2006
	3.	Gunn, C. A.	Tourism Planning - Basics, Concepts, Cases	Taylor&Frances	1993
22.2.	Additional literature				
	No.	Author	Title	Publisher	Year
	1.	Petrevska, B.	Planiranje vo turizmot	EDNOTERA-Skopje	2011

		2.	Mason, P.	Tourism Impacts, Planning and Management	Butterworth- Heinemann	2003
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