



საქართველოს ტექნიკური უნივერსიტეტი
GEORGIAN TECHNICAL UNIVERSITY

Approved by
Academic Council of GTU
On 20 February, 2015 by Decree № 1438

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Master's Educational Program

Program Title

მევენახეობა და ენოლოგია

Viticulture and Enology

Faculty

აგრარული მეცნიერებების და ბიოსისტემების ინჟინერინგი

Agricultural Sciences and Bio systems Engineering

Program Supervisor

Professor David Maghradze

Qualification to be awarded

Master of Agricultural Sciences

Will be awarded in the case of passing not less than 120 credits of an educational program

The language of teaching

English

Admission Prerequisites to the program

The studying rights on a Master's program is entitled person who has at least (01) Bachelor of Agrarian Science, (05) Bachelor of Science / Natural Sciences or equivalent academic degree, and has English knowledge in the level B2, that must be approved by appropriate Certificate from Institution with special Accreditation, or tests providing by the University. The person will be enrolled according on the results of the master's exams (general master's exam and the exam / exams / specialization, English language tests). Exam questions / tests will be posted on the GTU Department of Education website at http://gtu.ge/Study-Dep/News/?ELEMENT_ID=12830 at least one month before the exams begin. Admission to the program without passing the master's exams is possible according to the procedure established by the Ministry of Education, Science, Culture and Sport of Georgia.

Program Description

The program is developed according ECTS system, 1 credit equals 25 hours which includes both contact and independent working hours. The distribution of credits is presented in the curriculum of the program. The program lasts 2 years (4 semesters) and includes 120 credits: Study component - 75 credits; Research Component - 45 credits including Master's thesis / Prospectus - 5 credits, Theoretical / Experimental Research / Colloquium - 10 credits, Thesis Completion and Defense - 30 credits.

One semester covers 20 weeks, out of which the teaching process takes 15 weeks.

The academic calendar will be issued and published on the web-page by the Rector of GTU before the beginning of the semester.

In the first semester of the first year the master studies 6 major specialty courses: "Viticulture and Vineyard Management Systems" 5 credits, "Wine Production and Winery Systems" 6 credits, "Intensive Course in wine Microbiology" 4 credits, "Enochemistry" 5 credits; "Wine tourism" 5 credits.

In addition, with 5 credits, master chooses Elective Training Courses: "World Wines and Wine Production Methods" and "Wine Grapes and World Viticulture Regions". Total: 30 credits;

In the second semester of the first year, the master studies 5 major specialty courses: "Vineyard establishment and maintenance" 5 credits, "Methods of wine and must analysis" - 5 credits, "Field practice in viticulture" 6 credits, "viticulture and winemaking regulation" - 4 credits, "Wine and Beverage Marketing" - 5 credits, also has a master's research project / prospectus which includes 5 credits. Total: 30 credits.

In the first semester of the second year, the master studies 4 major courses: "Sparkling Wine Production Methods" - 4 credits, Sensory Evaluation of wine - 6 credits, Enterprise Practice in Winery - 6 credits, "Production of distilled spirituous beverages of grape origin" - 4 credits. It also has a theoretical / experimental research / colloquium covering 10 credits.

Total: 30 credits

In the second semester of the second year, the master completes and defends the master thesis - 30 credits.

Detailed information on the Master's Regulations is available on the GTU Web site: https://gtu.ge/Learning/debuleba_magistraturis_sesaxeб.php

The Master Research Project / Prospectus Evaluation Criteria and Scales are set out in the Evaluation Rule for the Research Component of the Master's Degree Program, which is available on the GTU Web site: https://gtu.ge/Learning/debuleba_magistraturis_sesaxeб.php

Instructions for completing a master's degree are available at the GTU web site: https://gtu.ge/Learning/debuleba_magistraturis_sesaxeб.php

Criteria and scoring criteria for qualification are given in the evaluation section of the research component of the Master's Degree Program on the GTU web site:

https://gtu.ge/Learning/debuleba_magistraturis_sesaxeб.php

Detailed information on the evaluation of the research component of the MA program is available at the GTU web site: https://gtu.ge/Learning/debuleba_magistraturis_sesaxeб.php

Program Objective

The aim of the master's program is to teach students modern vineyard cultivation and agro-technology, vineyard management features, introduce the vineyard and grape pests, diseases and combat methods, organic and biodynamic viticulture, grape processing features, modern innovative

and traditional methods of wine and grape variety for the production of alcohol-planned process management, oenological processes and materials used in the technological processes, in the field of traditional, innovative trends while taking into account the proven and modern methodologies and technologies in the world viticulture-oenology. Microbiological and physicochemical processes in alcoholic fermentation and their management, physical-chemical composition of beverages, their sensory evaluation, wine diseases, current trends in the world wine and beverage market, consumer behavior including tourists, vine and wine legislation in international markets, Certification procedures and labeling rules, a tourism, to develop the concept, planning and management, the introduction of viticulture and winemaking regions, technological characteristics of the production, and in accordance to the International standards and the innovative methods prepare a Master of Agricultural Sciences - in the labor competitive market, a skilled and experienced staff managing the whole wine production chain – starting from grape growing to final consumer.

The Learning Outcomes/Competence (general and field-specific)

- Describes the basic principles of organizational and seasonal management of viticulture; Vine and grape development phases, impact of agro-climatic conditions on vine and wine quality, processes in organic and biodynamic viticulture, independently plan vineyard maintenance operations, discuss potential problems in plant growth and development, and plan solutions;
- Determines the optimal harvest date for the desired final product, plans the appropriate technology and establishes the process of alcoholic fermentation, analyzes seasonal operations, manages grape cultivation and oenological processes according to current regulations;
- Discusses world viticulture and winemaking, traditional, classical and innovative production features in accordance with existing legislation, appellation regions and their characteristics, vine varieties and agro-technological features;
- Describes grape and wine analysis methods, chemical and physical processes during grape processing, discusses the solutions needed during the process and ways to improve them;
- Identifies grape and wine diseases, discusses their causes, and suggests ways to eliminate them. Plans for tasting alcoholic beverages in accordance with international requirements and standards;
- Discusses world beverages market trends, modern market research tools, company structure and trading opportunities between countries, independently plans market research, business, brand and product development strategies to attract satisfied customers;
- Connects wine, as an ancient culture, to the product of one of the world's leading forms of tourism development. Analyzes the requirements of wine tourism worldwide, develops a wine tourism development strategy, plans the necessary activities and activities to raise awareness;
- Develop critical conclusions, perspectives and innovative suggestions on viticulture-winemakers' problems. Develops arguments when communicating with the academic or professional community;
- Shares and adheres to ethical and professional responsibility norms, presents substantially and innovative visions in viticulture and winemaking;
- Continuous striving to increase production of environmentally friendly quality products, to improve and establish them;

Methods (Teaching-learning) of Achieving Learning Outcomes

Lecture Seminar (working in the group) Practical classes Laboratory class's Practice

Course Work/Project Consultation Independent Work

Based on the specifics of a learning course, the appropriate activities listed below are employed, reflected in the relevant learning courses (syllabi):

(discussions, debates, presentations, working in groups, etc.)

Discussion/debates; Collaborative work; Case study, Demonstration method; Inductive method; Deductive method; Analytical method; Verbal or oral method; writing method, Laboratory method; Practical methods; Explanatory method; Activity-oriented teaching; Designing and presenting a project;

Forms and Methods of achieving the learning outcomes are uploaded to the university web-site and can be find via the following link: <http://www.gtu.ge/quality/pdf/sc.pdf>

Student knowledge assessment system

Grading system is based on a 100-point scale.

Positive grades:

- (A) - Excellent - the rating of 91-100 points;
- (B) – Very good - - the rating of 81-90 points
- (C) - Good - the rating of 71-80 points
- (D) - Satisfactory - the rating of 61-70 points
- (E) - Enough - the rating of 51-60 points

Negative grades:

- (FX) - Did not pass - 41-50 points of rating, which means that the student needs more work to pass and is given the right to take the exam once more with independent work;
- (F) – Failed - 40 points and less, which means that the work carried out by the student is not enough and he/she has to learn the subject from the beginning.

In the case of receiving FX, an additional exam is held no earlier than 5 days after the announcement of the results.

Detailed information is available on GTU's website: Instructional Management Process at Georgian Technical University <https://gtu.ge/Study-Dep/Forms/Forms.php>

Qualification assessment criteria and scales are given in the research component of evaluation section of master's program on the GTU website:

https://gtu.ge/Learning/debuleba_magistraturis_sesaxeб.php

Detailed information on the evaluation of the research component of the MA program is available at the GTU web site: https://gtu.ge/Learning/debuleba_magistraturis_sesaxeб.php

Sphere of employment

- Local and international private sector;
- Educational institutions;
- Scientific-research and experimental-agricultural-experimental farms and bases;
- Accredited laboratories;
- Enologist;
- tasting committees;
- Government and Non governmental organizations:
- Ministry of Environment protection and Agriculture;
- LEPL Research-scientific Center of Agriculture;
- National Wine Agency;
- Regional services;

Potential for Further Education

Doctoral Educational Programs

Human and material resources necessary for the implementation of the program

The program provides the appropriate human and material resources.
For more information see the attached documents.

The Number of Syllabi Attached: :16

Courses in the Program

Nº	Course Title	Admission prerequisites	ECTS Credits			
			I Year		II Year	
			Semester			
			I	II	III	IV
1	Viticulture and vineyard management systems	N/A	5			
2	Wine production and winery systems	N/A	6			
3	Enochemistry	N/A	5			
4	wine tourism	N/A	5			
5	Intensive course in wine microbiology	N/A	4			
Elective						
6 ¹	World wines and winemaking techniques	N/A	5			
6 ²	Wine grapes and world grape growing regions	N/A				
7	Vineyard establishment and maintenance	Viticulture and vineyard management systems		5		
8	Field Practice in viticulture	Viticulture and vineyard management systems		6		
9	Methods of must and wine analyses	Enochemistry		5		
10	Regulation of viticulture and wine production	N/A		4		
11	Wine and beverage marketing	N/A		5		

12	Sparkling wine producing methods	Wine production and winery systems			4	
13	Sensory evaluation of wine	Wine production and winery systems; Enochemistry; Intensive course in wine microbiology			6	
14	Enterprise Practice in Winery	Wine production and winery systems. Enochemistry			6	
15	Production of distilled spirituous beverages of grape origin	Wine production and winery systems. Enochemistry.			4	
Research Component:						
	Master Research Project / Prospectus	N/A			5	
	Theoretical / experimental research / colloquium	Prospectus			10	
	Accomplishment and Defense of Master's Thesis	Colloquium				30
Total per semester:			30	30	30	30
Total per year:			60		60	
Total:			120			

Program curriculum

№	Course code	Course Title	ESTS credits / hours	Hours									
				Lecture	Seminar (work in the group)	Practical classes:	Laboratory	Practice	Course paper / project	Mid-semester exam	Final exam	Independent work	
1	AGC21110E1-LS	Viticulture and vineyard management systems	5/125	30	15						1	1	78
2	MAP18510E1-LSP	Wine production and winery systems	6/150	30	15	15					1	1	88
3	BRS22210G1-LB	Enochemistry	5/125	15			30				1	1	78
4	BUA54610E1-LS	Wine tourism	5/125	30	15						1	1	78
5	BRS17510E1-LB	Intensive course in wine microbiology	4/100	15			15				1	1	68

		Elective										
6 ¹	MAP18210E1-LS	World wines and winemaking techniques	5/125	30	15					1	1	78
6 ²	AGC21210E1-LS	Wine grapes and world grape growing regions	5/125	30	15					1	1	78
7	AGC21010E1-LS	Vineyard establishment and maintenance	5/125	30	15					1	1	78
8	MAP18410E1-R	Field Practice in Viticulture	6/150					60		1	1	88
9	MAP18610E1-LP	Methods of must and wine analyses	5/125	15		30				1	1	78
10	LAW11410E1-LS	Regulation of viticulture and wine production	4/100	15	15					1	1	68
11	BUA54710E1-LS	Wine and beverage marketing	5/125	30	15					1	1	78
12	MAP18810E1-LS	Sparkling wine producing methods	4/100	15	15					1	1	68
13	MAP18410E1-LSP	Sensory evaluation of wine	6/150	30	15	15				1	1	88
14	MAP18310E1-R	Enterprise Practice in Winery	6/150					60		1	1	88
15	MAP18710E1-LS	Production of distilled spirituous beverages of grape origin	4/100	15	15					1	1	68

Program Supervisor

David Magradze

Agricultural Sciences and Bio-systems

Engineering faculty Head of Quality

Assurance Service of the faculty

Nino Lomidze

Dean of the Faculty

Giorgi Kvartskhava

Agreed with

Quality Assurance Service of GTU

Irma Inashvili

Approved by

Academic Council of GTU

On 20 February, 2015

By Decree #1438

Modified by

Agriculture sciences and bio-systems engineering

At the meeting of Faculty Council

By Report №73 23.01.2020

Chairman of the Faculty Council

Giorgi Kvartskhava

Results of the program¹

Subject	Describes the basic principles of organizational and seasonal management of viticulture; Vine and grape development phases, impact of agro-climatic conditions on vine and wine quality, processes in organic and biodynamic viticulture, independently plan vineyard maintenance operations, discuss potential problems in plant growth and development, and plan solutions;	Determines the optimal harvest date for the desired final product, plans the appropriate technology and establishes the process of alcoholic fermentation, analyzes seasonal operations, manages grape cultivation and oenological processes according to current regulations;	Discusses world viticulture and winemaking, traditional, classical and innovative production features, in accordance with existing legislation, appellation regions and their characteristics, vine varieties and agro-technological features;	Describes grape and wine analysis methods, chemical and physical processes during grape processing, discusses the solutions needed during the process and ways to improve them;	Identifies grape and wine diseases, discusses their causes, and suggests ways to eliminate them. Plans for tasting alcoholic beverages in accordance with international requirements and standards;	Discusses world spirits market trends, modern market research tools, company structure and trading opportunities between countries, independently plans market research, business, brand and product development strategies to attract satisfied customers;	Connects wine, as an ancient product of one of the world's leading forms of tourism development. Analyzes the requirements of wine tourism worldwide, develops a wine tourism development strategy, plans the necessary activities and activities to raise awareness;	Develop critical conclusions, perspectives and suggestions on innovative winemakers' problems. Develops arguments when communicating with the academic or professional community;	Shares and adheres to ethical and professional responsibility norms, presents substantially and innovative visions in viticulture and winemaking;	Continuous striving to increase production of environmental friendly quality products, to improve and establish them;
Viticulture and vineyard management systems	1	1	1	-	1	-	-	1	1	1
Wine production and winery systems	-	1	1	1	1	-	1	1	1	1

Enochemistry	-	-	-	1	1	-	-	1	1	1
Wine tourism	-	-	-	-	-	1	1	1	1	1
Intensive course in wine microbiology	-	-	-	1	1	-	-	1	1	1
Wine grapes and world grape growing regions	1	1	1	-	1	1	1	1	1	1
World wines and winemaking techniques	-	-	1	1	1	1	1	1	1	1
Vineyard establishment and maintenance	2	2	2	-	2	-	-	2	2	2
Field Practice in viticulture	3	3	3	3	3	-	-	3	3	3
Methods of must and wine analyses	-	-	-	2	2	-	-	2	2	2
Regulation of viticulture and wine production	1	1	1	1	1	1	1	1	1	1
Wine and beverage	-	-	-	-	-	2	2	2	2	2

marketing										
Sparkling wine producing methods	2	2	2	2	2	-	-	2	2	2
Sensory evaluation of wine	3	3	3	3	3	3	3	3	3	3
Enterprise Practice in Winery	3	3	3	3	3	-	-	3	3	3
Production of distilled spirituous beverages of grape origin	2	2	2	2	2	-	-	2	2	2
Master Research Project / Prospectus	1	1	1	1	1	1	1	1	1	1
Theoretical / experimental research / colloquium	2	2	2	2	2	2	2	2	2	2
Accomplishment and Defense of Master's Thesis	3	3	3	3	3	3	3	3	3	3

Program aims and results map²

<p>Teach modern vineyard cultivation and agro-technology, vineyard management features, introduce the vineyard and grape pests, diseases and combat methods, organic and biodynamic viticulture, grape processing features, modern innovative and traditional</p>	<p>✓</p>	<p>Describes the basic principles of organizational and seasonal management of viticulture; Vine and grape development phases, impact of agro-climatic conditions on vine and wine quality, processes in organic and biodynamic viticulture, independently plan vineyard maintenance operations, discuss potential problems in plant growth and development, and plan solutions;</p>
<p>✓</p>	<p>Determines the optimal harvest date for the desired final product, plans the appropriate technology and establishes the process of alcoholic fermentation, analyzes seasonal operations, manages grape cultivation and oenological processes according to current regulations;</p>	
<p>✓</p>	<p>Discusses world viticulture and winemaking, traditional, classical and innovative production features in accordance with existing legislation, appellation regions and their characteristics, vine varieties and agro-technological features;</p>	
<p>✓</p>	<p>Describes grape and wine analysis methods, chemical and physical processes during grape processing, discusses the solutions needed during the process and ways to improve them</p>	
<p>✓</p>	<p>Identifies grape and wine diseases, discusses their causes, and suggests ways to eliminate them. Plans for tasting alcoholic beverages in accordance with international requirements and standards;</p>	
<p>✓</p>	<p>Discusses world spirits market trends, modern market research tools, company structure and trading opportunities between countries, independently plans market research, business, brand and product development strategies to attract satisfied customers;</p>	
<p>✓</p>	<p>Connects wine, as an ancient culture, to the product of one of the world's leading forms of tourism development. Analyzes the requirements of wine tourism worldwide, develops a wine tourism development strategy, plans the necessary activities and activities to raise awareness;</p>	
<p>✓</p>	<p>Develop critical conclusions, perspectives and innovative suggestions on viticulture-winemakers' problems. Develops arguments when communicating with the academic or professional community;</p>	
<p>✓</p>	<p>Shares and adheres to ethical and professional responsibility norms, presents substantially and innovative visions in viticulture and winemaking;</p>	
<p>✓</p>	<p>Continuous striving to increase production of environmentally friendly quality products, to improve and establish them;</p>	

<p>methods of wine and grape variety for the production of alcohol-planned process management, oenological processes and materials used in the technological processes, in the field of traditional, innovative trends while taking into account the proven and modern methodologies and technologies in the world viticulture-oenology..Microbiological and physicochemical processes in alcoholic fermentation and their management, physicochemical composition of beverages, their sensory evaluation, wine diseases, current trends in the world wine and beverage market, consumer behavior including tourists, vine and wine legislation in international markets,</p>									
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Certification procedures and labeling rules, a tourism, to develop the concept, planning and management, the introduction of viticulture and winemaking regions, technological characteristics of the production.										
prepares a Master of Agricultural Sciences - in the labor competitive market, a skilled and experienced staff	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
managing the entire wine production chain - from grape growing to final consumer..	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓