



Curriculum

Program title	Food Technology and Safety
Qualification/Academic degree to be awarded	Master of Food Technology
Faculty name	Faculty of Engineering Technology
Program Supervisor (s):	Manana Karchava - Doctor of Technical Sciences, Professor Mariam Silagadze - Doctor of Technical Sciences, Academician of the Academy of Engineering, Professor Emeritus
Program duration / volume (semesters, credits)	The volume of the program is 120 ECST credits (4 study semesters). 1 ECST credit corresponds to 25 hours.
Language of instruction:	Georgian
Program elaboration and renewal dates:	The updated program was developed in 2022. Approved - Resolution ATSU Academic Council No. 5 (23/24), 14.09.2023; Accredited - Decision of the Accreditation Council #975465, 08.08.2023. Accredited until 31.12.2025.
Admission prerequisites (requirements):	
A person with at least a bachelor's degree or an academic degree equivalent to it, who is enrolled based on the results of the master's examinations (common master's examination and exam/examinations determined by ATSU) has the right to study in the master's program. ➤ Passing the exam in the specialty; ➤ Knowledge of the English language at B1 level (proved by the appendix of the bachelor's diploma - by mastering the English language or by passing an exam at the Institute of Higher Education or by presenting an appropriate certificate/document). Enrollment in the program without passing the master's exams is possible according to the rules established by the Ministry of Education and Science of Georgia.	
Program analogues	
1. Master of Food Processing (Turku, Finland) Master's Degree Program in Food Development (Turku, Finland) https://www.masterstudies.com/Masters-Degree-Programme-in-Food-Development/Finland/University-of-Turku/ 2. Food quality and safety (University of Bayreuth, Germany) Food Quality & Safety (University of Bayreuth, Germany) https://www.masterstudies.com/MSc-in-Food-Quality-and-Safety/Germany/University-of-Bayreuth/ 3. Food Science and Technology (University of Parma, Italy) Food Science and Technology (University of Parma, Parma, Italy) https://www.rmit.edu.au/study-with-us/levels-of-study/postgraduate-study/masters-by-coursework/master-of-food-science-and-technology-mc237/mc237auscy 4. Food Science and Innovations (Manchester Metropolitan University, United Kingdom) Food Science and Innovation (Manchester Metropolitan University, Manchester, United Kingdom) https://www.masterstudies.com/MSc-in-Food-Science-and-Innovation/United-Kingdom/MMU/8	

5. Food technology and safety (New University of Lisbon, Portugal)

Food Technology and Safety (Nova University of Lisbon, Lisbon, Portugal)

[https://www.masterstudies.com/Master-in-Food-Technology-and-Safety/Portugal/Universidade-Nova-de-Lisboa-\(Nova-University-of-Lisbon\)/](https://www.masterstudies.com/Master-in-Food-Technology-and-Safety/Portugal/Universidade-Nova-de-Lisboa-(Nova-University-of-Lisbon)/)

6. Food Science and Safety (Kaunas University of Technology, Lithuania)

Science in Food Science and Safety (Kaunas University of Technology. Kaunas, Lithuania)

<https://admissions.ktu.edu/programmes/m/m-technological-sciences/m-food-technology?l=undefined&st=undefined>

Program aims:

The program is focused on training a wide-profile, highly qualified, competitive specialist in the field of food technology and safety, who, based on deep and systematic knowledge of the field, will be able to:

- Manage traditional technologies of food products (meat and/or milk and/or pastry-goods and/or confectionary and/or drinks) independently, at a highly professional level or their modernization considering the principles of healthy nutrition in accordance with the latest achievements in the field;
- Develop technologies for new products, including food products with different functional purposes.
- Independently plan and organize international food safety principles (HACCP) based on national and international regulations;
- Conduct and disseminate original, innovative research in the field of food technology and safety;
- Acquire and use engineering, managerial, language skills in appropriate conditions along with basic competencies.

Learning Outcomes (General and Sectoral Competencies):

Learning outcomes should be in line with the industry standard if any. It should be possible to observe and measure the action described in the learning outcomes.

Knowledge and understanding:

1. Describes and discusses the theoretical bases of processing food products (meat, milk, bakery and confectionery products, beverages) using traditional technologies, their modernization and innovative technologies.
2. Establishes a strategy and operational plan for the safety of manufactured products based on international and national regulations.
3. Discusses and compares modern methods of planning, conducting, analyzing results, using and disseminating original, innovative research.

Skill:

4. Decides on the implementation of the full cycle of traditional technologies for the production of food products or modernizes them considering the latest achievements in the field, including the use of innovative technologies and modern equipment.
5. Develops technologies for new products, including products with different functional purposes.
6. Plans safety systems for food raw materials and products in accordance with national and international regulations.
7. Identifies hazards arising from food products and plans measures to eliminate them.
8. Plans and independently conducts original scientific research in the field of food technology and safety using modern instrumental methods of analysis of food raw materials and products, makes a critical analysis of the research results and presents them in writing or orally in both native and foreign (English) languages.
9. Uses engineering and managerial competencies to solve relevant problems in the production of food products.

Responsibility and autonomy:

10. Manages the work environment with new strategic approaches and ethical responsibility.
11. Contributes to the development of professional knowledge and practice of food technology and safety.
12. Consistently assesses his own knowledge level and conducts further studies independently for continuous development of professional skills.

Teaching methods

In order to achieve the goals, set by the program, various methods are used in the teaching-learning process, which complement each other and cross each other. Based on the specifics of the course, the teacher uses appropriate teaching methods:

- The following teaching methods are used in lectures: explanatory method, demonstration method, case analysis, problem-based teaching, discussion, induction, deduction, analysis and synthesis methods;
- In practical lessons, the following methods are used: explanatory method, discussion, action-oriented method;
- In laboratory studies, the following are used: explanatory method, action-oriented method in a real production environment, group work, cooperative learning;
- Special attention is paid to learning methods such as industrial practice, research project and master's thesis.

Program structure

The master's program involves 120 credits, including:

- Compulsory courses corresponding to the content of the main field of study - 80 credits;
- Elective courses corresponding to the content of the main field of study - 40 credits, including:
 - 15 credits - block of optional subjects of food technologies;
 - 15 credits - block of optional subjects of food safety;
 - 10 credits - subjects defining general engineering competencies.

The presented structure of the program gives the student the opportunity to choose food technology and food safety training courses with the volume of 15-15 credits and general engineering training courses with the volume of 10 credits, along with the courses studying the theoretical bases of food technology and safety presented in the part of mandatory training courses. Elective courses in the "Food Technology" and "Food Safety" blocks lead to the same outcome. Completing the "Food Technology" and "Food Safety" blocks in the program configuration (in any configuration) ensures access to the learning outcomes defined by the educational program (see: Learning outcomes map - "Link between learning outcomes and training courses in the program", the 4-th, 5-th, 6th and 7-th learning outcomes).

Student's Knowledge Assessment System

LEPL Akaki Tsereteli State University evaluates the academic performance of students of higher education programs using modern indicators set by the order of the Minister of Education and Science of Georgia №3 (05.01.2007) and by the resolution of the Academic Council of Akaki Tsereteli State University № 5, (17/18) 15.09.2017 according to defined principles.

The maximum grade of the study course at Akaki Tsereteli State University is equal to 100 points.

Evaluation system provides for:

a) Five forms of positive assessment:

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

b) Two forms of negative assessment:

- (FX) Could not pass – 41-50 points, which means that the student needs to work more to pass the exam and is entitled to retake the exam only once after the individual work;
- (F) Failed – 40 points and lower, which means that the work done by the student is not sufficient and she/he has to redo the course.

In case of receiving an FX in the educational component of the program, a makeup examination shall be appointed in no less than 5 days after the announcement of the final exam results.

The assessment of the student's work in a certain ratio allows for:

- a) Interim assessment;
- b) Final assessment.

In the components of the interim evaluations, the minimum competence level is at least 18 points in total; The minimum evaluation threshold of the student in the final exam is set at **15 points**.

The number of points obtained in the final assessment is not added to the grade received by the student in the makeup exam. The grade obtained on the makeup exam is the final grade and is reflected in the final assessment of the training component of the educational program. In case of receiving 0-50 points in the final evaluation of the educational component, taking into consideration the evaluation received at the makeup exam, the student is assigned an F-0 score.

The master's thesis is evaluated once (final evaluation), with a 100-point system.

Additional criteria for evaluating student achievements in teaching and research components are determined by the relevant syllabus.

Employment areas:

The areas of employment for the Master of Science in Food Technology are:

- Food industry enterprises, companies, firms;
- National Food Agency;
- Food industry and agriculture management organizations;
- Higher and professional educational institutions;
- Scientific research centers and laboratories.

Supporting conditions / resources necessary for learning

The master's program will be implemented:

- In study halls, library and computer center of Akaki Tsereteli State University;
- In the training laboratories of the "Food Products Technology Department" of the Institute of Agricultural Sciences;
- In Kutaisi regional diagnostic laboratory of the LEPL State Laboratory of Agriculture;
- In enterprises equipped with modern equipment and technologies:
 - ✓ Meat and meat products enterprise – Ltd. "Onima"
 - ✓ Meat and meat products enterprise – Ltd. "Extra Meat"
 - ✓ Milk and dairy products enterprise – Ltd. "Atinati"
 - ✓ Bakery enterprise – Ltd. "Alati"
 - ✓ Grain processing enterprise – Ltd. "Bevrili"
 - ✓ Grain processing enterprise – Ltd. "Leader"
 - ✓ Bakery enterprise – Ltd. "Ifkli"
 - ✓ Bakery enterprise – Ltd. "Ifkli Digomi"
 - ✓ I/E Gaioz Sopromadze Wine Cellar
 - ✓ I/E Davit Leladze Wine Cellar

The volume determined for each educational component of the program includes time for both contact (lecture, practical, laboratory, etc.) and examination activities, as well as for independent work. A student's independent working time includes: preparing assignments, passing exams, receiving individual consultations from teachers, working in the library and computer centers, etc.

Accordingly, the university provides for the necessary and supporting conditions/resources for study:

1. Constantly updated book fund of the scientific-technical library of the university;
2. University library services;
3. University information technology services;
4. Computer centers equipped with modern equipment;
5. Auxiliary methodical materials created by university professors;
6. Cabinet-laboratories of the engineering-technological direction (including technologies and safety of food products);
7. Practice workplaces with which the university has signed acts of mutual cooperation.



საგანმანათლებლო უნივერსიტეტი

Study Plan

Educational Program: “Food Technology and Safety”

Qualification to be awarded: Master of Food Technology

№	Course Title	Cr.	Workload in hours				L/p/lab/gr	Semester				Admission prerequisite
			Total	Contact		Ind.		I	II	III	IV	
				Classroom	Midterm/Final Exams							
1	2	3	4	5	6	7	8	9	10	11	12	13
	Compulsory training courses relevant to the content of the main field of study - (80 credits)											
1	Food chemistry issues	5	125	45	3	77	15/0/30/0	5				-
2	Ensuring food safety	5	125	45	3	77	15/30/0/0	5				
3	Basics of scientific writing	5	100	45	3	77	12/0/0/33	5				-
4	Modern methods of research of food products	5	125	45	3	77	13/17/15/0		5			1
5	Sanitary microbiology of food	5	125	45	3	77	15/10/20/0		5			-
6	Sectoral foreign (English) language 1	5	125	45	3	77	0/45/0/0		5			-
7	Food industry processes and equipment	5	125	45	3	77	30/15/0/0			5		-
8	Food additives	5	125	45	3	77	8/8/29/0			5		-
9	Research project	5	125	45	3	77	0/45/0/0			5		1,2,3,4,5,8
10	Professional practice	5	125	70	3	52	0/70/0/0			5		2,5,8
11	Master's thesis	30	750								30	1,2,3,4,5,6,7,8,9,10

Optional training courses relevant to the main field of study (40 credits)												
Elective subjects of the food technology block (15 credits)												
12	Bakery technology	5	125	45	3	77	8/8/29/0	5				
13	Technology of flour confectionery	5	125	45	3	77	8/10/27/0	5				-
14	Technology of production of meat products	5	125	45	3	77	9/0/36/0	5				
15	Dairy products production technology	5	125	45	3	77	8/0/37/0	5				
16	Wine technology	5	125	45	3	77	15/0/30/0	5				
Elective subjects of the food safety block (15 credits)												
17	Technology and safety of sugary confectionery	5	125	45	3	77	8/12/25/0		5			2
18	Ensuring the safety of flour products	5	125	45	3	77	15/0/30/0		5			2
19	Ensuring the safety of meat products	5	125	45	3	77	16/29/0/0		5			2,14
20	Ensuring the safety of dairy products	5	125	45	3	77	16/29/0/0		5			2,15
21	Safety of wine	5	125	45	3	77	15/0/30/0		5			2
Block of general engineering subjects (10 credits)												
22	Principles of planning of catering enterprises	5	125	45	3	77	0/45/0/0			5		
23	Organizational management	5	125	45	3	77	15/30/0/0			5		
24	Business planning and administration in the catering industry	5	125	45	3	77	15/30/0/0			5		
25	Sectoral foreign (English) language 2	5	125	45	3	77	0/45/0/0			5		
Elective courses in total								15	15	10		
Total		120	3000	17		2283		30	30	30	30	

Note: Elective courses in the “Food Technology” and “Food Safety” blocks lead to the same outcome. Completion of the "Food Technology" and "Food Safety" blocks (with 15-15 credits and any configuration) in the program configuration ensures the achievement of the learning outcomes defined by the educational program (see Learning outcomes map - "Connection between learning outcomes and training courses in the program", 4-th, 5-th, 6-th and 7-th learning outcomes).