



Instruction descriptive form

Domain: Natural and life sciences

Branch: Food Sciences

Specialty: Agro-food and Quality Control

Cycle: Master

Reporting structure: Faculty of Natural and Life Sciences Department of Agronomy

1. Context and Objectives of the Training

A – Admission Requirements (Indicate the bachelor's degrees that grant access to the Master's program)

Admission to this Master's program is granted to students holding a bachelor's degree in agro-food and quality control, quality control, microbiology, and biochemistry accredited by the University of Khenchela or other national universities.

Admission is based on application and review by the training team for students holding a bachelor's degree in other fields within the SNV domain.

B – Training Objectives (Skills to be acquired, educational knowledge gained after the training - maximum 20 lines)

The fields of quality control, through their diversity of specializations, respond both to the requirements of scientific progress and the need to modify the nature and content of the teaching demanded by the new system. Moreover, they concern new sectors both academic (biotechnology and health research) and non-academic (agro-food industries, control laboratories, etc.).

The field of food quality control has various career prospects touching on emerging sectors, thus providing an opportunity for graduates to integrate into these institutions. For some students, this training leads to a Master's degree, while for others, it allows progression to the doctoral level.

We currently have a young, dynamic, and multidisciplinary team of educators, guided by experienced members, which forms the foundation of the team that will develop our program. This team, with experience in training Bachelor's and Master's level students in Biochemistry

and Microbiology, is well-equipped for this task.

Our goal is not only to generate teachable knowledge (higher education: Master's and Doctorate for the best students) but also to train professionals capable of addressing real issues related to quality control and developing the agro-food technology field. We aim to valorize and exploit the economic potential (animal and plant production) in the Aurès region. Thus, this program not only targets educational goals but also aims at socio-economic benefits for the Khenchela region.

C – Profiles and Skills Targeted (Professional insertion - maximum 20 lines)

The food sector must, more than ever, demonstrate the quality and safety of its products. Consumers are increasingly demanding about the quality of the food they consume. In Algeria, market opening imposes strict requirements on companies to comply with food quality standards and international trade requirements.

To address this issue, professionals in this sector must have solid training and quick methods to assess the quality and safety of food products.

The Master's program we offer will allow students with a background in quality control and microbiology to deepen their knowledge. This program will enable candidates to:

- Understand the fundamentals of food technologies;
- Apply food quality control techniques on a production chain;
- Organize molecular biology in a quality control laboratory;
- Stay updated on biotechnologies;
- Understand the legal context regarding fraud prevention;
- Evaluate performance in scientific research.

The content of the Master's program will ensure that students are effective in academic research structures and major organizations, facilitating their access to positions as researchers and/or research professors.

D – Regional and National Employability Potential of Graduates

The implementation of quality standards, traceability, the development of food risk concepts, the environmental impact of economic development, etc., are new concerns that require reliable, precise, and sensitive evaluation methods such as physico-chemical, microbiological, and molecular control methods.

The Master's in food quality control is a specialty focused on both locally produced and imported food products. Therefore, we believe this program addresses numerous needs at the local public (municipalities, districts, or wilayas) and private levels.

Graduates will be able to integrate into:

- Hygiene and quality control laboratories (biochemical, microbiological, etc.);
- Public and private analysis laboratories in sectors such as food, agriculture, bio-industry, etc.;
- Private and public research laboratories (pharmaceutical industries, agriculture, food, etc.);
- Consulting firms for implementing hygiene systems within agro-food companies (e.g., HACCP system, etc.);
- They may also pursue further studies, such as a Doctorate.

E – Pathways to Other Specializations

Graduates of the Master's in food quality control have the possibility to transition to other related programs offered at other universities (Master's in Food Sciences, etc.). This training also provides students with a degree in Biochemistry or Microbiology the opportunity to receive agro-food technology training.

F – Training Monitoring Indicators

The teaching is organized in the form of lectures, seminars, practical work, and presentations or conferences on the subject of food quality control. Educational field trips will also be organized.

- Knowledge assessment is ensured through:
- Practical exams during seminars;
- Oral presentations and reports on the results obtained in practical work;
- Written exams after every five series of seminars;
- Oral presentations with poster sessions of individual work;
- Reports on educational field trips;
- Bi-annual written exams for each unit of study.

G – Supervision Capacity (Number of students that can be accommodated)

This program will undoubtedly improve the quality of student education. Therefore, the number of students to be accepted is between 20 and 25.

The educational goals of the courses on agri-food and quality control are oriented towards knowledge, analysis and control of products with control of health risks.

The health benefits of foods are prioritized with the in-depth study of the biochemical and

microbiological composition of foods. The senior manager thus trained has a complete knowledge of foods, their quality with regard to health and their safety potential as well as the corresponding current regulatory framework without which no quality certification and no development of new products is possible.

The skills acquired are: (i) knowledge of food quality from upstream to downstream including raw, fresh and then processed products (ii) knowledge of hygiene, safety and traceability food and biotechnology (iii) knowledge and capacity to develop functional foods and then produce and market them while respecting regulatory constraints and labeling.

The field of quality control has very varied opportunities affecting the emergence of sectors, thereby opening up to the fruits of this training, an integration into these institutions "students desiring a short training", for others an evolution in the grade, up to the doctorate.

We currently have a potential of young, dynamic and multidisciplinary teachers and teacher-researchers guided by the oldest.

Our objective is not only to produce teachable knowledge (higher education: Master's and Doctorate for the best elements), but also to train executives capable of intervening on real problems affecting the areas of quality control of agri-food products.

2. Semester organization of lessons

1. Semester 01

Teaching Unit	WHV	WHV				Coef.	Credits	Mode of Teaching		Evaluation Mode	
	14-16 W.	C	DW	PW	Others			Distance Learning	In Person	Continue	Exam
Fundamental						9	18				
FTU1 (O/P) Quality Control of Raw Materials						7	14				
Subject 1: Quality of Biological Food	45 H	1.5	0	1.5	55.0	2	4		X	40%	60%
Subject 2: Quality and Safety of Raw Food Materials (*)	67.5 H	3.0	0	1.5	82.5	3	6		X	40%	60%
Subject 3: Impact of Technological Treatments on the Quality of Raw Materials (*)	45	1.5	0	1.5	55.0	2	4		X	40%	60%
FTU2 (O/P) Technology of Food Design and Formulation											
Subject 1: Technology of Food Design and Formulation (*)	45	1.5	0	1.5	55.0	2	4		X	40%	60%
Methodology											
MTU1 (O/P) Microbiological Control of Food and Sampling Methods						5	9				
Subject 1: Microbiological Control of Food	67.5 H	1.5	0	3	82.5	3	6		X	40%	60%
Subject 2: Sampling Methods	3.7 H	1.5	0	1.0	37.5	2	3		X	40%	60%
Discovery											
UET1 (O/P) Food Safety											
Subject 1: Food Safety	45 H	3	0	0	5	2	2		X	40%	60%
Transversal											
UET1 (O/P): Communication											
Subject 1: Communication	22.5	1.5	0	0	2.5	1	1	X			100%
Total Semester 1	375	225	0	150	375	17	30				

Note: Students are entitled to a practical internship within a hosting structure.

(*) Educational outings are mandatory and must be scheduled and organized by the responsible course instructors.

2. Semester 02

Teaching Unit	WHV	WHV				Coef.	Credits	Mode of Teaching		Evaluation Mode	
	14-16 W.	C	DW	PW	Others			Distance Learning	In Person	Continue	Exam
Fundamental											
FTU3 (O/P) Enzymatic Engineering and Functional Foods						6	12				
Subject 1: Enzymatic Engineering and Agri-food Industries (*)	67.5H	3	0	1.5	82.5	3	6		X	40%	60%
Subject 2: Technology of Functional Foods (*)	67.5H	3	0	1.5	82.5	3	6		X	40%	60%
FTU4 (O/P) Molecular Methods and Quality Control											
Subject 1: Molecular Methods and Quality Control	67.5H	3	0	1.5	82.5	3	6		X	40%	60%
Methodology											
MTU2 (O/P) Preservation Technology						5	9				
Subject 1: Conservation Technology	67.5H	3	0	1.5	82.5	3	6		X	40%	60%
Subject 2: Bioinformatics and Data Analysis	37.5H	1.5	0	1.0	37.5	2	3		X	40%	60%
Discovery											
UET2 (O/P): Biotechnology						2	2				
Subject 1: Microbial Biotechnology	22.5	1.5	0	0	2.5	1	1		X	40%	60%
Subject 2: Plant and Animal Biotechnology	22.5	1.5	0	0	2.5	1	1				
Transversal											
UET 2(O/P): Legislation											
Subject 1: Legislation	22.5	1.5	0	0	2.5	1	1	X			100%
Total Semester 2	375	247.5	0	127.5	375	17	30				

Note: Students are entitled to a practical internship within a hosting structure.

(*) Educational outings are mandatory and must be scheduled and organized by the responsible course instructors.

3. Semester 03

Teaching Unit	WHV	WHV				Coef.	Credits	Mode of Teaching		Evaluation Mode	
	14-16 W.	C	DW	PW	Others			Distance Learning	In Person	Continue	Exam
Fundamental											
FTU5 (O/P) Quality Control and Food Expertise - Analytical Techniques						6	12				
Subject 1: Quality Control and Food Expertise (*)	67.5H	3	0	1.5	82.5	3	6		X	40%	60%
Subject 2: Toxicological Analysis Techniques	67.5H	3	0	1.5	82.5	3	6		X	40%	60%
FTU6 (O/P) Physiochemistry of Food Products											
Subject 1: Physiochemistry of Food Products	67.5H	3	0	1.5	82.5	3	6		X	40%	60%
Methodology											
MTU3 (O/P) Quality Control Training Technique						5	9				
Subject 1: Quality Control Training Technique	67.5H	3	0	1.5	82.5	3	6		X	40%	60%
Subject 2: Nutritional Analysis Techniques	58.5H	1.5	0	1	37.5	2	3		X	40%	60%
Discovery											
UET3 (O/P): Food Science											
Subject 1: Food Science	24H	1.5	0	0	2.5	1	1		X	40%	60%
Transversal											
UET 3 (O/P): Entrepreneurship						1	1				
Subject 1: Entrepreneurship	22.5H	1.5	0	0	2.5	1	1	X			100%
Total Semester 2	375H	247.5	0	127.5	375	17	30				

Note: Students are entitled to a practical internship within a hosting structure.

(*) Educational outings are mandatory and must be scheduled and organized by the responsible course instructors.

4. Semester 04

- ❖ Field: Life and Natural Sciences
- ❖ Department: Food Sciences
- ❖ Specialization: Agro-food and Quality Control

Internship in a company, concluded with a thesis and a defense, either remotely or in person.

WHV	Coeff	Credits
Personal Work	175	4
Internship in a company	200	5
Seminars	/	/
Other (presentation of final thesis)	375	8
Total Semester 4	750	17

5- Global summary of the program:

(indicate the total VH separated by lectures, TD, for the 4 semesters of teaching, for the different types of UE)

WH	UEF	UEM	UED	UET	Total
Lectures (Cours)	382.5	135	157.5	90	765
TD (Tutorials)	0	0	0	0	0
TP (Practical)	225	180	0	0	405
Personal Work	742.5	360	12.5	10	1125
Other (Thesis)	450	300	0	0	750
Total	1800	975	170	100	3045
Credits	72	39	5	4	120
% of Credits per UE	60.00%	32.50%	4.17%	3.33%	100%