ISEKI - Food Association

European Association for Integrating Food Science and Engineering Knowledge Into the Food Chain

EQAS-Food Award Accreditation Report

Bachelor's and Master's Degree Programme *Food Science and Technology*

Provided by

University of Teramo

Version: 06. May 2014

Table of Content

A About the Accreditation Process 2

B Characteristics of the Degree Programmes 3

C Peer Report for the EQAS-Food Award 7

1. Formal Data 7
2. The rationale of the programme 8
3. Educational Process 10
4. Resources and Partnerships 12
5. Management System 13

D Additional Documents 14

E Comment of the Higher Education Institution (06. May 2014) 14

A About the Accreditation Process

Title of the degree Programme	Labels applied for	Previous accreditation
Bachelor Food Science and Technology	EQAS-Food Award	none
Master Food Science and Technology	EQAS-Food Award	none

Date of the contract: 05.04.2013

Submission of the final version of the self-assessment report: 23.12.2013

Date of the onsite visit: 23.03.2014

at: Teramo

Peer panel:

Prof. Dr. Saverio Mannino, University of Milan;

Dr. Jesus Frias, Dublin Institute of Technology;

Roberto Nardi, Consultant;

Jacopo Mistrello, student of the University of Milan

Representative of the ASIIN headquarter as organizer on behalf of IFA: Dr. Georg Ebertshäuser

Responsible decision-making committee: ISEKI Food Association Accreditation Commission

Criteria used:

EQAS Framework Standards and Accreditation Criteria as of 25.01.2011

In order to facilitate the legibility of this document, only masculine noun forms will be used hereinafter. Any gender-specific terms used in this document apply to both women and men.

The Accreditation report is based upon the Self-assessment report submitted by the HEI in preparation of the audit and accreditation procedure. The chapters of the accreditation report correspond to the respective chapters of the Self-assessment report of the HEI.

B Characteristics of the Degree Programmes

a) Name & Final Degree	b) Areas of Specialization	c) Mode of Study	d) Duration & Credit Points	e) First time of offer & Intake rhythm	f) Number of students per intake	g) Fees
Ba Food Science and Technology		Full time	6 Semester 180 CP	WS 1998 / WS		http://www.unite.it/UniTE/Engine/RAServeFile.php/f/Segreteria_studenti/Guida_tasse_2013_2014.pdf
Ma Food Science and Technology		Full time	4 Semester 120 CP	WS 1998 / WS		http://www.unite.it/UniTE/Engine/RAServeFile.php/f/Segreteria_studenti/Guida_tasse_2013_2014.pdf

For the degree programme Bachelor Food Science and Technology, the self-assessment report states the following **intended learning outcomes**:

(Knowledge and understanding)

Goal 1: demonstrate sufficient mastery of fundamental Mathematics, Physics, Chemistry, Biology, and Computer Science, and be able to apply the knowledge throughout food production chain;

Goal 2: demonstrate sufficient knowledge of specific research methods for food science and technology, in order to use research outcome to solve problems in food manufacturing, particularly on food quality and safety;

Goal 3: demonstrate proficiency and awareness of core food technology aspects for entry into profession, e.g. technical, regulatory, ethical, environmental, and economical aspects;

(Applying knowledge and understanding)

Goal 4: demonstrate proficiency in applying knowledge and skills in an innovative and creative working environment, to foster food quality and efficiency, also in terms of environmental impact and sustainability;

Goal 5: demonstrate mastery and skills in problem solving throughout food production chain;

Goal 6: demonstrate ability in analysing and describing food operations and processes, to use them to obtain useful goods and services;

(Making judgements)

Goal 7: demonstrate proficiency in gathering and evaluating professional information independently, critically and authoritatively, considering all social, scientific, ethical, and economical aspects;

Goal 8: demonstrate an awareness of ethical and professional responsibilities, to make independent judgements in work settings;

(Communication skills)

Goal 9: demonstrate proficiency in conveying correct technical and scientific information through written reports and oral presentations for professionals and non-professionals, also in English;

(Learning skills)

Goal 10: demonstrate a strong background and motivation to pursue life-long learning, also by using information technologies.

The following **curriculum** is presented:

CURRICULUM BACHELOR DEGREE PROGRAMME
FOOD SCIENCE & TECHNOLOGY

Year 1 - Semester 1			ECTS credits
Module "Mathematics and Statistics"			6
Module "General and Inorganic Chemistry"			8
Module "Structure and Function of Plants and Animals"	1 - "Structure and Function of Animals"	5	10
	2 - "Structure and Function of Plants"	5	
Module "Introduction to Food Technology"			3
		Total	**27**

Year 1 – Semester 2	ECTS credits
Module "Physics and Technical Physics"	5
Module "Organic Chemistry"	7
Module "Molecular and Cellular Biology"	5
Module "Computer Science"	2
Module "Foreign Language"	3
Optional Courses	8
Total	**30**

Year 2 – Semester 1			
Module "General Microbiology"			6
Module " Analytical Chemistry"			9
Module "Animal Production"	1 - "General and Special Zootechnics"	5	10
	2 - "Ethology and Morphofunctional Evaluation of Farm Animals"	5	
Module "Unit Operations in Food Technology"			10
		Total	**35**

Year 2 - Semester 2			ECTS credits
Module "Food Microbiology"			9
Module "Crop Science"			10
Module "Food Biochemistry"			7
		Total	**26**

Year 3 - Semester 1			ECTS credits
Module " Economics and Food Management"			8
Module "Agro-food Plant Engineering"			8
Module "Chemical, Physical and Sensory Analysis"	1 - "Chemical Analysis"	5	11
	2 - "Physical and Sensory Analysis"	6	
Module "Food Hygiene and Quality Control"			6
		Total	**33**

Year 3 - Semester 2			ECTS credits
Module "Processes in Food Technology"			7
Module " Human Nutrition and Dietetics"			6
Optional Courses			4
Training - Scientific Literature Search			8
Module "Bachelor's Project/Thesis"			4
		Total	**29**

Optional courses			
Module "Technology of Cereals and Derivatives"			4
Module "Chemistry Lab"			4
Module "Cereal Production"			3
Module "Packaging Techniques"			3
Module "Microbiology of Animal Products"			3
Module " Hygiene and Legislation of dairy products"			3
		Total	**180**

For the degree programme Master Food Science and Technology, the self-assessment report states the following **intended learning outcomes**:

(Knowledge and understanding)

The MS graduated in FS&T will achieve deeper knowledge and improved personal, soft skills in respect to those obtained from the B.Sc one especially in the more professional disciplines.

Goal 1: Demonstrate extensive knowledge and understanding of the conceptual, technical, legislative, ethical, environmental aspects related to the production of food products as well as of any other related aspect including packaging, raw materials and ingredients production, food plants, waste and by-products;

Goal 2: Demonstrate advanced knowledge about factor that could affect quality of processed and formulated foods and their shelf-life;

Goal 3: Demonstrate extensive knowledge of the analytical tools available to evaluate quality and safety of foods;

Goal 4: demonstrate good proficiency and awareness of the critical aspects of the whole food supply chain for entry into profession, e.g. technical, regulatory, ethical, environmental, marketing and economical aspects.

(Applying knowledge and understanding)

Goal 5: demonstrate advanced proficiency in applying knowledge and skills in an innovative and creative working environment, to foster food quality and efficiency, also in terms of environmental impact and sustainability;

Goal 6: demonstrate ability to develop and optimise existing food processes and products as well as to design new ones meeting the expectations of the consumers

Goal 7: demonstrate ability in choosing analytical tools to evaluate quality and safety of foods, ability to critically analyse and interpret the results

Goal 8: demonstrate a critical approach to the main issues of the food supply chain and ability to solve with an ethical approach.

Goal 9: demonstrate ability to apply knowledge with an autonomous approach and recognize the need of a continuous update and upgrade of his/her knowledge in a life-long learning perspective during all his/her professional career.

The following **curriculum** is presented:

CURRICULUM MASTER LEVEL FOOD SCIENCE AND TECHNOLOGY

Semester 1 - year I			**ECTS**
Module "Sustainable animal production"			8
Module "Marketing and agri-food business management"			6
Module "Food Engineering"	1 - "Engineering of food processing"	5	9
	2 - "Equipm. & Technol. For waste and by-products treatment"	4	
		total	**23**

Semester 2 - year I		**ECTS**
Module "Food Technology I"		9
Module "Food law and regulations"		6
Module "Applied Biochemistry and Nutrition"		7
Module "Food microbiology"		6
Optional course		4
	total	**32**

Semester 1 - year II			**ECTS**
Module "Industrial Microbiology"	1 - "Microbiological techniques for analysis of foods"	5	10

	2 - "Industrial microbiology"	5	
Module "Food technology II"	1 - "Shelf-life"	5	10
	2 - "Advanced technologies"	5	
Module "Chemical analysis of foods"			7
Module "Crops for agri-food chain"			6
Optional corse			4
		total	**37**
Semester 2 - year II			**ECTS**
Project/thesis			24
Other activities			4
		total	**28**
Optional courses			
Module "Experimental Laboratory of chemical analysis of foods"			4
Module "Scientific english"			4
Module "Bioethics and food technology			4
Module" Technology and genomics of food starter cultures"			4
		TOTAL	**120**

C Peer Report for the EQAS-Food Award

1. Formal Data

Criterion 1 Formal Specifications

Preliminary assessment and analysis of the peers:

The peers took note of the formal information about the degree programmes. They perceived that the Bachelor's and Master's degree programmes of Food Science and Technology are typical courses in this field of studies, and belong to the domain of Food Science and Technology as described in the EQAS Framework Standards and Accreditation Criteria. As the Self-assessment report of the HEI was missing numbers concerning the maximum intake of students per year in the degree programmes they asked the programme representatives to provide this information in order to provide a basis for the peers to judge the capacity and resources of the faculty.

Final assessment of the peers regarding criterion 1:

The self-study report and the meeting provided enough evidence for a positive assessment in this criterion.

2. The rationale of the programme

Criterion 2.1 Needs of stakeholders

Preliminary assessment and analysis of the peers:

The peers noted with approval the obvious high involvement of stakeholders in the development of the degree programmes. They were informed by the HEI's representatives that the strong point of the faculty was the many cooperation agreements with local companies. It is the aim of the faculty to further improve the connection to the local industry in the Abruzzo region in order to enhance job opportunities of the degree programmes' alumni. There is continuous work in the development of the degree programmes according to the wishes and demand of the industry and other stakeholders. Surveys are regularly conducted to establish the needs of the stakeholders. The HEI representatives told the peers that the greater part of students in the degree programmes comes from local region, but that the faculty is also good in attracting students from other Italian provinces, especially from the South where about 25% of the faculty's students come from. There are also some international students, from Northern Africa or Eastern Europe, but only a few. The students confirmed towards the peers that they see the degree programmes as very profitable, not only in professional terms, but also in personal respects. The peers inquired about the number of students taking part in international exchange programmes. They received the answer that there is an ERASMUS office at the HEI, the faculty is also working on a bilateral ERASMUS agreement. For the first semester there were 8 incoming and 4 outgoing students this year, with the number increasing over time. The programme representatives informed the peers that they were contemplating to introduce bonus points at the end of the thesis if a student had been studying abroad for a semester.

Criterion 2.2 Educational Objectives

Preliminary assessment and analysis of the peers:

As stated earlier in chapter 1, the peers confirmed that the Bachelor's and Master's degree programme Food Science and Technology fits in the frame of reference for the EQAS Food Award. The studies comprise the physical, chemical, biological and sensorial characteristics and properties food, as well as the application of food science to food processing, food preservation and food distribution. The excellent connection of both the Bachelor's and the Master's degree programme with companies of the local and national food industry showed the peers that the degree programmes are successful in educating professionals satisfying high qualification standards. The high number of 12 PhD students in this year, and 22 applicants for post-graduate studies confirmed to the peers the high scientific level of both the degree programmes. The peers asked the programme representatives if the HEI planned to establish the faculty as a center of excellence in Food Science and Technology in Italy, and subsequently on an international level. The HEI representatives replied that the faculty is already playing a leading role in the ISEKI Food Project which comprises of 88 international partners. There is also a project with a company on an European level. Still, the programme representatives felt that it there is still lacking a critical mass before the faculty could reach the level of a center of excellence. They informed the peers that the long term aim of the faculty is to establish an agro-veterinary unit at the HEI which would be unique and could be further developed into a defining strength of the programme.

Criterion 2.3 Programme outcomes

Preliminary assessment and analysis of the peers:

The peers judged the defined programme outcomes in each of the categories knowledge and understanding, applying knowledge and understanding, making judgements, communication skills, and learning skills to be well described and implemented for both the Bachelor's and the Master's degree programme. The peers posed the question whether the programme representatives deemed the learning outcomes fulfilled and if they could identify some weaker spots in the outcomes. The HEI representatives answered that the programme outcomes were generally fulfilled but could of course still be improved in some respects. The faculty is for example trying to attract external teachers to give lessons on some important focal points of practical knowledge. They are also constantly taking measures to improve the employability of the Master's degree's graduates. They have recently established a facebook newsgroup to connect students, graduates and companies. The students confirmed towards the peers that this facebook newsgroup is well received by the stakeholders and plays a vital role in finding opportunities for jobs or practical work, and for establishing overall contacts.

The peers were impressed by the high quality of the Bachelor's and Master's degree programme Food Science and Technology. They found that the programme outcomes reach a very high level of aim fulfillment in both academic and professional respects. However, the peers got the impression that the HEI could do more to propagate the strengths of the degree programmes to the public, and especially the relevant stakeholders. The peers recommended to the HEI to identify the vocation of the faculty, the strengths which make the degree programmes of the faculty special, and develop this into a flag under marketing aspects. As the peers noticed that high degree services for the industry as well as for state agencies are a

defining characteristic of the faculty's work, they proposed to build on this aspect in establishing a unique vocation. The representatives of the HEI noted the suggestion with great interest.

Final assessment of the peers regarding criterion 2:

The self-study report and the meeting provided enough evidence for a positive assessment in this criterion.

3. Educational Process

Criterion 3.1 Overview of the curriculum

Preliminary assessment and analysis of the peers:
The peers asked if the area of law and legislation could be strengthened in the curriculum. The peers were informed that because of national regulations the faculty is not completely free to distribute credit points within the curriculum. But the faculty tries to concentrate on the topics they feel to be most important. Currently there is one module each in the Bachelor's and Master's degree programme concerning legislation issues. The faculty puts further legislation content into other modules where it is thematically fit, e.g. laws on biology and genetics in the biology modules. The peers found this solution to be satisfactory.

The programme representatives informed the peers that the curriculum of the Master is currently undergoing a revision. The students have been asked for suggestions in a meeting, commercial and business management aspects and those on technical specifications could be enhanced in the curriculum. The peers expressed their concern that such measure might dilute the scientific contents of the programme. The HEI representatives stated that the quality management and assurance system would always prevent this. The scientific standards and outcomes of the programme are clearly defined and have to be always guaranteed. The peers showed their satisfaction with that answer.

The peers found the curricula of the Bachelor's and Master's degree programme to be sound and to fulfill the needs of the defined learning outcomes. The progression is realistic and the differences in level between the Bachelor and the Master are well defined and comprehensible. The curricula ensure the attainment of the programme outcomes and reflect the demands of the criteria of the EQAS Food Award Framework.

Criterion 3.2 Delivery of the curriculum

Preliminary assessment and analysis of the peers:
The peers asked the programme representatives about the admission requirements an procedure. They were foremost interested in any measures taken by the HEI to control the drop-out rate and support the students in their choice of a course of studies. The programme representatives responded that the faculty has established a learning agreement with the students. Students can sign a contract with the faculty which commits them to attend all classes and finish courses punctually. In return they obtain additional teaching materials, practical lessons, computer and English courses, as well as a tablet computer. Furthermore a closed quota for the intake of students has been introduced. This has reduced the number of applicants from vocational schools, thereby reducing the drop-out rate also. Most of the freshmen come now from scientific secondary schools. There are also two weeks of intensive courses at the beginning of the Bachelor's degree programme to enhance the level of students in natural sciences and mathematics. The students

confirmed the good effects of the measures to reduce drop-out rates. They especially underpinned the fact that the learning agreement ensured that more students pass their exams in the regular time schedule.

The peers found the delivery of the curriculum to be generally very good and to fulfill the standards of the EQAS Food Award Framework. However they wanted to know how many modules are being taught in English. The programme representatives informed the peers that the faculty has started to teach some of the modules of the Master's degree programme in English language. For foreign students there are English language study materials as well as English examinations possible. However, the biggest part of the Master and the whole Bachelor's degree programme are still delivered in Italian. The students told the peers that according to their view there are enough English language courses incorporated in the degree programmes, but that they should be made compulsory for the Master. The peers deemed English language skills exceptionally important for both the job market and the scientific world. In accordance with the requirements regarding generic competences in section 5 of the Learning Outcomes for Master degree programmes of the EQAS Framework the peers recommended to strengthen English language skills in the curriculum of the Master's degree programme.

Criterion 3.3 Learning and assessment

Preliminary assessment and analysis of the peers:
Upon inquiring about the organization of exams, the peers learned that there are midterm and final exams. For final exams the HEI fixes about ten dates, but never during classes. Outcomes of the exams are crosschecked by colleagues about their correctness. An exam commission is in place for every exam which comprises of teachers and external experts. In exceptional cases the HEI may nominate an additional professor for the examination commission to countercheck the examination results. The students voiced no complaints about examination organization and results. In addition the students approved of the tutoring and support and advice by the teaching staff of the faculty. The students stated that professors were always very helpful and open for questions and remarks by the students. The peers noted with very great satisfaction that the relationship between students and teaching staff is very cordial and cooperative. The examination organization was in the view of the peers satisfactory and according to the requirements of the EQAS Framework.

Criterion 3.4 Alignment matrix for EQAS LO

Preliminary assessment and analysis of the peers:
The Bachelor's and Master's degree programme documentation contained a very comprehensive and detailed alignment matrix of the programmes' learning outcomes in comparison to the learning outcomes prescribed by the EQAS Food Award Framework. The peers judged that the learning outcomes of the Bachelor's and Master's degree programme Food Science and Technology fully complied with the EQAS Food Award learning outcomes. Only with regard to the generic competences in section five for the second cycle degree "graduates should be able to communicate scientific ideas through written, oral and visual means in English" the peers recommended to further strengthen the delivery of the respective skills in the Master's degree programme's curriculum (see also chapter 3.4 above).

Final assessment of the peers regarding criterion 3:

The self-study report and the meeting provided enough evidence for a positive assessment in this criterion.

4. Resources and Partnerships

Criterion 4.1 Academic and support staff

Preliminary assessment and analysis of the peers:
The peers judged the staff of the degree programmes to be sufficient in quality and quantity to ensure that the intended learning outcomes and programme goals are reached. The peers lauded the commitment and enthusiasm of the teaching staff.

The peers learned from the HEI representatives that the University Center for Development of Teaching Activities provides various courses and support for the development of teaching quality., e.g. on communication, business management, Braille language or online teaching. Specialists from other universities, e.g. from Leeds, give courses on special topics. The teaching staff confirmed towards the peers that they have a lot of opportunities to develop their teaching skills, and that most of them take part in such activities on a regular basis.

Criterion 4.2 Facilities

Preliminary assessment and analysis of the peers:
The peers took a tour through the facilities of the faculty. They found the laboratories, classrooms, library, pc-pools and other facilities well equipped and maintained. Funding of the faculty and the degree programmes is adequate; the conduction of the degree programmes for the timeframe of the accreditation relies on a stable fiscal basis.

Criterion 4.3 Partnership

Preliminary assessment and analysis of the peers:

The peers wanted to know details about the international cooperations of the faculty. They were told by the programme representatives that the faculty is oriented towards an international network of scientific and professional institutions and cooperation partners. However, the faculty has also to take into account that most of the companies in the Abruzzo region are medium ore small scale, which leaves few room for international activities. Besides the above mentioned connections within the ISEKI project, and some ERASMUS activities, the peers got the impression that the HEI's potential for international advancement has not been fully utilized yet. The peers thought, that after the faculty has successfully established a high quality programme with a nationwide reputation, the next logical step should be to take efforts for a greater international visibility of the programme. The peers recommended to the programme representatives to actively widen the faculty's international cooperation network and to foster both scientific and professional projects and cooperations.

Nevertheless, the connection with the local and regional industry is one of the strong points of the faculty and the degree programmes. Furthermore, there are very good connections with public institutions of the region. There is for example a hospital in the region which sends specimens of food poisoning cases to the faculty for analysis. The customs rely on the expertise of the faculty to analyze non-European food samples. During the discussion with the programme representatives the peers suggested the faculty should focus on these strengths to make them shine more towards the outside. If the faculty used the close and fruitful cooperation with local industry and public institutions as a flag which shows the uniqueness and quality of

the faculty's degree programmes, the visibility and attractiveness of the degree programmes could be further promoted. The representatives of the degree programmes consented to this view and regarded the proposal as a useful suggestion.

The students informed the peers that some students have internships in the industry, but not very many. But at least the final year project is regularly conducted in a company. The students expressed their wish to enjoy more career services. The programme representatives – asked about this matter – explained towards the peers that the faculty frequently invites former students to tell the students about their job experience. The peers deemed the mentioned measures, which were also confirmed by the teaching staff, as generally sufficient, but still expressed the wish towards the HEI representatives to further enhance career guidance and services, especially against the background of a fast changing job market environment. But overall the peers were positively impressed with the good connections of the faculty with the industry and its numerous benefits for the students.

Final assessment of the peers regarding criterion 4:

The self-study report and the meeting provided enough evidence for a positive assessment in this criterion.

5. Management System

Criterion 5.1 Quality assurance system

Preliminary assessment and analysis of the peers:
The peers noted that a quality management system is in place and provides the HEI and programme representatives with relevant data to identify and correct flaws in the concept or conduct of the degree programmes. The peers perceived approvingly that the HEI takes great concern in the development of the degree programmes and takes many efforts to enhance the quality of the degree programmes. Data concerning the students, alumni, companies, and teaching staff is collected by the HEI's quality management system, and subsequently analyzed and utilized to improve the outcome.

The peers had the underlying mechanisms explained by the programme representatives: there is a continuous quality development system relying mostly on evaluations and surveys. A national state review and an internal university review are conducted regularly. Surveys on the relevant stake holders are held by both the university and the faculty, each with their own questionnaires in order to have the opportunity to compare results. The faculty performs better than others in Italy, especially the speed with which graduates find a job is high. A Bachelor's degree graduate on average only needs two and a half month until he gets employed for the first time. The peers were further told that the faculty attracts more bachelor graduates for the HEI's Master programme than their own Bachelor graduates leave for other universities to study a Master's degree.

The peers were informed by the HEI that the students' lecture evaluation forms an important part of the quality assurance measures. In case of a lackluster teaching performance all the involved parties work on a solution for the problem. In serious cases the HEI may cancel a course or change a professor. But the students stated towards the peers that teaching quality normally is on a very high level.

The teaching staff voiced their concern towards the peers that although teaching consumed a big part of their daily duties and responsibilities, the advancement in the careers of a professor is mostly dependent on his research achievements. Some of the teaching staff wished that teaching activities would be more recog-

nized professionally. The peers noted the view of the teaching staff, but had to acknowledge that this issue belongs to the national educational level and cannot be addressed on a faculty or HEI level.

Final assessment of the peers regarding criterion 5:

The self-study report and the meeting provided enough evidence for a positive assessment in this criterion.

D Additional Documents

Before preparing their final assessment, the panel ask that the following missing or unclear information be provided together with the comment of the Higher Education Institution on the previous chapters of this report:

No additional documents needed.

E Comment of the Higher Education Institution (06. May 2014)

The institution did not make any comment on the accreditation report.