QUALIFICATION SPECIFICATION **SECTION A**					
QUALIFICATION DEVELOPER	Botswana University of Agriculture and Natural Resources				
TITLE	Master of Science in Food Science and Technology (Food Engineering and Postharvest Technology)			**NCQF LEVEL**	09
FIELD	Agriculture and Nature Conservation		**SUB-FIELD**	Food Science and Technology	
New qualification	√	Review of existing qualification			
SUB-FRAMEWORK	General Education		TVET		Higher Education √
QUALIFICATION TYPE	Certificate		Diploma		Bachelor
	Bachelor Honours		Master	√	Doctor
CREDIT VALUE				240	

RATIONALE AND PURPOSE OF THE QUALIFICATION

Botswana is spending high amounts of foreign currency to educate its citizens in various countries as there are no postgraduate qualification in the area of Food Science and Technology, Food Science and Nutrition, Food Safety, Postharvest Technology and Food Engineering (HRDC, 2018).

Improvement of agricultural productivity is one of the major priorities in the economic diversification policy of the Botswana Government (Director General, 2008). Botswana has a large livestock population (cattle 2.1 million, goats 1.5 million and sheep 0.3 million) (Statistics Botswana, 2015a). Meat and meat products account 2% of country's exports from 2004 to 2008 and increased to 2.9% in 2015 (Statistics Botswana, 2015b). The meat sector is constrained with traceability issues (FAO and MoA, 2013). Meat quality assurance demands concerted efforts starting from feed, breed selection, water quality and post slaughter meat quality management. The dairy industry of Botswana is underdeveloped, and the local milk production is far beyond the demand; the country is a net importer of milk and milk products (LEA, 2011). Botswana is also a net importer of grains, fruits and vegetables (Statistics Botswana, 2015a). The little the country produces are also lost because of lack of appropriate postharvest practices and value addition to the produces. Botswana has a diverse flora and fauna that are well adapted to agro-ecologies of the country and have potential to be developed to serve as climate smart food sources. Some of these resources are used by the indigenous people as foods, food ingredients and medicine but are limited in their domestication and processing to improved foods and beverages (Legwaila, 2011). There is a high potential for such resources to be developed into new products.

Agricultural productivity can be sustainably realized if supported by value addition practices which involves the input of knowledge, skills and technologies across the value chain. A substantial subsistent farming community in the country depends on maize, sorghum, pulses traditional food products as staples along with animal products. These traditional foods are accustomed to the culture of the people since folklore. However, they may not be regarded as complete diet. There is an opportunity to improve such traditional foods in terms of nutrient boosting, preservation and shelf-life extension by studying the processing steps scientifically starting from the raw materials, processing and packaging. Such opportunity can also favour communities in their livelihoods improvements that include minimization of food safety and nutrient deficiency health problems. This calls for highly trained human resources at postgraduate level in the area of Food Science and Technology. Such graduates will serve the postharvest sector, agro-processing industry, human nutrition, food safety and food security sectors by stimulating the use of the plant and animal food resources of Botswana in an effective and competitive manner. The qualification will put the graduates in a better position to address stakeholder concerns and problems through research and training. In view of this, developing MSc qualification in Food Science and Technology in Botswana is timely and necessary.

The Food Science and Technology Department conducted a needs assessment survey from June 2013 to February 2014 by distributing questionnaires to different stakeholders from the Government, non-Government and private sectors. Responses from a total of 48 stakeholders were analyzed of which 95% recommended the launching of a postgraduate programme and 80% have suggested MSc in Food Science and Technology. Most (85%) organizations indicated that they need MSc graduates to assist their regular activities. The need for post-graduates as indicated by different organizations was projected to be from 1 to 20 graduates (on average 5) in the coming five to ten years. The stakeholders indicated that they need MSc graduates with the knowledge, skills and competencies in the following areas: food chemistry, food safety, infant and young child feeding; cereal science and technology; meat science; food microbiology; food biotechnology; thermal processing; extrusion processing; biochemistry; nutrition; food science; food processing; food preservation; food product development; education and communication skills; food packaging; food value chains; food quality control; postharvest handling and quality management; processing of fruits and vegetables; Hazard Analysis Critical Control Points (HACCP), Good Hygiene Practices (GHP) & Good Manufacturing Practice (GMP); food regulation and standards; and water quality and treatments. The graduate

Purpose

The purpose of this qualification is to produce graduates who:

- are highly qualified with the required advanced knowledge, skills and competences in the area of Postharvest Technology and Food Engineering.
- can technically lead the food industry.
- conduct research, serve as policy advisors to Government, involved in higher learning and research institutions.
- will serve as research scientists and specialists in food processing technology, food engineering, postharvest management and technology.

ENTRY REQUIREMENTS (including access and inclusion)

Minimum entry requirement is NCQF Level 7, Bachelors' degree, (i.e., BSc in Food Science and Technology, Food Science, Food Technology, Food Science and Nutrition, Food engineering, Human Nutrition). Chemical Engineering: Postharvest Technology and Agricultural Engineering and related fields.

Recognition of Prior Learning (RPL):

There will be access through Recognition of Prior Learning (RPL) and Credit Accumulation and Transfer (CAT) in accordance with the RPL and CAT National Policies.

QUALIFICATION SPECIFICATION SECTION B	
GRADUATE PROFILE (LEARNING OUTCOMES) Upon completion of this qualification, graduates will be able to:	**ASSESSMENT CRITERIA**
• Analyze knowledge, skills and competencies required in postharvest technology and food engineering	• explain the various causes of postharvest food losses, principles, and practices of postharvest handling and management of different food commodities to minimize losses. • explain the principles and practices of various food processing unit operations and food preservation processes appropriate to the specific food commodities. • interpret and apply theories, principles, and skills in postharvest technology or food engineering. • explain food safety and quality assurance issues in the food industry. • explain the principles and practices involved in the selection, grading of raw materials, processing to manage food and beverage products, and develop new food products.
• Identify, extract, synthesize, evaluate and contextualize published literature to develop research proposal, plan, undertake scientific research (generate, evaluate and interpretation of research data) in postharvest and food engineering.	• in specific postharvest technology or food engineering topic, learners identified relevant scientific literatures, critically reviewed, synthesized information and presented graduate seminar. • identify research gaps, conceived research topic to address specific problem (s) in postharvest technology or food engineering, justify researchable ideas. • develop research proposal, research methods to be used in experiments, planed and undertaken research. • collect relevant data, analyzed, and compiled MSc dissertation that is original, technically, structurally and scientifically correct.
• Produce manuscript as research outcomes to publish in peer	• draft acceptable manuscript for publication in peer reviewed journals or book chapters.

reviewed scientific journals book chapters, and/or monograph reports.	• present finding in scientific forum in the form of conference paper, poster and/or oral paper. • communicate scientific information to specialist and non-specialist audience using appropriate communication tools (written, oral, poster format, policy brief and/or monograph).

QUALIFICATION STRUCTURE SECTION C			
FUNDAMENTAL COMPONENT Subjects / Units / Modules /Courses	**N/A**	**Level**	**Credits**
CORE COMPONENT Subjects / Units / Modules /Courses	Food Processing Technology	**09**	**12**
	Advanced Food Chemistry	**09**	**12**
	Experimental Design and Analysis	**09**	**12**
	Engineering Properties of Food Materials	**09**	**12**
	Plant Design, Layout and Processing Equipment in the Food Industry	**09**	**12**
	Food Waste Management and Co-Product Recovery	**09**	**12**
	Proposal Development and Graduate Seminar	**09**	**24**
	Dissertation	**09**	**120**
ELECTIVE COMPONENT Subjects / Units / Modules /Courses (student can select any of these two)	**Select two**		
	Advanced Food Microbiology	**09**	**12**
	Biochemistry and Physiology of Perishable Food Commodities	**09**	**12**
	Food and Nutrition Security (e-learning as alternative)	**09**	**12**
	Advances in Food Analysis	**09**	**12**
	Food Hygiene and Sanitation	**09**	**12**
	Postharvest Technology of Grains	**09**	**12**
	Total		**240**

Rules of combinations, Credit distribution (where applicable):

Rule of combination = Core (C) + Elective (E)

Core 216

Elective 24 (Among the elective courses listed, 24 credits are required.)

Total - 240 credits

ASSESSMENTS AND MODERATION ARRANGEMENTS

Assessment Arrangements

Learners' achievements toward MSc in Food Science and Technology (Food Engineering and Postharvest Technology) qualification are assessed by both formative and summative tools.

Formative assessments

The contribution of formative assessment to the final grade shall be **50%**

Summative assessment

The contribution of summative assessment to the final grade shall be **50%.**

Moderation Arrangements

Internal and external moderators to be engaged will be subject specialists in relevant fields and accredited by BQA, or any other recognized Authority, with relevant industry experience and academic qualifications.

Both internal and external moderation shall be done in accordance with applicable policies and regulations.

RECOGNITION OF PRIOR LEARNING (if applicable)

There shall be provision for award of the qualification through Recognition of Prior Learning (RPL) in accordance with relevant national and institutional policies, guidelines and procedures. Candidates may submit evidence of credits accumulated in related qualification in order to be credited for the qualification they are applying for.

PROGRESSION PATHWAYS (LEARNING AND EMPLOYMENT)

Learning Pathways

Vertical progression (qualifications to which the holder may progress)

- Doctor of Philosophy in Food Science
- Doctor of Philosophy Food Technology
- Doctor of Philosophy Food Engineering
- Doctor of Philosophy Food Nutrition
- Doctor of Philosophy Food Chemistry

- Doctor of Philosophy Food Microbiology
- Doctor of Philosophy Food Safety
- Doctor of Philosophy Postharvest Technology.

Horizontal progression (qualifications to which this qualification is equivalent to)

- Master of Science Food Technology
- Master of Science Human Nutrition
- Master of Science Chemistry
- Master of Science Biological sciences
- Master of Science Chemical Engineering
- Master of Science Plant Science
- Master of Science in Animal Science
- Master of Science in Agricultural Engineering

EMPLOYMENT PATHWAYS

On successful completion of this qualification the holder may be absorbed in the job market as:

- Educators in the tertiary education
- Managers in the food sector
- Self-employed
- Consultancy services
- Food product developer
- Researcher
- Food safety and quality assurance personnel in the food industry and food regulatory bodies.

QUALIFICATION AWARD AND CERTIFICATION

For a Candidate to achieve this qualification they must have acquired a minimum of **240** credits. The Candidate should pass all the **Core, and 2 Electives** modules.

Certification

A certificate and transcript will be issued for award of the **Master of Science in Food Science and Technology (Food Engineering and Postharvest Technology**), in accordance with applicable policies.

REGIONAL AND INTERNATIONAL COMPARABILITY

Bench marking exercises were made with five (5) Universities. (1) MSc in Food Science and Technology (ID:100755) offered by Cape Peninsula University of Technology (South Africa), (2) MSc in Food Science and Technology (ID 15051) offered by University of Pretoria (South Africa), (3) MSc in Food Science and Technology (ID 99207) offered by University of Venda (South Africa), (4) MSc in Food Science and Technology offered by University of Denmark (Denmark) and (5) MSc in Food Technology (Postharvest and Food Preservation Engineering) offered by Catholic University of Leuven and Ghent University (Belgium).

The NCQF level for this MSc qualification in Food Science and Technology is 09 and this level is the same with the qualifications offered at The Cape Peninsula University of Technology, University of Pretoria, and University of Venda. The MSc programs offered at University of Copenhagen and MSc in Food Technology (Postharvest and Food Preservation Engineering) offered by Catholic University of Leuven and Ghent University (Belgium) are also comparable with the level.

The 240 credits offered at for this qualification are higher than the Cape Peninsula University of Technology and University of Venda. There are much course works and options for the MSc in Food Science and Technology offered by University of Denmark and MSc in Food Technology (Postharvest and Food Preservation Engineering) offered by Catholic University of Leuven and Ghent University, but credits allocated for MSc dissertation is less than the one offered for this qualification.

Entry requirements, Assessment criteria, moderation and exit level outcomes for all the Universities are mostly similar with that of the proposed qualification.

REVIEW PERIOD

The qualification will be reviewed every five **(5) years**.

Appendix A. Comparability matrix for MSc in Food Science and Technology (Food Engineering and Postharvest Technology)

Provider: BUAN	**Faculty/Department**: Agriculture/Food Science and Technology
Title of Proposed Qualification: Master of Science in Food Science and Technology (Food Engineering and Postharvest Technology)	

Comparability Matrix of Qualifications	**Subfield:** Food Science and Technology (Food Engineering and Postharvest Technology)
Introductory Statement	
International comparability bench marking: (1) MSc in Food Science and Technology (ID:100755) offered by Cape Peninsula University of Technology (South Africa), (2) MSc in Food Science and Technology (ID 15051) offered by University of Pretoria (South Africa), (3) MSc in Food Science and Technology (ID 99207) offered by University of Venda (South Africa), (4) MSc in Food Science and Technology offered by University of Denmark (Denmark) and (5) MSc in Food Technology (Postharvest and Food Preservation Engineering) offered by Catholic University of Leuven and Ghent University (Belgium).	

Name of University (and Country)	Title of Qualification, NQF Level & Credit Value	Main Exit Outcome(s)	Domains/Modules/ Courses/Subjects covered (Fundamental, core & electives)	Assessment strategies and weightings	Qualification rules and minimum Standards for the award of the qualification	Education and Employment Pathways

BUAN (Botswana)	MSc in Food Science and Technology (Food Engineering and Postharvest Technology), 09, 240	1. Analyze knowledge, skills and competencies required in postharvest technology and food engineering. 2. identify, extract, synthesize, evaluate and contextualize published literature to develop research proposal, plan, undertake scientific research in postharvest and food engineering.	Food Science and Technology (Food Engineering and Postharvest Technology), Fundamental (Food Processing Technology; Advanced Food Chemistry; Experimental Design and Analysis). Core (Engineering Properties of Food Materials; Plant Design,	Formative assessments Continuous assessment (50%): tests, written reports, oral presentations and/or assignments Summative assessments: Final examination for course work (50%) MSc proposal defense MSc research dissertation	Pass in course works and MSc dissertation with a total credit value of 240	Vertical progression: PhD in Food Science, PhD Food Technology, PhD Food Engineering, PhD Food Nutrition, PhD Food Chemistry, PhD Food Microbiology, PhD Food Safety or PhD Postharvest Technology. Horizontal progression- MSc Food Technology, MSc Human Nutrition, MSc Chemistry, MSc Biological sciences, MSc Chemical

		3. Evidence of an original and independent own research, originality, and contribution to body of knowledge to the field of Food Engineering and Postharvest Technology, manuscript prepared for publication in peer reviewed journal	Layout and Processing Equipment in the Food Industry; Food Waste Management and Co-Product Recovery Elective (Advanced Food Microbiology, Biochemistry and Physiology of Perishable Food Commodities, Food and Nutrition			Engineering, MSc Plant Science, MSc in Animal Science, MSc in Agricultural Engineering or MSc in Public Health. Job progression: educators in the tertiary education, managers in the food sector, create jobs and self-employed, offer professional consultancy services, food product developer, researcher, food safety and quality assurance personnel

			Security (e-learning as alternative), Advances in Food Analysis, Food Hygiene and Sanitation, Postharvest Technology of Grains)			in the food industry and food regulatory bodies.
Cape Peninsula University of Technology (South Africa)	MSc in Food Science and Technology (ID:100755), 09, 180	1. Developing research capacity. 2. Executing the research project and dissertation.	Course aim is to equip graduates with the necessary knowledge and skills to conduct independent applied and fundamental research in the	Integrated assessment aims to assess the student holistically and contributes to the student's personal and professional development in the field of study in	Students will be required to complete a compulsory component of research training and methodology in preparation for the submission of a research proposal.	Vertical articulation possibilities within and between institutions: upon successful completion of this Master's degree students may progress to a doctoral qualification in the

			fields of food production, food product development, food analysis, food safety and food microbiology. Specific courses studied not clearly described	terms of foundational, practical and reflexive competence. The execution of the research project and production and acceptance of the dissertation constitute the sum total of a combination of formative, summative and integrated assessment methods at this level of study.	Completion of course work and research projects with dissertation of credit value of 180	same field or a cognate field if the student meets the admission requirements as stipulated in the faculty handbook of the institution. iv) Horizontal articulation possibilities between qualification frameworks and Universities of Technology: Articulation possibilities exist between the non-Higher Education Qualifications Sub-Framework (HEQSF)

						Master's of Science (M Tech) Degree and the HEQSF aligned Master's Degree. Decisions in this regard will be based on the scope, depth and degree of cognitive complexity as defined in the outcomes of the programme and benchmarked against the relevant SAQA level descriptors. Academic acceptable standards, regulations and procedural requirements will

						apply to obtain permission at faculty and institutional level. Employment Pathways not described
University of Pretoria (South Africa)	Master of Science in Food Science and Technology (ID 15051), 09, 240	A MSc Agric (Food Science & Technology) graduate is able to: 1. Plan and undertake scientific research under supervision in the field of Food Science and Technology. 2. Can write a scientific paper for peer-reviewed journal. 3.	Specific courses/modules to be studied not described	Research dissertation (formative and summative) Written and oral seminars (formative and summative) Written assignments (summative written and oral examinations (summative) Integrated	Course works and MSc dissertation pass with total credit value of 240	Ph D (Food Science), D Tech (Food Technology). Employment Pathways not described

		Evaluate the meaning and value of published literature in the field of Food Science and Technology Critical cross-field outcomes: • Collecting, analysing, organising and critically evaluating information. • Organising and managing oneself and one`s activities responsibly and effectively. • Communicating effectively using		assessment: Written examinations Oral examinations Other: Dissertation		

		visual and language skills in the modes of oral and written persuasion. □ Using science and technology effectively and critically. □ Identifying and solving problems in which responses display that responsible decisions using critical and creative thinking have been made. □ Working effectively with others as a member of a team,				

		group, organisation, community. □ Demonstrating and understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.				
University of Venda (South Africa)	Master of Science in Food Science and Technology (ID 99207), 09, 180	1. Collect, analyse, organise and critically evaluate information. 2. Organise and manage oneself and one's activities responsibly and effectively. 3. Communicate	Core modules in food chemistry, nutrition, food microbiology, food engineering, food packaging, marketing, and quality assurance.	□ Do independent reading and information retrieval in the library and the Internet, work with reduced supervision. □ Critically read current literature in	Compulsory Modules, Level 9, 180 Credits: □ Dissertation, 180 Credits.	Vertical Articulation: □ Doctoral Degree in Food Science and Technology, National Qualifications Framework (NQF) Level 10. Horizontal Articulation:

		effectively, using visual and language skills in the modes of oral and written persuasion. 4. Use science and technology effectively and critically. 5. Identify and solve problems in which responses display that responsible decisions using critical and creative thinking have been made. 6. Work effectively with others as a member of a team, group,	Advances in post-harvest technology, Seminar presentation, Research project, Technical report writing, Dissertation	the field, interpret, and analyse literature. □ Interact with increasing self-confidence, as a member of a team or group in a variety of discussion and problem-solving situations in Food Science and Technology. □ Undertake a research project and write a dissertation and paper under supervision.		□ Master of Science in Agriculture in Food Science and Technology, Level 9. Employment Pathways not described

		organisation, community. 7. Demonstrate an understanding of the world as a set of related systems by recognising that problem-solving contexts do not exist in isolation.		□ Write a research project proposal. □ Identification of the key research questions. □ Design an experiment/research. □ Description of the method/procedures and techniques to be followed. □ Collect, analyse, and interpret the data. □ Write up the results in a clear, concise, and acceptable manner.		

				□ Application of research methods technologies and techniques. □ Participate and interact intelligently in class discussions and presentations. □ Write and present seminars. □ Prepare assignments. □ Participate effectively in oral presentations with the department and the school, through research proposal presentation.		

				□ Submit assignments and reports in an acceptable format according to clear guidelines. □ Submit assignments and reports and meet deadlines. □ Adhere to timelines as indicated in the research proposal. □ Effectively present and communicate research findings.		

				□ Ability to collect relevant data effectively. □ Store data electronically. □ Demonstrate ability to analyses, synthesise, present, and critically evaluate data and information, using a variety of analytical methods and techniques. □ Submit a Masters. The research dissertation will be examined by two		

				examiners and provision is made for more examiners in case of a dispute. The learner will demonstrate the ability to identify and solve a problem and link research findings to current literature in the field of specialisation. Dissertation on or before the expiry of the maximum period set for the qualification as per the university rules and regulations.		

				□ Develop research gaps in the proposed niche are. □ Demonstrate ability to develop methods of bridging the research gap. □ Demonstrate knowledge in research outcomes through the discussion of results and presentations in seminars and conferences. □ Demonstrate a high degree of understanding and		

				competence in research area/niche.		
University of Copenhagen (Denmark)	MSc Food Science and Technology, European Credit Transfer and Accumulation System (ECTS) of 120 min.	Execute independent practical experiments, assess possibilities and limitations in the application of theories and methods, structure reports from practical and handle treatment and discussion of obtained data, competencies to formulate an independent theory and work independently.	Compulsory subject elements 22.5 ECTS for each course 7.5 ECTS (Food Quality Management and Control, Food Processing, Short Thematic Course in Food Science and Technology),	Knowledge about: Food safety management in compliance with international certification systems. Food process equipment and methods to monitor food processes. Legal implications in food production. How innovation and entrepreneurship	Pass Compulsory subject elements 22.5 ECTS; Restricted elective subject elements 37.5 ECTS; Elective subject elements, 30 ECTS; Thesis 30 ECTS total 120 ECTS.	A PhD programme Undertake independent professional functions within the national and international food industries with respect to quality assurance and control, process control and product development. Undertake independent functions within public food control, administration and

			Restricted elective subject elements 37.5 for each course 7.5 ECTS (Design of Experiments and Optimisations; Fundamentals of Beer Brewing and Wine Making – Biochemistry, Organisms and Omics Techniques; Microbiology of Fermented Food and	can be applied to the food industry. Skills in/to: □ Execute independent practical experiments. □ Assess possibilities and limitations in the application of theories and methods. □ Structure reports from practicals and handle treatment and discussion of obtained data. □ Use relevant IT-based tools to		the provision of advice on questions of food policy, and to participate in scientific development work.

			Beverages; Advanced Course in Microbiological Food Safety; Quantitative Bio-spectroscopy; Control of Foodborne Microorganisms ; Food Structure and Functional Ingredients; Meat Technology and Packaging; Molecular and Functional Properties of	search for and retrieve scientific literature and other sources of knowledge. Communicate effectively to a specialist and non-specialist audience at a variety of levels, using modern and appropriate information and communication tools. Apply HACCP for food safety management.		

			Milk; Yeast Physiology and Applications; Advanced Food Chemistry; Meat Products and Innovation; Cool Climate Viticulture and Enology; Dairy Processes and Equipment; Process Analytical Chemistry and Technology; Food Enzymes and Applications; Dairy	Competences in/to: □ Formulate an independent theory on the basis of own results and/or scientific literature from a national or international perspective. □ Work independently and effectively on an individual basis, in teams as well as in cross-disciplinary environments. □ Demonstrate capacity for independent thought, creativity		

			Microbiology; Dairy Product Technology 2; Food Packaging)	and rigour in the application of knowledge and skills in work situations or in research. □ Participate in public discussions of the impact of food production.		
Catholic university of Leuven and Ghent University (Belgium)	MSc in Food Technology, European Credit Transfer and	1. Has profound and detailed scientific knowledge and understanding of the (bio)chemical processes in biological raw materials during	General Courses 60 ECTS (Applied Statistics, Food Chemistry and Analysis, Food Marketing and Consumer	For MSc dissertation assignment, participation, and oral examination	Completion of 120 ECTS of which 30 ECTS is for MSc dissertation	Vertical PhD studies in own filed or related Horizontal -wide range of MSc programs.

	Accumulation System (ECTS) = 120	postharvest storage and their transformation into food products. 2. Has profound and detailed scientific knowledge and understanding of engineering principles of unit operations and their use in the transformation of raw materials into food products as a basis for qualitative and quantitative design, evaluation and optimization of food process and	Behaviour, Food Microbiology and Analysis, Food Processing, Postharvest Physiology and Technology, Engineering Properties of Biological Materials, Human Nutrition, Thermal Processing of Foods, Transport Phenomena and			Employment Pathways Academic institutes (as teaching and/or research staff), research institutes (as research staff), non governmental organisations (in different capacities), governmental institutes (e.g. in research programmes, quality surveillance programmes or national

		preservation unit operations. 3. Has profound and detailed scientific knowledge and understanding of ecology, physiology, detection, use and combat microorganisms in food systems. 4. Has profound and detailed scientific knowledge and understanding of (bio)-chemical, physical and microbiological methods for analysis of raw materials and	Engineering Kinetics). For major in Postharvest and Food Preservation Engineering 17 ECTS (Low Temperature Processing of Foods, Experimental Planning and Data Modelling, HACCP-Concepts and Quality Assurance: Workshop, Postharvest			nutritiona-l programmes) and private industry (in particular quality control related jobs).

		foods including the skills to identify and use such methods in the context of research, process and product design and optimization and food control. 5. Has profound and detailed scientific knowledge in different fields of product technology such as vegetable products, dairy products, meat products, fish products, cereal derived products and fermented products	Pest Management and Disease Control, Fruit and Vegetable Technology, Cereal Science and Technology) and from Elective min 11 ECTS. MSc dissertation 30 ECTS More options to meet individual needs			

		including aspects of product development in relation to consumer behavior. 6. Can critically evaluate the functionality and safety of foods in the context of human health including the relation with raw materials and their processing into foods based on analytical data and scientific literature data. 7. Masters the skills and has acquired the problem solving capacity to analyze				

		problems of food quality and safety along the food chain and to elaborate interdisciplinary and integrated qualitative and quantitative approaches and solutions (including implementation) appreciating the complexity of food systems and the processes used while taking into account technical limitations and socio-economic aspects such as feasibility,				

		risks, and sustainability. 8. Has acquired a broad perspective to problems of food security, related to postharvest and food processing, in low income developing countries. 9. Can investigate and understand interaction with other relevant science domains and integrate them within the context of more advanced ideas and practical applications and problem solving.				

		10. Can demonstrate critical consideration of and reflection on known and new theories, models or interpretation within the broad field of food technology. 11. Can identify and apply appropriate research methods and techniques to design, plan and execute targeted experiments or simulations independently and critically evaluate and interpret the collected data.				

		12. Can develop and execute independently original scientific research and/or apply innovative ideas within research environments to create new and/or improved insights and/or solutions for complex (multi)disciplinary research questions respecting the results of other researchers. 13. Can convincingly and professionally communicate				

		personal research, thoughts, ideas, and opinions of proposals, both written and oral, to different actors and stakeholders from peers to a general public. 14. Has acquired project management skills to act independently and in a multidisciplinary team as team member or team leader in international and intercultural settings.				

		For MSc dissertation 1 define a research problem 2 formulate clear research questions 3 set up an appropriate methodology 4 carry out a critical literature study 5 collect data meticulously (using existing data sets or data obtained by lab or field work or 1 surveys) 6 process data in a correct way 7 analyze data in a critical way				

		8 make a concise synthesis 9 draw up a final manuscript – scientific report 10 show the necessary independence, motivation, dedication and initiative while obtaining final 1 competences 1-9 11 give a clear oral presentation of the results of the work 12 argue in a well founded manner during the discussion				

Summary of Similarities and Differences observed
(1) Similarities with MSc in Food Science and Technology (ID:100755) of Cape Peninsula University of Technology (South Africa)- title of qualification, main exit outcomes, MSc research and dissertation assessment strategies, education pathways. Differences- credit value is less (180), no domains/modules/ courses/subjects covered (fundamental, core & electives) are described, assessment weightings and employment pathways not described. (2) Similarities with MSc in Food Science and Technology (ID 15051) of University of Pretoria - title of qualification, credit value (240), main exit outcome(s), assessment strategies, qualification rules and minimum standards for the award of the qualification, education pathways. Differences- specific courses/modules to be studied, assessment weightings, and employment pathways not described. (3) Similarities with MSc in Food Science and Technology (ID 99207) University of Venda- title, main exit outcome(s), assessment strategies, qualification rules and minimum standards for the award of the qualification, education pathways. Differences - credit value is less (180), no specific domains/modules/ courses/subjects covered (fundamental, core & electives) are described, assessment weightings and employment pathways not described. (4) Similarities with MSc in Food Science and Technology of University of Denmark- title, main exit outcome(s), domains/modules/ courses/subjects covered (fundamental, core & electives), assessment strategies, qualification rules and minimum standards for the award of the qualification, education and employment pathways. Differences - credit value is 120 ECTS, assessment weightings not described.

(5) Similarities with MSc in Food Technology (Postharvest and Food Preservation Engineering) of Catholic University of Leuven and Ghent University- title, main exit outcome(s), domains/modules/ courses/subjects covered (fundamental, core & electives), assessment strategies, qualification rules and minimum standards for the award of the qualification, education and employment pathways. Differences - credit value is 120 ECTS, assessment weightings not described.
Comparability and articulation of the proposed qualification with the ones examined
The envisaged qualification is more similar with the qualification offered MSc in Food Science and Technology (ID 15051) at the University of Pretoria, MSc in Food Science and Technology (ID 99207) at University of Venda and MSc in Food Technology (Postharvest and Food Preservation Engineering) at Catholic University of Leuven and Ghent University.

Submitted by:	**Signature:**	**Date:**