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Education and Examination Regulations 2019 - 2020, Study Programme part Food Technology (Bachelor)

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Brief description	This study programme part of the Education and Examination Regulations is together with the general part the Education and Examination Regulations (EER) as referred to in Article 7.13 of the WHW (Higher Education and Research Act). These regulations contain the applicable procedures and rights concerning the education and examinations for the academic year 2019-2020 for all students and extranei of the corresponding study programme of Van Hall Larenstein University of Applied Sciences.
Special circumstances	
Location	studentnet



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Chapter 1:

GENERAL PROVISIONS

Article 1.1 The Education and Examination Regulations

1. Each study programme at Van Hall Larenstein University of Applied Sciences (Van Hall Larenstein) has a set of Education and Examination Regulations (EER), as referred to in Article 7.13 of the Act (hereinafter: these Regulations). The EER can be found on *studentnet* and the internet site of Van Hall Larenstein.
2. The Regulations of a study programme consists of two parts: a general part and a study programme part. The Regulations are published on *studentnet* and the webpage of Van Hall Larenstein.
3. These Regulations were enacted by the Executive Board on the date shown on the cover sheet. These Regulations come into force as of the date shown on the cover sheet.
4. Appendixes 1 till 7 are an integral part of these Regulations.
5. In these Regulations, the masculine form of address used for ease of reading.

Article 1.1.a Linking provision

1. The higher professional education (HBO) bachelor's study programme in Food Technology and the associate degree programme Food Technology is given by Van Hall Larenstein University of Applied Sciences (VHL) at its Leeuwarden and Velp sites. For this programme, one set of education and examination regulations has been developed and elaborated in three different documents, a general part and two parts for the study programmes. This linking provision connects these documents which formally constitute the education and examination regulations of the study programme.
2. The associate degree programme Foodtechnology is given in Leeuwarden and Velp. This study programme is part of the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie Leeuwarden.
3. In Leeuwarden, the study programme is given in a Dutch fulltime variant offering majors in Food Technology, Proces Engineering, Food Safety and Health and Dairy Technology. These study programmes are part of the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie, Leeuwarden.
4. In Velp, an English full-time variant is given, offering majors in Food Safety & Health en Food Innovation Management. These study programmes are subject to the Van Hall Larenstein Education and Examination Regulations 2019/2020 study programme Food Technology, Velp.
5. A propaedeutic exam as offered in Leeuwarden gives access to education units offered in the second year of the programme as offered in Velp.
6. A propaedeutic exam as offered in Velp gives access to education units offered in the second year of the programme as offered in Leeuwarden.



7. Where this regulation proves insufficient, the examination board decides on requests from students to be granted permission to follow education units at a location other than that where he is registered. In such cases, in consultation with the study programme director, examination board and the student, within the established frameworks in the law and education and examination regulations, and considering each party's specific responsibilities, each individual case is studied to establish where there are any deficiencies and how to rectify them.

Article 1.2 Applicability

1. These Regulations apply to the education and examinations of the *HBO* Bachelor's programme Food Technology of Van Hall Larenstein.
2. These Regulations apply to all students and external students enrolled at Van Hall Larenstein in the *HBO* Bachelor's programme and Associate degree programme referred to in clause 1.
3. These Regulations also apply to prospective students who have requested admission to the *HBO* Bachelor's programme and Associate degree programme referred to in Clause 1 above.



Chapter 2:

CURRICULUM: GENERAL EDUCATION AND EXAM PROGRAMME

Article 2.1 Aim

The aim of the HBO Bachelor's of Food Technology is to guide students in the acquisition and practical application of knowledge, insights and skills in the broad fields of product development, quality management, process development and production management in the food industry.

To reach this objective, the study programme works with different competencies. Competencies are made up of knowledge, skills and attitudes. Competencies can be acquired at three levels. Level i) implies that the context is relatively simple (primarily first year). Level ii) implies that the context is complex: various disciplines are combined. Level iii) is the most complex situation. This can only be acquired in complex professional practice.

- Product technology: industrial production methods (for instance, in the area of dairy, beverages, vegetables, meat, and baked products).
- Maths/statistics: mathematics skills, chemistry calculations, formula operations, normal distributions, confidence intervals, statistical tests, SPC.
- Process engineering/physics/unit operations: mass and energy balances, stationary and non-stationary models.
- Process control/process automation: measurement and control technology, process description (BFD, PFD, P&ID).
- Microbiology: growth and classification of micro-organisms, pathogens, fermentation, conservation, purification and disinfection.
- Communication.
- Chemistry: basic chemistry (atomic structure, reactions in water, chemical balance), analytical chemistry (spectroscopy, chromatography), organic chemistry (functional groups), biochemistry (biomolecules, protein and enzyme chemistry), interfacial chemistry (emulsions, foams).
- Sensory perception.
- Business administration: structure of commercial organisations, project management, logistics, marketing.
- Cost and feasibility.
- Quality Management: HACCP, TPM, tracking & tracing, SPC, prerequisite programmes.

Article 2.2 Type of study and location(s)

1. The HBO Bachelor's programme Food Technology is offered in a full-time variant at the location Velp.
2. The part-time Associate degree programme Voedingsmiddelentechnologie (Foodtechnology) is an independent, two-year degree programme and is partially offered at the location Leeuwarden and partially at the location in Velp. This study programme is part of the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie Leeuwarden.



3. Various majors are offered within the *HBO Bachelor's* programme. Not every major is offered at more than one location.

Article 2.3 Language of instruction

1. At the Leeuwarden location, education and examinations are given in Dutch. At the Velp location, education and examinations are given in English.
2. As an exception to the provisions in the first clause, the description of the study units can stipulate that one or more units will be offered in a different language.
3. A code of conduct for using languages other than Dutch in education is included as Appendix 1 with the general part of the Regulations.

Article 2.4 Learning outcomes of the *HBO* Bachelors programme

1. The degree programme Food Technology distinguishes the following (final) competences and associated learning objectives that must be at the disposal of the graduate in order to function properly in the work field:
 1. Researching
 2. Experimenting
 3. Developing
 4. Maintaining
 5. Advising
 6. Managing
 7. Professionalization.

The competencies have been stipulated nationwide in the “Landelijk opleidingsprofiel Voedingmiddelentechnologie (core profile for Food Technology)” document: <http://www.vereniginghogescholen.nl/system/profiles/documents/000/000/177/original/voedingsmiddele ntechnologie.lop.2017.pdf?1511276012>.

Table 1: National educational profile

	Competence						
	1. Researching	2. Experimenting	3. Developing	4. Supervision	5. Advising	6. Managing	7. Self-management
Minimum final level of the study programme	3	2*	2*	2*	1*	1	2

* At least one of these competences must be completed at level 3.

Complete explanation on the competences and learning goals can be found in appendix 5.

Within the competencies we focus on sustainability, internationalisation and research.



Also the Body of Knowledge and skills, mentioned also in the “Landelijk opleidingsprofiel Voedingsmiddelentechnologie (core profile for Food Technology)” document is included in the appendixes (appendix 6)

Sustainability

Sustainability is a continual focus point of all the study programmes at LS&T Leeuwarden. The same goes for operational management: using and stocking the laboratories together with the five HBO study programmes and the MBO study programme means that chemicals are handled efficiently and this is passed on to the students as well. During the first years of the Food Technology programme, several study units explicitly address the relationship between sustainable development and food production. In addition, sustainability is implicitly addressed in study units that deal with the efficient use of raw materials, energy and equipment. In the study units of the major dealing with product and process development, students are expected to include sustainability aspects in the criteria used to make decisions. During the internship students are given the task of examining the sustainability policy of the internship company and to indicate which sustainability aspects may be relevant during the internship assignment.

Internationalisation

Naturally, it is possible for students to achieve an “international distinction” To achieve this, they should comply with the points mentioned under Article 3.2 of these regulations. All students will in some way come into contact with the concept of "international". For instance, every year six students will be given the opportunity to participate in an international evaluation contest for dairy products organised under the auspices of Europel (the European association for dairy producers). During this event, they will learn about various kinds of international cheeses and cultures, and meet students from other countries and exchange experiences with them. The students who attend will report on this afterwards to their fellow students. It is also possible for a number of students each year to take part in the two-week summer course of the Sichuan University of Chengdu. These students will also report on this to their fellow students. The study association organises an annual excursion abroad and every year a number of foreign students participate in study units or carry out a project at VHL. Finally, students are encouraged to complete an internship abroad. But even students who do their internship in the Netherlands will become familiar with the concept of “international”, through the international character of their internship or graduation company, or through the production for the international market.

Researching

The DAS Research Competencies are part of almost all the study units in the first three study years of the study programmes at LS&T. The fourth year consists of a project internship and graduation assignment, in both of which conducting research takes a central role. The DAS Research Competencies are tested at the end of the study programme at level III.

Right at the start of the programme the scientific cycle will be discussed which is linked to the structure of an academic report. All later study units work with research-oriented assignments, which are largely provided by companies and lectorates. Students complete the assignment within a module through an action plan, which is then carried out in order to arrive at an answer to the research question. A lot of practical research is done during these assignments. The results of this research are presented via a professional product, such as an academic report, poster or oral presentation.

Article 2.5 Learning outcomes of the Associate degree programme

The part-time Associate degree programme Voedingsmiddelentechnologie (Food technology) is an independent, two-year degree programme and is offered at the location Leeuwarden. This study programme is part of the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie Leeuwarden.



Article 2.6 Curriculum of full-time variant of the Bachelor's programme Food Technology

1. The student can choose from several majors in the main phase of the study. The major has a study load of 120 credits.
2. Majors offered by the Study Programme:
 - a. Major Food Safety & Health (Velp);
 - b. Major Food Innovation Management (Velp);
 - c. Major Food Technology (Leeuwarden);
 - d. Major Process engineering (Leeuwarden);
 - e. Major Food Safety & Health (Leeuwarden).

Article 2.6a Description of major Food Safety & Health (Velp)

The field of food and nutrition is constantly changing: new products, production methods, dangers and risks are constantly emerging. New facts on food safety and health are incorporated into laws and regulations. Food industries must act within this framework of rules. Consumers have high expectations about food quality and safety. Where the fields of expertise of those involved overlap, food safety advisors are required.

The Food Safety & Health major offers Bachelor's students and external students the knowledge and skills necessary to become a specialised generalist: an interdisciplinary consultant in the food safety, quality and health profession.

The programme of the major Food Safety and Health is year 3 and year 4 of the curriculum of FSH, except the minor.

The major Food, Safety & Health qualifies for the final, professional level of the following qualifications:

1. Researching (level 2)
2. Experimenting (level 2)
3. Developing (level 2)
4. Maintaining (level 3)
5. Advising (level 2)
6. Managing (level 2)
7. Professionalization (level 2)

Article 2.6b Description of major Food Innovation Management (Velp)

The pace of developments in the food industry is increasing constantly. Improvements are constantly being made and trends, fashions and consumer's tastes are changing all the time. In order to achieve success, companies must overcome fierce competition. A good product is not enough, it has to be better than the competition and it has to be recognised as such. Product development is a team effort in which project management skills are of great importance and multi-disciplinary skills are a must: creativity sessions must be organised, consumer behaviour has to be investigated and knowledge of technology, food safety law and processing have to be put into practice. In addition, the development of packaging and the method of launching the new product are also essential. All these aspects might lead to innovation in food products. The programme of the major Food Innovation Management is year 3 and 4 of the curriculum of FIM, except the minor.

The major Food Innovation Management qualifies for the final, professional level of the following qualifications:

1. Researching (level 3)
2. Experimenting (level 2)



3. Developing (level 3)
4. Maintaining (level 2)
5. Advising (level 2)
6. Managing (level 2)
7. Professionalization (level 2)



Article 2.6c Description of major Food Technology (Leeuwarden)

The studyprogramme of this major is described in the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie Leeuwarden.

Article 2.6d Description of major Process engineering (Leeuwarden)

The studyprogramme of this major is described in the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie Leeuwarden.

Article 2.6e Description of major Food Safety & Health (Leeuwarden)

The studyprogramme of this major is described in the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie Leeuwarden.

Article 2.6f Description of major Dairy Technology (Leeuwarden)

The studyprogramme of this major is described in the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie Leeuwarden.

Article 2.7 Schematic overview of the full-time variant of the Bachelor's programme Food Technology

1. The schematic overview (per cohort) can be found in Appendix 3 of this document.
2. The minor in the main phase comprises a total of 30 credits, in accordance with Article 2.7 of the general section of the EER. The choice of the minor requires approval from the Examination Board. A further description of the minors and an overview of the minors that have been approved by the Examination Board in advance can be found digitally in the Van Hall Larenstein minor guide via [studentnet](#).
3. If a student chooses a minor which is not approved in advance by the Examination Board, the student has to submit an application to the Examination Board (see also Article 5.2 section 2d of the general section of the EER). The student has to substantiate why the choice of the minor (or the composition of individual study units with a workload of at least 30 EC) broadens or deepens the student's knowledge. An overview of all minors offered at Van Hall Larenstein is published here: [studentnet](#).



4. The Examination Board shall, with the approval of the minor, consider whether:
 - a. the minor has the right level (post-propaedeutic and (at least) bachelorlevel);
 - b. the minor is deepening of broadening;
 - c. the minor contains no part that largely corresponds to units of study from the majorprogramme;
 - d. in case the minor consist of separate units of study: the coherency of the units;
 - e. the minor is 30EC.
5. The start of a minor depends on the number of participants (see also Article 3.28 from the general section of these EER). The dean can make the decision not to start a minor with less than 22 participants. The decision that a minor does not start will be published no later than three weeks before the start of the minor.
6. If students want to use their minor for education outside the study programme, then the provisions in Article 3.27 of the general part of the regulations apply. The Examination Board determines how many credits are allocated to the educational performance of students.

Article 2.8 Curriculum of the part-time variant of the Bachelor's programme

Does not apply.

Article 2.9 Schematic overview of the part-time variant of the Bachelor's programme

Does not apply.

Article 2.10 Curriculum for the Associate degree programme Foodtechnology (part-time)

1. The part-time Associate degree programme Voedingmiddelentechnologie (Foodtechnology) is an independent, two-year degree programme and is offered at the location Leeuwarden . This study programme is part of the Van Hall Larenstein OER 2019/2020 Voedingmiddelentechnologie Leeuwarden.

Article 2.10b Schematic overview of the Associate degree programme

1. This study programme is part of the Van Hall Larenstein OER 2019/2020 Voedingmiddelentechnologie Leeuwarden.



Article 2.11 Transfer programme from AD to Bachelor's

1. This study programme is part of the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie Leeuwarden.

Article 2.12 Accelerated (three-year) track for students with a VWO diploma

Does not apply.



Chapter 3:

SPECIAL NOTATIONS

Article 3.1a Designation “cum laude” for the Bachelor’s programme

1. The Examination Board can, in accordance with Article 3.3 of the general section of these EER, award the designation “cum laude” to a successfully completed final student evaluation of the *HBO* Bachelor’s programme, in any case if the conditions a to d are met:
 - a. the student has completed the study programme within the assigned duration, without retaking examinations;
 - b. during the post-propaedeutic phase, all study units actually taken by the student have been passed with a mark of at least 7.0;
 - c. the thesis has been evaluated with a mark of at least 8.0;
 - d. the following study units of the study programme, with a magnitude of at least 28 credits, have been evaluated with a mark of at least 8.0:

VELP

- *The Food Innovation Management major has the following 4 core study units:*
 - VFT3FCVE Food Analysis & Consumer Behaviour
 - VFT3PGVE Product Group Analysis
 - VFT3PAVE Product Analysis
 - VFT3PDVE Product Development
- *The Food Health & Safety major has the following 4 core study units:*
 - VFT3FCVE Food Analysis & Consumer Behaviour
 - VFT3FSVE Food Safety & Health
 - VFT3FQVE Food Quality
 - VFT3FPVE Food Quality Project

Article 3.1b Designation “cum laude” for the Associate degree programme

Does not apply.



Article 3.2 International notation for the Bachelor's programme

1. A student of Food Technology who is interested in following a learning pathway with international recognition of their studies abroad, may request an additional "international notation" at his or her diploma.

When requesting their diploma, the student must indicate whether they feel they will be eligible for an international notation. The Examination Board only checks for the potential award of an international notation if the student submits an application. If applicable, the student will receive their diploma with an international notation.

The international indication is relevant to both students who want to work in the Netherlands, and students who want to work abroad during their careers.

2. To gain international recognition, the following conditions have to be met:
 - Major internship: The student has to have completed a major internship of 30 EC at an organisation abroad, i.e. a country that is not their country of origin. and/or
 - Minor: the student has to have earned at least 30 EC in study units at an educational institution abroad, i.e. a country that is not their country of origin.
 - Graduation assignment: The graduation assignment of 30 EC has to be on a topic that is international in nature. This report has to have been written in English and also the presentation has to have been given in English.
 - IELTS academic 7 or a comparable internationally recognised certificate such as Cambridge Advanced (CAE) English: the student must achieve an average score of 7.0 or higher in the IELTS or a C or higher in the CAE test. Four components are currently assessed: speaking, listening, writing and reading.
3. When the student applies for his/her degree, the Examination Board will check whether these conditions have been met.
If you have any questions, contact your study career counsellor.



Chapter 4:

STUDY ADVICE

Article 4.1 Issuing the preliminary advice on the first year of enrolment

1. On behalf of the Van Hall Larenstein Executive Board, the Examination Board gives every student a preliminary advice, in accordance with Article 4.5 from the general section of these EER. The student will receive these within 20 working days of the end of the second period of the first academic year of enrolment.
2. The preliminary advice serves as a warning, as described in Article 7.8b clause 4 WHW, for a binding advice to stop the study programme that could possibly be presented at the end of the first year of enrolment.
3. The standard for a positive preliminary advice is a minimum of 21 credits.
4. A positive preliminary advice does not provide entitlement to a positive study advice.
5. A student who does not meet the requirements for getting a positive preliminary advice will receive a negative preliminary advice meaning that on the basis of his/her current study performance he/she is not expected to be able to successfully complete the programme. The student has the opportunity to improve the performance during term 3 and 4.

Article 4.2 Issuing the study advice- first year of enrolment

1. The Examination Board, on behalf of the Van Hall Larenstein Executive Board, provides all students (in accordance with Article 4.6 from the general section of the EER), no later than the end of their first year of enrolment of their study programme, with an advice about continuing their study in the degree programme or elsewhere.
2. A positive advice is made if students have earned at least 46 credits.
3. A binding negative study advice is provided if students at that time have earned fewer than 46 credits.
4. The Examination Board may decide to postpone the issuing of an advice, if in the judgment of the Examination Board the student in all fairness was unable to meet the norm as a result of personal circumstances (in accordance with Article 4.8 of the general section of the EER). An advice must be issued by the end of the second academic year at the latest.
5. Moreover, a binding negative study advice is provided if students de-enrol before the end of the first year of enrolment, but after 31 January of that enrolment year, and do not comply with the standard of the requirements for a positive advice, as outlined in clause 2 of this article.



Chapter 5:

FINAL PROVISIONS

Article 5.1 Additional regulations

1. The Examination Board, taking into account the Act and these Regulations, can establish additional regulations on taking examinations.

Article 5.2 Right of appeal

1. Students have the right to submit an appeal to the Appeals Board for Van Hall Larenstein Students against their treatment while taking an examination or participating in an evaluation and against decisions of the Examination Board, examiner or invigilator. The term for submitting the notification of appeal is 6 weeks following the date on the decision. The notification of appeal must be submitted to the counter for complaints and disputes (loket-klachten-geschillen@hvhl.nl). The appeals procedure is described in more detail in the Regulations of the Appeals Board for Van Hall Larenstein Students (*Reglement van het College van Beroep voor Studenten Van Hall Larenstein*), which is published on studentnet.

Article 5.3 Unforeseen circumstances

1. In cases not foreseen by these Regulations, the Van Hall Larenstein Executive Board decides. As the occasion arises, the Van Hall Larenstein Executive Board requests advice from the Examination Board.

Article 5.4 Interim provisions

1. In urgent cases, the Chair of the Examination Board is authorised to make interim provisions on behalf of the Examination Board, subject to the Act and these Regulations. He informs the Examination Board about these interim provisions within one week.

Article 5.5 Entry into force and official title

1. These Regulations go into force on 1 September 2019.
2. These Regulations can be amended during the academic year, if and to the extent that students are not disadvantaged as a result. Amendments, as the occasion arises, require approval of the Participational Council and are published on studentnet.
3. These Regulations are officially cited as: Van Hall Larenstein Education and Examination Regulations 2019/2020 study programme Food Technology (Velp).



Appendix 1:

ADMISSION

Article 1 Previous educational qualifications

1. Prospective students who wish to be admitted to the Bachelor's degree programme or the Associate degree programme must have one of the following education qualifications as mentioned in Article 7.24 WHW:
 - a. a diploma from pre-university education (VWO);
 - b. A diploma from senior general secondary education (HAVO);
 - c. a degree certificate designated by the Minister, in Dutch or another language, that Van Hall Larenstein Executive Board judges to be at least equivalent to a HAVO or VWO diploma
 - d. a diploma from a management training programme (level 4);
 - e. a diploma from a specialist training programme (level 4);
 - f. a diploma from a professional training programme designated by ministerial decree.

Article 2 Additional educational qualifications

1. Without prejudice to the provisions in Article 1 of this appendix, a prospective student who complies with that Article must also comply with additional qualifications, as the occasion arises.
2. a. Admission to the Bachelor's programme:
Such additional requirements apply to the admission of:
 - prospective students as referred to in Article 1 under a of that Article (VWO graduates):
profiles VWO NT, VWO NG, VWO EM with mathematics a and chemistry
 - prospective students as referred to in Article 1 under b of that Article (HAVO graduates):
profiles: HAVO NT, NG, EM with mathematics a and chemistry.
- b. Admission to the Associate degree programme:
The additional requirements for the part-time Associate degree programme are part of the Van Hall Larenstein OER 2019/2020 Voedingstechnologie, Leeuwarden.



Article 3 Exception to additional educational qualifications

1. If prospective students do not comply with the additional educational qualifications as referred to in Article 2.2a of this appendix, they can still be admitted to the study programme if an investigation shows that they comply with the following requirements:
 - a. Prospective students with VWO CM without chemistry and mathematics a need to have finished an approved deficiency test with sufficient results.
 - b. Prospective students with HAVO profiles CM without chemistry and mathematics a need to have finished an approved deficiency test with sufficient results.
2. The investigation into the requirements as referred to in the first clause of this Article is structured as follows:

If the in the previous article 3 indicated modular certificate Mathematics A and/or Chemistry is not available an admission test is possible. The mark for such a test should be at least 6. For more information: www.toelatingstoetsen.nl.
3. When conducting an investigation about an exception to the additional educational qualifications, no age limit applies. Prospective students must comply with the established requirements before they can enrol.

Article 4 Requirements for the working environment with the part-time variant

Does not apply for the bachelor proramme.

The requierements for the part-time Associate degree programme are part of the Van Hall Larenstein OER 2019/2020 Voedingsmiddelentechnologie, Leeuwarden.

Article 5 Exemptions based on NVAO-accredited diplomas and diplomas designated by the Ministry

1. Prospective students¹ with a degree, diploma or final evaluation as referred to in the first sentence of Article 7.28 clause 1 WHW and the first sentence of Article 7.28 clause 2 WHW are exempt from the previous education requirements referred to in Article 1 above.
2. The degree, diploma or final evaluation referred to in the previous clause is understood to be a degree certificate (final student evaluation) of an NVAO-accredited study programme of a university or legal entity of higher education and a European Baccalaureate of a European school, if that Baccalaureate also has Dutch as a first or second language subject.
3. If additional qualifications are required for the study programme, the prospective students referred to in the first clause cannot take a propaedeutic evaluation or final student evaluation, unless an additional investigation is conducted which demonstrates that the students possess the necessary knowledge and skills to which the additional qualifications apply.
4. The requirements placed on the investigation referred to in the third clause of this article are included in Article 3 clause 2 of this appendix.

¹ This concerns prospective students who have earned a Bachelor's or Master's degree at a university or institution for higher professional education. It also concerns prospective students who have earned a diploma designated by the Ministry as "at least equivalent".



5. Prospective students are assumed to have met the requirements referred to in the previous clause if they have passed the following educational components or have received an exemption for them:
 - VFT1FAVE Food Analysis;
 - LVT104VN-02 toets Wiskunde (Voedingsmiddelentechnologie);
 - LLS101VN toets Chemisch rekenen ((Voedingsmiddelentechnologie).

6. No age limit applies to the supplementary investigation referred to in this Article. However, prospective students can enrol and take examinations.

Article 6 Exemptions based on the Treaty of Lisbon

1. In compliance with the provisions in the Act and this Article, the individuals referred to in Article 7.28 clause 1,² second sentence WHW are exempt from the educational qualifications referred to in Article 1 above.

2. If additional qualifications are required for the study programme, the prospective students referred to in the first clause cannot take a propaedeutic evaluation or final student evaluation, unless an additional investigation is conducted which demonstrates that the students possess the necessary knowledge and skills to which the additional qualifications apply.

3. If the diploma referred to in the first clause is earned abroad, and the language of the study programme at the location where the prospective student desires to enrol is Dutch, then the prospective student cannot be enrolled until the Examination Board ascertains that proof has been provided of sufficient proficiency in Dutch to participate in education. This proof is provided if the student passes the course *NT2, niveau II* (Dutch as a second language, level II), an examination at the B2 level of the Common European Framework of Reference for Languages or an examination at a comparable level.

4. If the diploma referred to in the first clause is earned abroad, and the language of the study programme at the location where the prospective student desires to enrol is English, then the prospective student cannot be enrolled until the Examination Board ascertains that proof has been provided of sufficient proficiency in English to participate in education. This proof is provided if the student passes an academic IELTS test with an overall band score of 6.0. If the student submits a different type of language proficiency test, then the standard referred to in article 4.2 of the *Gedragcode Internationale Student in het Hoger Onderwijs* (Code of Conduct) applies.

5. The requirements placed on the investigation referred to in the second clause of this Article are included in Article 3 clause 2 of this appendix.

6. Prospective students are assumed to have met the requirements referred to in the previous clause if they have passed the following educational components or have received an exemption for them:
 - VFT1FAVE Food Analysis;
 - LVT104VN-02 toets Wiskunde (Voedingsmiddelentechnologie);
 - LLS101VN toets Chemisch rekenen ((Voedingsmiddelentechnologie).

7. No age limit applies to the supplementary investigation referred to in this Article. However, the prospective students can be enrolled and take examinations, unless the provisions in clause 3 or 4 this Article apply.

² This includes prospective students from a Member State of the EU.



Article 7 Exemptions based on other diplomas and diplomas from abroad

1. In compliance with the provisions in the Act and this Article, prospective students who hold a diploma from the Netherlands or another country, as referred to in Article 7.28 clause 2 second sentence WHW, can be exempted from the previous education qualifications referred to in Article 2.1.
2. For assessing the equivalency of any diploma, as the occasion arises the Van Hall Larenstein Executive Board requests advice from the Nuffic.
3. If additional qualifications are required for the study programme, the prospective students referred to in the first clause cannot take a propaedeutic evaluation or final student evaluation, unless an additional investigation is conducted which demonstrates that the students possess the necessary knowledge and skills to which the additional qualifications apply.
4. If the diploma referred to in the first clause is earned abroad, and the language of the study programme at the location where the prospective student desires to enrol is Dutch, then the prospective student cannot be enrolled until the Examination Board ascertains that proof has been provided of sufficient proficiency in Dutch to participate in education. This proof is provided if the student passes the course *NT2, niveau II* (Dutch as a second language, level II).
5. If the diploma referred to in the first clause is earned abroad, and the language of the study programme at the location where the prospective student desires to enrol is English, then the prospective student cannot be enrolled until the Examination Board ascertains that proof has been provided of sufficient proficiency in English to participate in education. This proof is provided if the student passes an academic IELTS test with an overall band score of 6.0. If the student submits a different type of language proficiency test, then the standard referred to in article 4.2 of the *Gedragcode internationale student hoger onderwijs* (Code of Conduct) applies.
6. The requirements placed on the investigation referred to in the second clause of this article are included in Article 3 clause 2 of this appendix.
7. Prospective students are assumed to have met the requirements referred to in the previous clause if they have passed the following educational components or have received an exemption for them:
 - VFT1FAVE Food Analysis;
 - LVT104VN-02 toets Wiskunde (Voedingsmiddelentechnologie);
 - LLS101VN toets Chemisch rekenen ((Voedingsmiddelentechnologie).
8. No age limit applies to the supplementary investigation referred to in this Article. However, the prospective students can be enrolled and take examinations, unless the provisions in clause 4 or 5 this Article apply.

Article 8 Exemptions based on an entrance examination (21+ test)

1. In compliance with the provisions in the Act and this Article, prospective students who are 21 years of age or older on 1 September of the academic year in question and who do not meet the previous education requirements referred to in Article 1 of this appendix, and who are not exempt from these requirements pursuant to the provisions in Article 6 or 7, must take an entrance examination. If the Van Hall Larenstein Executive Board decides that the prospective students have passed the entrance examination, then they are exempted from the previous educational requirements referred to in article 1.



2. The entrance examination consists of three components: a (motivation)interview, a language test and a substantive component. The following requirements must be met:
 - a. knowledge of the Dutch language* (havo exam level or comparable level NT2/B2);
 - b. knowledge of the English language (havo exam level or comparable level B2/IELTS 6);
 - c. knowledge of chemistry (havo exam level);
 - d. knowledge of mathematics a (havo exam level).

**If taught entirely in English, then an English proficiency exam suffices.*
3. The examination referred to in the second clause of this Article is structured as follows:
 - a. the requirement of knowledge of Dutch are met when a prospective student can prove (with a certificate) that he/she has passed Dutch at havo exam level or at a comparable level;
 - b. the requirement of knowledge of English are met when a prospective student can prove (with a certificate) that he/she has passed English at havo exam level or at a comparable level;
 - c. the requirement of chemistry are met when the prospective student can prove (with a certificate) that he/she has passed chemistry at havo exam level;
 - d. the requirement of mathematics a are met when the prospective student can prove (with a certificate) that he/she has passed mathematics a at havo exam level;
 - e. when the prospective student do not have the certificates mentioned in clause 3 under a, b, c and d of this article then he/she can participate in the deficiency test. For more information about the tests: <http://toelatingstoetsen.nl>.
4. The examination referred to in this Article can only be taken by individuals 21 years of age and older. Without a decision from the Van Hall Larenstein Executive Board, individuals cannot be enrolled and are not permitted to take exams.

Article 9 Admission to an accelerated track for prospective students with a VWO diploma

Not applicable

Article 9a Requirements for the 2+2 programme SAU Chengdu

1. Since 2016-2017, a partnership agreement has been in place with China.
2. Entrance exam in China. Additional entry requirements:
Plus GPA: 3.2 and TOEFL 90, IELTS 6.5.

Entrance requirements:
Before students can take the entrance exam in China they need to:
 - have completed all the courses of the Chinese programme up to the date of the entrance exam successfully with a grade point average of 3.2.
 - provide the results of an English language test: either a TOEFL test with a score of 90 or an IELTS test with a score of 6.5.
3. To enter the programme in Leeuwarden, students need to complete the entrance exam successfully: they need to have a mark of 5.5 or higher on a scale from 1-10 for all the components of the entrance exam.
The entrance exam will take 5 days and consists of:
 - 6 written examinations of 45 minutes (2) and 90 minutes (4) in length.
 - A short literature review and writing assignment plus an oral PowerPoint presentation (5-10 minutes) of the outcomes.



- A lecture, including notes and a summary. A 20-minute interview about the content of the lecture will also need to be completed.

Article 10 Enrolment in post-propaedeutic phase (main phase)

1. Enrolment in the post-propaedeutic phase of the programme is possible with a completed propaedeutic evaluation.
2. In compliance with the provisions in the Act and this Article, prospective students who hold a diploma from the Netherlands or another country, that the Examination Board judges to be at least equivalent to the propaedeutic evaluation of the programme, will be exempted from the requirement in clause 1 of this Article.
3. If the diploma referred to in the second clause is earned abroad, and the language of the study programme at the location where the prospective student desires to enrol is Dutch, then the prospective student cannot be enrolled until the Examination Board ascertains that proof has been provided of sufficient proficiency in Dutch to participate in education. This proof is provided if the student passes the course *NT2, niveau II* (Dutch as a second language, level II), an examination at the B2 level of the Common European Framework of Reference for Languages or an examination at a comparable level.
4. If the diploma referred to in the second clause is earned abroad, and the language of the study programme at the location where the prospective student desires to enrol is English, then the prospective student cannot be enrolled until the Examination Board ascertains that proof has been provided of sufficient proficiency in English to participate in education. This proof is provided if the student passes an academic IELTS test with an overall band score of 6.0. If the student submits a different type of language proficiency test, then the standard referred to in article 4.2 of the *Gedragcode Internationale Student in het Hoger Onderwijs* (Code of Conduct) applies.
5. A student enrolled in the propaedeutic phase can, with motivation, request the Examination Board to be enrolled to specific study units in the post-propaedeutic phase.
6. Students who received a positive recommendation as mentioned in Article 4.2 can, within the framework of this regulation, be enrolled to study units in the post-propaedeutic phase of the programme.

Article 11 Conditions of enrolment

1. Before they can participate in education, examinations and assessments, prospective students must also comply with the conditions of enrolment as presented in the Student Charter and the *inschrijvingsbesluit* (Enrolment Decree). The Student Charter and the Enrolment Regulations can be found on studentnet.

Article 12 Notice of objection

2. Decisions taken by the Executive Board pursuant to this annex may be objected to within six weeks after publication of the decision to the Advisory Board for Appeals (e-mailadres: loket-klachten-geschillen@hvhl.nl).





Appendix 2:

STUDY UNIT EVALUATIONS

On the 15th of June 2016 an amendment of the Higher Education and Research Act ‘the Enhanced Governance Powers Act’ was published and states that the Programme Committee has the approval right on topics in the Education and examination Regulations (EER). In addition, a new topic is added to the EER: the way the education of the concerning study programme is evaluated. The amendment is published in the Bulletin of Acts and Decrees of the Kingdom of the Netherlands 273.

In this attachment the study programme announces how the education of the concerning study programme is evaluated.

1. Planning of evaluations, including panel evaluations.

The study programme can fill in the annual planning in the table below.

Name of study unit	Kind of evaluation: questionnaire or/and panel evaluation	When (which week)
VFT1FAVE3 Food analyses	Questionnaire and panel	Week 8 of term 2
VFT1MSVE2 Quality Management in Food	Questionnaire and panel	Week 8 of term 3
VFT1FDVE1 Food product development	Questionnaire and panel	Week 8 of term 4
VFT2RMVE1 Applied Research	Questionnaire and panel	Week 8 of term 2
VFT2FIVE2 Food ingredients	Questionnaire and panel	Week 8 of term 3
VFT2FHVE2 Food & Health	Questionnaire and panel	Week 8 of term 4
VFT3FCVE1 Food analyses & consumers behaviour	Questionnaire	Week 8 of term 1
VFT3PAVE1 Product Analyses (FIM)	Questionnaire	Week 8 of term 2
VFT3FQVE1 Food Quality (FSH)	Questionnaire	Week 8 of term 2



Process of publishing the results³ and improvements

Elements of the process	Fill in per study programme
1. The way the results of the evaluation and the plans for improvement are made known to the <u>current student</u> .	Discussed in APC
2. The planning for making known the results of evaluations and improvement plans among <u>current students</u> .	Discussed in APC
3. The way the results of the evaluation and the plans for improvement are made known to the <u>new student</u> .	Not applicable
4. The planning for making known the results of evaluations and improvement plans among <u>new students</u> .	Discussed in APC
Name contact person⁴	Sigrid Wintermans

³ The study program chooses how, which content, and to what extent they publish the results and plans for improvement to students.

⁴ Regierolhouder quality



Appendix 3

SCHEMATIC OVERVIEW OF THE FULLTIME BACHELOR'S PROGRAMME FOOD TECHNOLOGY

Curriculum 2015–2019

Applicable for students who started in September 2015 (academic year 2015-2016)

Year 1 (2015-2016)

Year 1			
SEMESTER 1		SEMESTER 2	
Period 1	Period 2	Period 3	Period 4
VFT1SAVE1 Sector Analysis 7 credits	VFT1FAVE1 Food analysis 7 credits	VFT1FIVE1 Agribusiness management 7 credits	VFT1IFVE1 Innovation in Food & Business 7 credits
VFT1FPVE1 Food Products 7 credits	VFT1FHVE1 Food Safety & Health 7 credits	VFT1MSVE1 Quality management in Food & Microbiology 7 credits	VFT1FDVE1 Food Product Development 7 credits
VFT1SM1P Study Mentoring year 1: 4 credits			



**Major Food Safety & Health:
Year 2 (2016-2017):**

Year 2 Major FSH			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT2PLVE 1 Orientation Placement 14 credits	VFT2RMVE1 Applied Research 7 credits	VFT2IFVE1 Ingredient Functionality 7 credits	VFT2FHVE1 Food and Health 7 credits
	VFT2PTVE1 Product and Process Technology 7 credits	VFT2FCVE1 Food and Healthy Consumers 7 credits	VFT2FSVE1 Food Safety 7 credits
VFT2SMVE1 Study Mentoring year 2: 4 credits			

Year 3 (2017-2018):

Year 3			
major FSH			
1 st semester		2 nd semester	
VFT3FCVE 1 Food Analysis & Consumer behavior 7 credits	VFT3FQVE Food & Quality 7 credits	VFT3PLVE 2 Practical Placement 30 EC	
VFT3FSVE 2 Food Safety & Health 7 credits	VFT3FPVE Food Quality project 7 credits		
VFT3SMVE1 2 credits			

Year 4 (2018-2019):

Year 4 Major FSH	
1 st semester	2 nd semester
VFT4MIVE Minor 30 EC	VFT4THVE Final Thesis 30 EC



Major Food Innovation Management:

Year 2 (2016-2017):

Year 2 Major FIM			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT2PLVE 1 Orientation Placement 14 credits	VFT2RMVE1 Applied Research 7 credits	VFT2BPVE1 Business Planning 7 credits	VFT2MBVE1 Business Management 7 credits
	VFT2PTVE1 Product and Process Technology 7 credits	VFT2FIVE1 Food Ingredients 7 credits	VFT2FSVE1 Food Safety 7 credits
VFT2SMVE1 Study Mentoring year 2: 4 credits			

Year 3 (2017-2018):

Year 3	
major FIM	
1 st semester	2 nd semester
VFT3FCVE1 Food Analysis & Consumer Behavior 7 credits	VFT3PLVE2 Practical Placement 30 EC
VFT3PGVE Product group Analysis 7 credits	
VFT3PAVE Product Analysis 7 credits	
VFT3PDVE 2 Product Development 7 credits	VFT3SMVE1 2 credits

Year 4 (2018-2019):

Year 4 Major FIM	
1 st semester	2 nd semester
VFT4MIVE Minor 30 EC	VFT4THVE Final Thesis 30 EC



Curriculum 2016–2020

Applicable for students who started in September 2016 (academic year 2016-2017)

Year 1 (2016-2017):

Year 1			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT1SAVE1 Sector Analysis 7 credits	VFT1FAVE1 Food analysis 7 credits	VFT1FIVE1 Agribusiness management 7 credits	VFT1IFVE1 Innovation in Food & Business 7 credits
VFT1FPVE1 Food Products 7 credits	VFT1FHVE1 Microbiology & Health 7 credits	VFT1MSVE1 Quality management in Food & Microbiology 7 credits	VFT1FDVE1 Food Product Development 7 credits
VFT1SM1P Study Mentoring year 1: 4 credits			

Year 2 (2017-2018):

Year 2			
SEMESTER 1		SEMESTER 2	
TERM1	TERM 2	TERM3	TERM4
VFT2PLVE 1 Orientation Placement 14 credits	VFT2RMVE1 Applied Research 7 credits	VFT2SEVE1 Sustainable Entrepreneurship 7 credits	VFT2FHVE 2 Food & Health 7 credits
	VFT2PTVE Product and Process Technology 7 credits	VFT2FME 2 Food Ingredients 7 credits	VFT2FQVE1 Food Safety & Quality 7 credits
VFT2SMVE1 Study Mentoring year 2: 4 credits			

Year 3: major Food Safety & Health (2018-2019):

Year 3 Major FSH			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT3FCVE1 Food Analysis & Consumer behaviour 7 credits	VFT3FQVE2 Food Quality 7 credits	VFT3PLVE1 Practical Placement 30 credits	
VFT3FSVE2 Food safety & Health 7 credits	VFT3FPVE1 Food Quality Project 7 credits		
Studymentoring 2 credits			

Year 3: Major Food Innovation Management (2018-2019):

Year 3 Major FIM			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT3FCVE1 Food Analysis & Consumer behaviour 7 credits	VFT3PAVE1 Product Analysis 7 credits	VFT3PLVE1 Practical Placement 30 credits	
VFT3PGVE1 Product Group Analysis 7 credits	VFT3PDVE1 Product Development 7 credits		
Studymentoring 2 credits			



Year 4: major Food Safety & Health (2019-2020):

Year 4 Major FSH	
1 st semester	2 nd semester
VFT4MIVE	VFT4THVE
Minor	Final Thesis
30 EC	30 EC

Year 4: Major Food Innovation Management (2019-2020):

Year 4 Major FIM	
1 st semester	2 nd semester
VFT4MIVE	VFT4THVE
Minor	Final Thesis
30 EC	30 EC



Curriculum 2017–2021

Applicable for students who started in September 2017 (academic year 2017-2021)

Year 1 (2017-2018):

Year 1			
SEMESTER 1		SEMESTER 2	
Period 1	Period 2	Period 3	Period 4
VFT1SAVE1 Sector Analysis 7 credits	VFT1FAVE 3 Food analysis 7 credits	VFT1FIVE1 Agribusiness management 7 credits	VFT1IFVE1 Innovation in Food & Business 7 credits
VFT1FPVE2 Food Products 7 credits	VFT1FHVE 3 Food Safety & Health 7 credits	VFT1MSVE 2 Quality management in Food & Microbiology 7 credits	VFT1FDVE 1 Food Product Development 7 credits
VFT1SMVE 1 Study Mentoring year 1: 4 credits			

Year 2 (2018-2019):

Year 2			
SEMESTER 1		SEMESTER 2	
TERM1	TERM2	TERM 3	TERM4
VFT2PLVE 1 Orientation Placement 14 credits	VFT2RMVE1 Applied Research 7 credits	VFT2SEVE1 Sustainable Entrepreneurship 7 credits	VFT2FHVE 2 Food & Health 7 credits
	VFT2PTVE Product and Process Technology 7 credits	VFT2FME 2 Food Ingredients 7 credits	VFT2FQVE1 Food Safety & Quality 7 credits
VFT2SMVE1 Study Mentoring year 2: 4 credits			

Year 3: major Food Safety & Health (2019-2020):

Year 3 Major FSH			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT3FCVE1 Food Analysis & Consumer behaviour 7 credits	VFT3FQVE2 Food Quality 7 credits	VFT3PLVE1 Practical Placement 30 credits	
VFT3FSVE2 Food safety & Health 7 credits	VFT3FPVE1 Food Quality Project 7 credits		
Studymentoring 2 credits			

Year 4: major Food Safety & Health (2020-2021):

Year 4 Major FSH	
1 st semester	2 nd semester
VFT4MIVE Minor 30 EC	VFT4THVE Final Thesis 30 EC

Year 3: Major Food Innovation Management (2019-2020):

Year 3 Major FIM			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT3FCVE1 Food Analysis & Consumer behaviour 7 credits	VFT3PAVE1 Product Analysis 7 credits	VFT3PLVE1 Practical Placement 30 credits	
VFT3PGVE1 Product Group Analysis 7 credits	VFT3PDVE1 Product Development 7 credits		
Studymentoring 2 credits			



Year 4: Major Food Innovation Management (2020-2021):

Year 4 Major FIM	
1 st semester	2 nd semester
VFT4MIVE Minor 30 EC	VFT4THVE Final Thesis 30 EC



Curriculum 2018 – 2022

Applicable for students who started in September 2018 (academic year 2018-2019)

Year 1 (2018-2019):

Year 1			
SEMESTER 1		SEMESTER 2	
Period 1	Period 2	Period 3	Period 4
VFT1SAVE1 Sector Analysis 7 credits	VFT1FAVE 3 Food analysis 7 credits	VFT1FIVE1 Agribusiness management 7 credits	VFT1IFVE1 Innovation in Food & Business 7 credits
VFT1FPVE2 Food Products 7 credits	VFT1FHVE 3 Food Safety & Health 7 credits	VFT1MSVE 2 Quality management in Food & Microbiology 7 credits	VFT1FDVE 1 Food Product Development 7 credits
VFT1SMVE 1 Study Mentoring year 1: 4 credits			

Year 2 (2019-2020):

Year 2			
SEMESTER 1		SEMESTER 2	
Term 1	Term 2	Term 3	Term 4
VFT2PLVE1 Orientation Placement 14 credits	VFT2RMVE1 Applied Research 7 credits	VFT2SEVE1 Sustainable Entrepreneurship 7 credits	VFT2FHVE2 Food & Health 7 credits
	VFT2PTVE1 Product and Process Technology 7 credits	VFT2FIVE2 Food Ingredients 7 credits	VFT2FQVE1 Food Safety & Quality 7 credits
VFT2SMVE Study Mentoring year 2: 4 credits			

Year 3: major Food Safety & Health (2020-2021):

Year 3 Major FSH			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT3FCVE1 Food Analysis & Consumer behaviour 7 credits	VFT3FQVE2 Food Quality 7 credits	VFT3PLVE1 Practical Placement 30 credits	
VFT3FSVE2 Food safety & Health 7 credits	VFT3FPVE1 Food Quality Project 7 credits		
Studymentoring 2 credits			

Year 4: major Food Safety & Health (2021-2022):

Year 4 Major FSH	
1 st semester	2 nd semester
VFT4MIVE Minor 30 EC	VFT4THVE Final Thesis 30 EC

Year 3: Major Food Innovation Management (2020-2021):

Year 3 Major FIM			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT3FCVE1 Food Analysis & Consumer behaviour 7 credits	VFT3PAVE1 Product Analysis 7 credits	VFT3PLVE1 Practical Placement 30 credits	
VFT3PGVE1 Product Group Analysis 7 credits	VFT3PDVE1 Product Development 7 credits		
Studymentoring 2 credits			



Year 4: Major Food Innovation Management (2021-2022):

Year 4 Major FIM	
1 st semester	2 nd semester
VFT4MIVE Minor 30 EC	VFT4THVE Final Thesis 30 EC



Curriculum 2019 – 2023

Applicable for students who started in September 2019 (academic year 2019-2020)

Year 1 (2019-2020):

Year 1			
SEMESTER 1		SEMESTER 2	
Period 1	Period 2	Period 3	Period 4
VFT1SAVE1 Sector Analysis 7 credits	VFT1FAVE 3 Food analysis 7 credits	VFT1FIVE1 Agribusiness management 7 credits	VFT1IFVE1 Innovation in Food & Business 7 credits
VFT1FPVE2 Food Products 7 credits	VFT1FHVE 3 Food Safety & Health 7 credits	VFT1MSVE 2 Quality management in Food & Microbiology 7 credits	VFT1FDVE 1 Food Product Development 7 credits
VFT1SMVE 1 Study Mentoring year 1: 4 credits			

Year 2 (2020-2021):

Year 2			
SEMESTER 1		SEMESTER 2	
Term 1	Term 2	Term 3	Term 4
VFT2PLVE1 Orientation Placement 14 credits	VFT2RMVE1 Applied Research 7 credits	VFT2SEVE1 Sustainable Entrepreneurship 7 credits	VFT2FHVE2 Food & Health 7 credits
	VFT2PTVE1 Product and Process Technology 7 credits	VFT2FIVE2 Food Ingredients 7 credits	VFT2FQVE1 Food Safety & Quality 7 credits
VFT2SMVE Study Mentoring year 2: 4 credits			

Year 3: major Food Safety & Health (2021-2022):

Year 3 Major FSH			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT3FCVE1 Food Analysis & Consumer behaviour 7 credits	VFT3FQVE2 Food Quality 7 credits	VFT3PLVE1 Practical Placement 30 credits	
VFT3FSVE2 Food safety & Health 7 credits	VFT3FPVE1 Food Quality Project 7 credits		
Studymentoring 2 credits			

Year 4: major Food Safety & Health (2022-2023):

Year 4 Major FSH	
1 st semester	2 nd semester
VFT4MIVE Minor 30 EC	VFT4THVE Final Thesis 30 EC

Year 3: Major Food Innovation Management (2021-2022):

Year 3 Major FIM			
SEMESTER 1		SEMESTER 2	
TERM 1	TERM 2	TERM 3	TERM 4
VFT3FCVE1 Food Analysis & Consumer behaviour 7 credits	VFT3PAVE1 Product Analysis 7 credits	VFT3PLVE1 Practical Placement 30 credits	
VFT3PGVE1 Product Group Analysis 7 credits	VFT3PDVE1 Product Development 7 credits		
Studymentoring 2 credits			



Year 4: Major Food Innovation Management (2022-2023):

Year 4 Major FIM	
1 st semester	2 nd semester
VFT4MIVE Minor 30 EC	VFT4THVE Final Thesis 30 EC



Appendix 4:

STUDY UNIT CATALOGUE AND ANNUAL EXAM CALENDAR OF THE BACHELOR'S PROGRAMME

This appendix contains greater detail regarding the study units in the Bachelor's programme Food Technology. The scheduling of the exams for each study unit will also be indicated.

Study unit - code	VFT1FAVE3		
Study unit - name	<i>Food Analysis</i>		
Competences	Nr.	Competence	Level
	VFT1	1. Researching	Basic
	VFT2	2. Experimenting	Basic
Learning outcomes	<p>After this course, students are able to:</p> <ul style="list-style-type: none"> • Understand principles on chemistry and physics in food technology • Calculate various aspects of foods related to chemistry and physics • Apply knowledge of chemistry and physics in a practical setting • Develop analytical mindset focused on working with minimum waste experimental design • Analyze and evaluate results obtained from chemistry and physics practicals • Create a logbook according to set rules • Create a laboratory report on the results of practicals 		
Content	<p>In this study unit the students will be introduced to the basics of chemistry and physics in food applications. This will be realized in theory lectures of the given disciplines. In chemistry and physics practicals, various experiments will be performed in which analytical principles and techniques are learned, while students learn how to work and prepare their own solutions needed, respecting minimum quantity (sustainable). A thoughtful mindset focused on minimum waste experimental design is cultivated. Furthermore, the students will report on their results in</p>		



	logbooks and laboratory reports.		
Teaching method(s) and student workload	<p>Lectures, practicals, group work</p> <p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours.</p> <p>This course consists of:</p> <ul style="list-style-type: none"> • Lectures on principles of Food Chemistry (~40 hours) • Lectures on principles of Food Physics (~40 hours) • Practical analyses on Food Chemistry (~40 hours) • Practical analyses on Food Physics (~40 hours) • Self-study (~40 hours) 		
Mandatory literature / material	<i>Literature (literatuur) / other (overig)</i>	<i>Description</i>	<i>Mandatory (verplicht) / Recommended (aanbevolen)</i>
	Literatuur	E.N. Ramsden Chemistry A level, 4th edition, ISBN 0-7487-5299-4 Practical Manual Basic Applied Chemistry (distributed by lecturer)	Mandatory
	Literatuur	Theory materials and hand-outs, distributed via Blackboard Practical manual Food Physics (distributed by lecturer)	Mandatory
Contact person	adriana.sterian@hvhl.nl		
Language	English		
Credits	7		
Term	PER2		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food Chemistry		4	test 1-10; 1 decimal	SCHRIFTELIJK	135	P3WK6, PER2
TOETS-02	Food Physics		3	test 1-10; 1 decimal	SCHRIFTELIJK	135	P3WK6, PER2
TOETS-03	Chemistry & Physics Practicals		3	test 1-10; 1 decimal	PORTFOLIO		PER2



Study unit - code	VFT1FDVE1		
Study unit - name	<i>Food Product Development</i>		
Competences	Nr.	Competence	Level
	VFT3	3. Developing	Basic
	VFT2	2. Experimenting	Basic
Learning outcomes	<p>After this course the student is able to:</p> <ul style="list-style-type: none"> Summarize the basics of food processing Create basic flow charts of unit operations and calculate mass balances Summarize the basics of chemical bonding (dot structures, hybridization, dot-line structures, electronegativity, polarity); Explain how bonding and intermolecular forces relate to physical properties; Link the properties of organic compounds with their structure Classify and name major categories of organic molecules Recognize common functional groups and conformations Evaluate the sustainable aspects (people, planet, profit) 		
Content	<p>Students will work on applied food microbiology. Further they will learn how to execute a simple shelf-life and challenge test in a product setting. Also they will be introduced to the different unit operations on a factory level in the processing part of this course. The students will also learn the applied molecular properties of most important Food ingredients (organic chemistry).</p>		
Teaching method(s) and student workload	<p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours.</p> <p>This course consists of:</p> <ul style="list-style-type: none"> Lectures on Processing, Microbiology and Chemistry (~40 hours) Practicals on Microbiology and Chemistry (~80 hours) Self-study (~ 80 hours) 		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	E.N. Ramsden Chemistry A level, fourth edition, ISBN 0-7487-5299-4 Practical information distributed via Blackboard	Mandatory
	Literatuur	R.P. Singh "Introduction to Food Engineering" 5th Edition Materials and hand-outs, distributed via Blackboard	Mandatory
	Literatuur	Materials & hand-outs distributed via	Mandatory



	Blackboard
Contact person	joyce.polman@hvhl.nl
Language	English
Credits	7
Term	PER4
Entry requirements / prerequisites	

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Chemistry, Processing and Microbiology		6	test 1-10; 1 decimal	SCHRIFTELIJ K	180	HKPROP, PER4
TOETS-02	Progress in Food Technology		4	test 1-10; 1 decimal	SCHRIFTELIJ K	180	HKPROP, PER4



Study unit - code	VFT1FHVE3		
Study unit - name	<i>Food Safety & Health</i>		
Competences	Nr.	Competence	Level
	VFT2	2. Experimenting	Basic
Learning outcomes	<p>After this course, students are able to:</p> <p>State the function of organs associated with the GI tract</p> <p>Understand the digestion and absorption of nutrients in the human body</p> <p>Name for each vitamin the most important functions, deficiency and toxicity symptoms, and common food sources</p> <p>Relate food and health to the sustainable development goals</p> <p>Recall the basics of micro-organisms, microbial growth and classification of micro-organisms and its metabolism</p> <p>Work according to SMT (Safe Microbial techniques) and dispose of chemicals in a sustainable way</p> <p>Recognize and use food technology related vocabulary</p> <p>Improve practical report writing skills</p>		
Content	<p>Student will learn the basics of Food Safety in a microbiological setting and will learn the beginning principles of the relationship between food and health, together with basic human physiology. Students will receive their SMT certificate which means they are able to work in a safe way with micro-organisms.</p> <p>Students begin to feel at ease with using the English language on a daily basis and learn to use it correctly and independently in a professional and academic context both in verbal and written forms. The lessons will focus on practical report writing skills.</p>		
Teaching method(s) and student workload	<p>Lectures, practicals, group work</p> <p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours</p> <p>This course consists of:</p> <ul style="list-style-type: none"> • Lectures on Microbiology (~40 hours) • Lectures on Food and Health (~40 hours) • Practicals on Microbiology (~40 hours) • Lectures on English (~30 hours) • Self-study (~50 hours) 		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Whitney et al. Understanding Nutrition, 14th edition. ISBN-13: 978-1285874340	Mandatory
	Literatuur	Martin R Adams et al Food Microbiology, 4th edition. ISBN 978-1-84973-960-3	Mandatory
	Overig	Hand-outs distributed via Blackboard	Mandatory
Contact person	martijn.kreeft@hvhl.nl		



Language	English
Credits	7
Term	PER2
Entry requirements / prerequisites	

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Microbiology		4	test 1-10; 1 decimal	SCHRIFTELIJ K		P3WK6, PER2
TOETS-02	Health Theory		3	test 1-10; 1 decimal	SCHRIFTELIJ K		P3WK6, PER2
TOETS-03	English Writing		3	test 1-10; 1 decimal	COMPUTER		P3WK6, PER2



Study unit - code	VFT1FIVE1		
Study unit - name	<i>Agribusiness management</i>		
Competences	Nr.	Competence	Level
	VFT6	6. Managing	Basic
	VFT4	4. Maintaining	Basic
Learning outcomes	<p>The student is able to:</p> <ul style="list-style-type: none"> • Explain the financial management for agribusiness, more specifically for a small food processing activity. • Summarize the context, the marketing, the operations and HR management in agribusiness. • Carry out a quick scan of an organization. • Infer with interpersonal professional communication. • Deduce the importance of developing these competencies for their further studies at VHL. • Use and reflect, at a beginners level, professional behaviour. • Further develop the use of different instruments to study effectively. • Communicate & develop in a professional manner. 		
Content	<p>Finance Goal: After completion of this module the student is able: To make a financial budget for (a unit of) an agribusiness To use financial information for management decisions To set up the operational parts and related management of a small business activity. Topic:</p> <ul style="list-style-type: none"> • (In)direct / fixed / variable costs • Layout of the master budget • Opening balance sheet • Profit and loss accounts • Liquidity budget • Closing balance sheet Description: The student can make use of basic accounting information. The student can develop a master budget. <p>Organization Goal: This study unit introduces the student into the organizational part of a medium sized to large organization. Topics:</p> <p>nt ss manager rganizing, controlling and directing function</p>		



	<p>l (UBM) and application</p> <p>Description: The student can understand the role of marketing and its relation to other functions of business management, the need to stay competitive, economics and marketing decisions, the value of forecasting, the impact of the company's legal structure, the importance of a good MIS. Student can identify, describe and explain all the elements of the aspects mentioned in the universal business model. Emphasis lies on identity & purpose with raison d'être, core values, vision, mission, key policies and target market as key elements. Based on the gathered information students can give a SW for the organization. To be able to have the necessary exercise with working with the model, students are applying the UBM to a medium / large organization.</p> <p>Project planning Goal: after completion of this module the student is able: To draw up his/her own project plan To organize meetings</p> <p>Description: The student learns to work in a project-based manner. He/she learns a number of practical tools and skills to tackle projects. He/she learns how to organize and hold a project meeting. He/she learns how to draw up his/her own project plan.</p>		
<p>Teaching method(s) and student workload</p>	<p>Finance Lectures: 20 hours Self-study: 30 hours Organization Lectures: 20 hours Self study: 30 hours English Project Training: 40 hours Self-study:56 hours</p>		
<p>Mandatory literature / material</p>	<p><i>Literature (literatuur) / other (overig)</i></p>	<p><i>Description</i></p>	<p><i>Mandatory (verplicht) / Recommended (aanbevolen)</i></p>
	<p>Literatuur</p>	<p>J.G. Beierlein, K.C. Schneeberger & D.D. Osburn: Principles of Agribusiness Management. Waveland Press,4th edition. ISBN: 9781577665403</p>	<p>Mandatory</p>
	<p>Overig</p>	<p>Reader UBM (digitally available)</p>	<p>Mandatory</p>



Contact person	CONVERSIE
Language	English
Credits	7
Term	PER3
Entry requirements / prerequisites	

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Showing Insight in Financial Budgeting		4	test 1-10; 1 decimal	SCHRIFTELIJK	180	P4WK6, PER3
TOETS-02	Organization and Management		4	test 1-10; 1 decimal	PORTFOLIO		PER3
TOETS-03	Giving a presentation		2	test 1-10; 1 decimal	MONDELING		P4WK6, PER3



Study unit - code	VFT1FPVE2		
Study unit - name	<i>Food Products</i>		
Competences	Nr.	Competence	Level
Learning outcomes	<p>Acquiring the course knowledge students are able to:</p> <ul style="list-style-type: none"> • Identify the main element in a simple food matrix responsible for main changes; • Summarize the properties of major food products categories; • Understand the underlying mechanism of main food changes; • Perform laboratory analysis following a given protocol ; • Create a logbook according to a set of rules; • Make calculations and transformations on food related aspects; • Identify main hygiene issues on a given setting. 		
Content	<p>Introduction to the agro-food environment and categorization of product groups. Lectures are linked with practical topics. The student will gain knowledge of major product groups. It is an introduction to basic food related skills and theoretical aspects. It contains two parts: Product group analysis (lectures) and Introduction to food technology (seminar and practical)</p>		
Teaching method(s) and student workload	<p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours. This course consists of:</p> <ol style="list-style-type: none"> 1. various food technology topics/product groups (40 hours) 2. Pre-established laboratory practical related to food (40 hours) 3. Data interpretation, calculation (20 hours) 4. Self-study (96 hours) 		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Overig	Manual and practical protocols, distributed via Blackboard	Mandatory
Contact person	adriana.sterian@hvhl.nl		
Language	English		
Credits	7		
Term	PER1		
Entry requirements / prerequisites			

Exams(s)



Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Introduction to Food Technology Theory		3	test 1-10; 1 decimal	SCHRIFTELIJ K	135	P2WK6, PER1
TOETS-02	Introd. to food prod. and techn. Prac. A		2	test 1-10; 1 decimal	SCHRIFTELIJ K	135	P2WK6, PER1



Study unit - code	VFT1IFVE1		
Study unit - name	<i>Innovation in Food & Business</i>		
Competences	Nr.	Competence	Level
	VFT1	1. Researching	Basic
	VFT3	3. Developing	Basic
	VFT5	5. Advising	Basic
Learning outcomes	<ul style="list-style-type: none"> • Students understands the basic theory of marketing, project management and innovation • Student who is able to develop an innovative food product, meeting specified criteria, within a small team. In order to do this they write a structured project plan. One of the criteria will relate to the sustainability of the developed product. • The student is able to write a report in which both process and background of the innovation are addressed. Market research should be used as an input to the product development. The final report has to contain a marketing plan 		
Content	<p><i>Goal:</i> To develop student's competences to innovate within the food- and agribusiness sector.</p> <p><i>Topics:</i></p> <ul style="list-style-type: none"> • Innovation Theory • Project Management • Marketing (focus on marketing plan) • Food Quality & Safety • Market research (focus on quantitative research) <p><i>Description:</i></p> <p>The student will follow lectures on innovation theory and will develop an innovative food product for a Dutch supermarket. They will work in a team of 4-5 students. The innovation process consists of several activities starting with idea generation, followed by assessing technical and commercial feasibility, product development, and writing a marketing plan. Students present the product at an innovation & business fair.</p>		
Teaching method(s) and student workload	<ul style="list-style-type: none"> • Lectures • Small assignments • Self Study • Assessment & preparation • Creativity training • Coach meetings • Practical work <p>7 EC (196 study workload hours) 50 hours attending lectures, workshops and coaching sessions 40 hours assignments and self-study 60 hours market research, feasibility research & product development</p>		



	20 hours writing project plan, marketing plan and innovation report 8 hours preparing and presenting at fair 18 hours preparing and doing assessment		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Solomon, Marshall, Stuart, Barnes, Mitchell (2013) Marketing, real people, real decisions, Second European Edition, Pearson. ISBN 978-0-273-75816-7 also used in term 1	Mandatory
	Literatuur	Ben Baarda (2014) Research. This is it!, second edition, Noordhoff uitgevers. ISBN 978-90-01-81696-4 also used in term 1	Mandatory
	Literatuur	Roel Grit (2015) – Project Management. Fourth edition. ISBN 9789001850548. Noordhoff uitgevers	Mandatory
	Overig	Material on Innovation Theory and Quantitative data processing/SPSS/Statistics will be made available by teaching staff	Mandatory
Contact person	heinz.evers@hvhl.nl		
Language	English		
Credits	7		
Term	PER4		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Innovation, marketing & project manageme		3	test 1-10; 1 decimal	SCHRIFTELIJ K	180	HKPROP, PER4
TOETS-02	Develop an innovative product		5	test 1-10; 1 decimal	MONDELIN G		HKPROP, PER4
TOETS-03	Processing quantitative data		2	test 1-10; 1 decimal	COMPUTER	135	HKPROP, PER4



Study unit - code	VFT1MSVE2	
Study unit - name	<i>Quality Management in Food</i>	
Competences	Nr.	Competence
Learning outcomes	<p>The student is able to:</p> <p>Understand the operational, logistics and quality management processes of a small food processing activity;</p> <p>Design (on paper) the operational, logistics and quality management processes of a small food processing activity</p> <p>Apply safe microbiological techniques skills in a practical.</p>	
Content	<p>Goal: This study unit introduces the student into the organizational part of a simple food business.</p> <p>Topics: Together with ABA: Food quality & safety management systems different food quality & food safety tools: HACCP, ISO, BRC, Food law Logistics management business processes, CODP, inventory management, performance Project setting up vegetable cutting activity Managed and managing systems (logistics, quality and financial systems) and organization JIT-training (practical)</p> <p>For the course FT: Microbiology Practical</p> <p>Description: Food quality and safety management systems and logistics management are input for the term 3 project 'Setting up of a vegetable cutting activity'. Any safety and quality management system follows the rule of preventing rather than solving/treating. The main focus of these systems is to prevent consumer for developing food borne illness, hence a people oriented sustainability. The project introduces the student into designing the operational and organizational parts (logistics, quality and financial management) of a simple business activity. The project also introduces the student in the use of Excel and Visio as applied management tools The students are setting up the pilot system for a wholesaler who want to extend his activities from trading vegetables to processing vegetables into fresh ready to eat salads. The students do this for a virtual product that can be a mix of whatever they choose. Microbiology Practice will provide the students with the tools needed for applied microbiological hazard assessment.</p>	
Teaching method(s) and student workload	<p>Food quality & safety management systems 100 hours Lectures: each week, topics on Quality and Safety of minimally processed vegetables, HACCP, ISO and Food law at the start of the term (after intro) Logistics management 46 hours Lectures:</p>	



	2 ch per week, in weeks 2, 3, 4 and 5 Microbiology Practice 40 hours Practical's including exam (theory and practical exam): 4 practicals of 4 ch Practical exam is assessment week (week 9)		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Overig	Logistics: hand-outs	Mandatory
	Overig	Quality: hand-outs and "easy guide on making an HACCP plan"	Mandatory
	Overig	Microbiology: Manual and practical protocols, distributed via Blackboard	Mandatory
Contact person	adriana.sterian@hvhl.nl		
Language	English		
Credits	7		
Term	PER3		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Showing knowledge of management systems		8	test 1-10; 1 decimal	SCHRIFTELIJK	180	P4WK6, PER3
TOETS-02	Understanding microbiology		2	test 1-10; 1 decimal	MONDELING	480	P4WK6, PER3



Study unit - code	VFT1MSVE3		
Study unit - name	<i>Quality management in Food</i>		
Competences	Nr.	Competence	Level
	VFT6	6. Managing	Basic
Learning outcomes			
Content			
Teaching method(s) and student workload			
Mandatory literature / material	<i>Literature (literatuur) / other (overig)</i>	<i>Description</i>	<i>Mandatory (verplicht) / Recommended (aanbevolen)</i>
Contact person	adriana.sterian@hvhl.nl		
Language	Dutch		
Credits	7		
Term			
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Exam 1		4		SCHRIFTELIJK		
TOETS-02	Exam 2		2		MONDELING		
TOETS-03	Exam 3		4		PORTFOLIO		



Study unit - code	VFT1SAVE1		
Study unit - name	<i>Sector Analysis</i>		
Competences	Nr.	Competence	Level
	VFT1	1. Researching	Basic
	VFT5	5. Advising	Basic
Learning outcomes	<p>As a junior market analyst, the student is able to make an external market audit for an organisation or company active in the food sector. In order to do this the student:</p> <ul style="list-style-type: none"> • understands the concepts used in an external market audit • understands the basics of marketing theory • Understands the basics of applied research • Understands the elements of a research proposal. • Is able to formulate a research question and sub-questions • Is able to analyse information collected through desk research 		
Content	<p>This study unit introduces the student into the strategic market positions in the food sector. The student gain understanding about the structure of the sector, what is going on and how markets are functioning for products and/or services. One of the focus points for the project is to assess developments regarding sustainability in the sector. This study unit contains a project in which students participate in a team executing a professional assignment.</p> <p>Topics:</p> <ul style="list-style-type: none"> • Sector analysis theory; with focus on marketing theory • Sector analysis practice; with focus on desk research, to make an external market audit, applying sector knowledge, project teamwork, written and oral presentations. • Applied Research; basics, research proposal, formulating research questions <p>Students will learn to apply the PEST-analysis and the 5-forces analysis. They will describe the external macro- and micro-environment of a sector or industry, relate to developments between these environments and identify the main developments in the sector. This is described in a realistic scenario based on the macro- and micro- environment analyses, from which the student will draw proper conclusions, while identifying the opportunities and threats in the sector.</p> <p>Regarding methodology the students will work according to the basic rules of applied research. Therefore the following topics will be covered:</p> <ul style="list-style-type: none"> • Basic research related terminology • Principles of doing research • How to set up a straightforward research proposal • How to collect data using semi structured interviews 		



	<ul style="list-style-type: none"> How to process qualitative data. 									
Teaching method(s) and student workload	<p>Theory:</p> <ul style="list-style-type: none"> Instruction lectures sector analysis theory & marketing practical assignments/cases for self-study research methodology Practice assignments on applied research <p>Project:</p> <ul style="list-style-type: none"> start-up meeting excursion to the commissioner coach meetings project team meetings 									
Mandatory literature / material	<table border="1"> <thead> <tr> <th><i>Literature (literatuur) / other (overig)</i></th> <th><i>Description</i></th> <th><i>Mandatory (verplicht) / Recommended (aanbevolen)</i></th> </tr> </thead> <tbody> <tr> <td>Literatuur</td> <td>Solomon, Marshall, Stuart, Barnes, Mitchell (2013) Marketing, real people, real decisions, Second European Edition, Pearson. ISBN 978-0-273-75816-7</td> <td>Mandatory</td> </tr> <tr> <td>Literatuur</td> <td>Ben Baarda (2014) Research. This is it!, second edition, Noordhoff uitgevers. ISBN 978-90-01-81696-4</td> <td>Mandatory</td> </tr> </tbody> </table>	<i>Literature (literatuur) / other (overig)</i>	<i>Description</i>	<i>Mandatory (verplicht) / Recommended (aanbevolen)</i>	Literatuur	Solomon, Marshall, Stuart, Barnes, Mitchell (2013) Marketing, real people, real decisions, Second European Edition, Pearson. ISBN 978-0-273-75816-7	Mandatory	Literatuur	Ben Baarda (2014) Research. This is it!, second edition, Noordhoff uitgevers. ISBN 978-90-01-81696-4	Mandatory
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Literatuur	Ben Baarda (2014) Research. This is it!, second edition, Noordhoff uitgevers. ISBN 978-90-01-81696-4	Mandatory								
Contact person	heinz.evers@hvhl.nl									
Language	English									
Credits	7									
Term	PER1									
Entry requirements / prerequisites										

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Analysing a professional sector		3	test 1-10; 1 decimal	SCHRIFTELIJK	90	P2WK6, PER1
TOETS-02	Sector analysis project		4	test 1-10; 1 decimal	PORTFOLIO		PER1
TOETS-03	Applying the principles of applied resea		3	test 1-10; 1 decimal	SCHRIFTELIJK	180	P2WK6, PER1



Study unit - code	VFT1SMVE1		
Study unit - name	Study Mentoring year 1		
Competences	Nr.	Competence	Level
	VFT6	6. Managing	Basic
	VFT7	7. Professionalization	Basic
Learning outcomes	<ul style="list-style-type: none"> • <i>The student is able to identify a meaningful experience.</i> • <i>The student describes a situation he/she has experienced by using the 5G model (experience, thoughts, thoughts, feelings, behaviour and consequences).</i> • <i>He/she can identify how this relates to different situations within the study program and in daily life.</i> • <i>The student translates his/her own meaningful experience into a personal "impression" of him/herself (What does this say about me?).</i> • <i>The student names several choices, learning objectives and actions in regard to the study program and his/her professional orientation on the basis of the insights.</i> • <i>The student is able to use the three reflection steps (1. meaningful experience, 2. insight and 3. choice, learning objective, action).</i> • <i>The Student is able to manages himself in performing his duties and in his development and ensures that he is up to date with the latest developments in terms of knowledge and skills and in terms of ethical dilemmas and socially accepted norms and values. (BAS/DAS Level 1)</i> • <i>The student is capable of studying successfully and independently and to reflect on performance. (reflection-level 1)</i> • <i>The student is working on a professional attitude and familiarizing himself/herself with professional practice. (landelijk kernprofiel nivo 1)</i> 		
Content	<p><i>Study mentoring focuses on guiding students to teach them how to study and prepare them as professionals in their career. The guidance consists of individual mentor sessions and group activities. In the individual sessions the progress of the student's studies and career orientation are discussed. The student's personal talents and situation is the starting point of the session.</i></p> <p><i>In group activities, students can share experiences and learn from each other's experiences. Outside the classroom students perform various assignments and activities for the portfolio. The assignments and activities help students both to learn how to study and to increase their ability to manage and also gain insight into their personal work style, talents and interests. Finally, for study career orientation points, students may spend 112 hours engaging in their choice of activities that contribute to their personal career development and professional orientation</i></p> <p><i>Training session will support SLB, the major specific classes and the personal development of the students.</i></p>		



	<i>Topics year 1 ; Study skills, communication skills, learning styles, reflection on group work and personal development, preparation on placement, professional behaviour.</i>		
Teaching method(s) and student workload	Individual sessions, coaching, group meetings/ training and various tasks and activities. The study unit consists of 4 credits. The 4 credits are 4x28 = 112 study hours, which are roughly divided as follows: 2 hours of individual sessions, 6 hours of group activities, 48 hours various assignments and activities, and 56 hours of activities for study career orientation points.		
Mandatory literature / material	<i>Literature (literatuur) / other (overig)</i>	<i>Description</i>	<i>Mandatory (verplicht) / Recommended (aanbevolen)</i>
Contact person	sigrid.wintermans@hvhl.nl		
Language	English		
Credits	4		
Term	JAAR		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Portfolio Assessment		1	TestsOV	PORTFOLIO		JAAR



Study unit - code	VFT2FCVE1		
Study unit - name	<i>Food and Healthy Consumers</i>		
Competences	Nr.	Competence	Level
Learning outcomes			
Content			
Teaching method(s) and student workload			
Mandatory literature / material	<i>Literature (literatuur) / other (overig)</i>	<i>Description</i>	<i>Mandatory (verplicht) / Recommended (aanbevolen)</i>
Contact person	CONVERSIE		
Language	Dutch		
Credits	7		
Term	PER1		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food and Healthy Consumers		6	test 1-10; 1 decimal	SCHRIFTELIJ K		PER1
TOETS-02	Food and Healthy Consumers practical		4	test 1-10; 1 decimal	PRACTICUM		PER1



Study unit - code	VFT2FHVE2		
Study unit - name	<i>Food & Health</i>		
Competences	Nr.	Competence	Level
	VFT5	5. Advising	Advanced
Learning outcomes	<p>After this course, students are able to:</p> <ul style="list-style-type: none"> • State key principles on health, food claims and legislation • Evaluate specific cases in regards to consumers and their view on healthy or unhealthy foods • Evaluate food claims and the laws governing these claims • Create advise on case studies related to food and health • Evaluate the relationship between food safety, health and sustainability • Understand and analyse the specific needs of healthy foods during different stages of life • Apply learned principles of health and food in a practical setting • Evaluate nutritional needs at different stages of life • Present a summary of a scientific article related to food safety, quality or health 		
Content	<p>Continuation on the course VFT1FHVE Food Safety & Health, providing more in-depth knowledge on digestion, absorption and function of food. Students will get more acquainted with consumer behaviour in relation to food and will be provided with information on the effects and legislation of food claims. Furthermore, consumer concerns on food and water will be discussed. This course will also provide information on nutrition in different life stages, from new-born to centenarian. The English lectures will focus on reading strategies for reading a research article and presenting the information.</p>		
Teaching method(s) and student workload	<p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours.</p> <p>This course consists of:</p> <ul style="list-style-type: none"> • Lectures on principles of Food and Health (~40 hours) • Lectures English (~30 hours) • Case studies on Food and Health (~50 hours) • Practical sessions on Food and Health (~20 hours) • Self-study (~60 hours) 		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)



	Literatuur	Whitney et al. Understanding Nutrition, 14th edition. ISBN-13: 978-1285874340 Hand-outs distributed via Blackboard	Mandatory
Contact person	martijn.kreeft@hvhl.nl		
Language	English		
Credits	7		
Term	PER4		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food and Health Theory		5	test 1-10; 1 decimal	SCHRIFTELIJK	180	P1WK6, PER4
TOETS-02	Food and Health Application		3	test 1-10; 1 decimal	PORTFOLIO		P1WK6, PER4
TOETS-03	Spoken English / Presentation Skills		2	test 1-10; 1 decimal	MONDELING	480	P1WK6, PER4



Study unit - code	VFT2FIVE2		
Study unit - name	<i>Food Ingredients</i>		
Competences	Nr.	Competence	Level
	VFT1	1. Researching	Advanced
	VFT2	2. Experimenting	Advanced
Learning outcomes	<p>Student is able to:</p> <ul style="list-style-type: none"> • appreciate the importance of chemistry in the food industry • acquire knowledge and understanding of the structure and composition and properties of substances in food • understand, plan, perform and analyze a range of chemical investigations with an emphasis on food analysis in a sustainable manner • relate the chemical composition of foods to their functional properties • be familiar with a range of chemical processes in industry • develop safe and efficient work practices • perform analysis to determine textural and viscosity properties • interpret results obtained from such analysis • calculate various aspects on food related to chemistry and physics • create a laboratory report on the results of the practical sessions 		
Content	<p>The module is focussed on the application of technological research, both theory and analytical techniques, needed in product development in the food industry. The educational programme incorporates research and training in giving advice from the perspective of analysis techniques. Focus in this term is Food Chemistry and Food physics. In product development students have to determine which type of technological research needs to be conducted to develop as well as to consider the costs and benefits of the different kinds of methodology. In addition, it is necessary to deal with time pressure, good planning of the practical work is important.</p>		
Teaching method(s) and student workload	<p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours.</p> <ul style="list-style-type: none"> • Lectures on principles of Food Chemistry (~30 hours) • Lectures on principles of Food Physics (~30 hours) • Practical analyses on Food Chemistry (~40 hours) <p>Self-preparation and data calculation/interpretation chemistry (10 hours)</p> <ul style="list-style-type: none"> • Practical analyses on Food Physics (~40 hours) <p>Self-preparation and data calculation/interpretation chemistry (10 hours)</p> <ul style="list-style-type: none"> • Self-study (~40 hours) 		



Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Food Chemistry: Fennema et al. (2007). Food Chemistry 4th ed. ISBN 9780849392726	Mandatory
	Literatuur	Saunders et al. (2012). Research methods for business students. 6th rev ed. ISBN: 9780273750758	Mandatory
	Literatuur	Molmans and Polman. (2007). Practical Reader Food Chemistry & Biochemistry. Reader 553027	Mandatory
	Overig	Practical instruction Hand-outs via Blackboard	Mandatory
	Overig	Food Physics: hand-outs via Blackboard	Mandatory
Contact person	adriana.sterian@hvhl.nl		
Language	English		
Credits	7		
Term	PER3		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food Chemistry Theory		3	test 1-10; 1 decimal	SCHRIFTELIJK	135	P4WK6, PER3
TOETS-02	Food Physics Theory		3	test 1-10; 1 decimal	SCHRIFTELIJK	135	P4WK6, PER3
TOETS-03	Chemistry/Physics Practicals		4	test 1-10; 1 decimal	PORTFOLIO		PER3



Study unit - code	VFT2FQVE1		
Study unit - name	<i>Food Safety & Quality</i>		
Competences	Nr.	Competence	Level
	VFT6	6. Managing	Advanced
Learning outcomes	<p>After this course, the student is able to:</p> <ul style="list-style-type: none"> • Interpret given aspects of Food Safety • Carrying out a given Food Safety assignment • Create a proposal • Evaluate several topics of Food Safety and Quality in case studies • Conduct a literature study on Food Safety and Quality cases • Understand key principles of Food Quality including HACCP, tracking & tracing and PRP 		
Content	Subject in this module are: Food microbiology, Allergens, HACCP, Tracking & Tracing, risk evaluation and Food law (including NEN). Besides the theory students will also work on a practical Food Safety case in Microbiology and/or Quality.		
Teaching method(s) and student workload	<p>Lectures, practicals, group work</p> <p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours.</p> <p>This course consist of:</p> <ul style="list-style-type: none"> • Lectures on Food Microbiology (~40 hours) • Lectures on Food Quality (~20 hours) • Guest lectures (~20 hours) • Case studies (~80 hours) • Self-study (~40 hours) 		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Overig	Guest lecture material, depending on guest lecturers	Mandatory
	Literatuur	Motarjemi and Lelieveld: Food Safety Management – a practical guide for the Food Industry (ISBN: 978-0-12-381504-0)	Mandatory
Contact person	joyce.polman@hvhl.nl		
Language	English		
Credits	7		
Term	PER4		



Entry requirements / prerequisites	
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Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food Safety Theory		4	test 1-10; 1 decimal	SCHRIFTELIJ K	135	P1WK6, PER4
TOETS-02	Food Quality Theory		3	test 1-10; 1 decimal	SCHRIFTELIJ K	135	P1WK6, PER4
TOETS-03	Food Safety Practical		3	test 1-10; 1 decimal	PORTFOLIO		PER4



Study unit - code	VFT2PLVE1		
Study unit - name	<i>Orientation Placement</i>		
Competences	Nr.	Competence	Level
	VFT5	5. Advising	Advanced
	VFT6	6. Managing	Advanced
	VFT7	7. Professionalization	Advanced
Learning outcomes	<ul style="list-style-type: none"> • The Student is able to report/present the customer' requirements which have been identified. • The student is able to prepare an action plan for a piece of market research. • The student makes a contribution to one or more management systems within the organisation. • The student is able to verify compliance with the guidelines for generally applicable management systems. • The student is able to provide assistance in solving problems in scheduling and prioritising work. • The student is able to use feedback on his own performance to adapt to the working environment. • The students is able to evaluate the sustainable aspects within the company, looking at planet, profit and people. 		
Content	<p>The placement takes place at one company or organisation in the working field, in the secondary of tertiary sector anywhere in the world. Foreign students are assumed to do there placement in the Netherlands or another Western orientated country.</p> <p>During the placement the student participate in regular activities, learning how processes are managed.</p>		
Teaching method(s) and student workload	<p>Learning on the job, meetings with placement supervisors.</p> <p>14 ECTS stands for 14 x 28hrs=392 hrs stands for 10 weeks of 40 hrs.</p> <p>Student spends this on the working floor and writing their placement report.</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
Contact person	joyce.polman@hvhl.nl		
Language	English		
Credits	14		
Term	PER1		
Entry requirements / prerequisites			

Exams(s)



Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Orientation Placement		1	test 1-10; 1 decimal	PORTFOLIO		P2WK6, PER1



Study unit - code	VFT2PTVE1		
Study unit - name	<i>Product and Process Technology</i>		
Competences	Nr.	Competence	Level
	VFT3	3. Developing	Advanced
Learning outcomes	<p>After this course, students are able to:</p> <ul style="list-style-type: none"> Remember and understand key unit operations in food processing Analyse supermarket products on their production process Recognise and describe specific machinery used in food processing Read and create production flow charts Calculate components in key unit operations Calculate physical properties of processing equipment Develop and perform a food production process on laboratory- and pilot scale according to a plan 		
Content	<p>This course aims to provide in-depth knowledge on the most important processes that are carried out in the food industry. This is illustrated with products such as cheese, soy milk and bread to obtain experience in all the different steps that are undertaken to get from a commodity to a product which is found in the supermarket. Students will perform key factory processes on a laboratory scale to expand their theoretic knowledge of food processing. Furthermore, they will get acquainted with upscaling by means of tutorials in the food industry.</p>		
Teaching method(s) and student workload	<p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours.</p> <p>This course consists of:</p> <ul style="list-style-type: none"> Lectures on principles of Product and Process Technology (~60 hours) Practical sessions on Product and Process Technology (~60 hours) Case studies on Product and Process Technology (~30 hours) Self-study (~50 hours) 		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Fellows et al. Food Processing Technology, 2nd edition. Available on the internet.	Mandatory
	Literatuur	R.P. Singh "Introduction to Food Engineering" 5th Edition,	Mandatory



	Hand-outs distributed via Blackboard
Contact person	marcel.minor@hvhl.nl
Language	English
Credits	7
Term	PER2
Entry requirements / prerequisites	

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Product and process technology Theory		6	test 1-10; 1 decimal	SCHRIFTELIJK	180	P3WK6, PER2
TOETS-02	Product and process technology Practical		4	test 1-10; 1 decimal	PORTFOLIO		PER2



Study unit - code	VFT2RMVE1		
Study unit - name	<i>Applied Research</i>		
Competences	Nr.	Competence	Level
	VFT2	2. Experimenting	Advanced
	VFT1	1. Researching	Advanced
Learning outcomes	<p>After this course, students are able to:</p> <ul style="list-style-type: none"> • Create a research proposal for sensory analysis and write down research results in a short report • Choose the right sensory test and test scheme for each application of sensory analysis • Execute out these tests in a reliable and sustainable way • Analyze the results of these test statistically correct • Attribute the results of the test to relevant properties for the product / consumer • Evaluate a test objective, write a research proposal, carry out data analysis and create a reasoned conclusion 		
Content	<p>The various applications of sensory analysis ask for various test methods and test schemes. In this course, students get acquainted with the most used sensory methods and will acquire the knowledge to set up sensory research in a reliable way. In teams, students will be performing different sensory tests, each prepared by writing a research proposal. The processing of the data, obtained from these different sensory tests will be performed by the use of the statistical program SPSS. Training in SPSS therefore is a part of this course. Finally, for each sensory test performed, a final report should be written.</p>		
Teaching method(s) and student workload	<p>The student workload will consist of 7 ECTS, meaning 7 * 28 hours = 196 hours.</p> <p>This course consists of:</p> <ul style="list-style-type: none"> • Lectures on principles of sensory analysis (~40 hours) • Practical training sessions on sensory analysis (~30 hours) • Lectures and trainings in SPSS (data analysis) (~40 hours) • Report writing (~40 hours) • Self-study (~50 hours) 		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Meilgaard et al. Sensory Evaluation Techniques, 5th edition.	Mandatory



	ISBN 9781482216905		
	Overig	Hand-outs distributed via Blackboard	Mandatory
Contact person	martijn.kreeft@hvhl.nl		
Language	English		
Credits	7		
Term	PER2		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Sensory and data analysis		3	test 1-10; 1 decimal	SCHRIFTELIJ K	180	P3WK6, PER2
TOETS-02	Sensory practicals		1	test 1-10; 1 decimal	PORTFOLIO		PER2



Study unit - code	VFT2SEVE1		
Study unit - name	<i>Sustainable Entrepreneurship</i>		
Competences	Nr.	Competence	Level
	VFT3	3. Developing	Advanced
	VFT5	5. Advising	Advanced
Learning outcomes	<ul style="list-style-type: none"> • The student is able to formulate and carry out pilot projects that lead to improvements of the business plan • The student is showing understanding of the different elements of a business plan and the relation between the different elements • The student is able to write a professional paper in English • The student is able to write a coherent business plan • The students shows insight in sustainability aspects of the business plan 		
Content	<p>Entrepreneurship is about starting companies, but also about starting and running activities. Entrepreneurial activity flourishes where ideas, cash, professional and managerial expertise and good communications converge. To develop and execute an innovative activity is the main core for this semester. As a group of students in the role of entrepreneur you have to create value through unique resource combinations that exploit arising opportunities.</p> <p>In this study unit the focus will be on writing your own business plan, for this you need knowledge about the following topics:</p> <ul style="list-style-type: none"> • Marketing, • Finance; • Legal aspects; • Management & organization <p>Next to this you need specific knowledge on the content (food) of your business ideas. Also there will be special attention to sustainability aspects as this is a very important topic in the modern food industry. Finally you will work on improving your English writing skills.</p>		
Teaching method(s) and student workload	Lectures 70 hours, consultancy 20 hours, working on business plan 60 hours, working on portfolio 20 hours, exams/preparation 26 hours Total 196 studyload hours		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	<ul style="list-style-type: none"> • Honor e T. (1996). About Law. Oxford University Press ISBN: 100198763883 	Mandatory
	Literatuur	<ul style="list-style-type: none"> • Mario 	Mandatory



		tti S. (2012). Entrepreneurship starting and operating a small Business. 3rd ed. Prentice Hall. ISBN: 0132784084	
	Literatuur	<ul style="list-style-type: none"> Solomon, Marshall, Stuart, Barnes, Mitchell (2013) Marketing, real people, real decisions, Second European Edition, Pearson. ISBN 978-0-273-75816-7 also 	Mandatory
Contact person	heinz.evers@hvhl.nl		
Language	English		
Credits	7		
Term	PER3		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Business Plan Concepts		3	test 1-10; 1 decimal	SCHRIFTELIJK	180	P4WK6, PER3
TOETS-02	English Writing		2	test 1-10; 1 decimal	SCHRIFTELIJK	90	P4WK6, PER3
TOETS-03	Sustainable Entrepreneurship Portfolio		5	test 1-10; 1 decimal	PORTFOLIO		PER3



Study unit - code	VFT2SMVE1		
Study unit - name	Study Mentoring year 2		
Competences	Nr.	Competence	Level
	VFT6	6. Managing	Advanced
	VFT7	7. Professionalization	Advanced
Learning outcomes	<ul style="list-style-type: none"> • <i>The student reflects on his own performance and development.</i> • <i>The student Determining his own learning objective and learning strategy in consultation/without assistance</i> • <i>The student is reflecting on results .He/she can identify how this relates to different situations within the study program and in daily life.</i> • <i>The student can put in words in which way he/she has learned from the experience. Is able to explain usefulness of doing personal and professional wise.</i> • <i>The student is able to Use feedback on his own performance to adapt to the working environment.</i> • <i>The student is able to use the three reflection steps (1. meaningful experience, 2. insight and 3. choice, learning objective, action).</i> • <i>The Student is able to manages himself in performing his duties and in his development and ensures that he is up to date with the latest developments in terms of knowledge and skills and in terms of ethical dilemmas and socially accepted norms and values. (BAS/DAS Level 2)</i> • <i>The student is capable of studying successfully and independently and to reflect on performance. (reflection-level 2)</i> • <i>The student is working on a professional attitude and familiarizing himself/herself with professional practice. (landelijk kernprofiel nivo 2)</i> 		
Content	<p><i>Study mentoring focuses on guiding students to teach them how to study and prepare them as professionals in their career. The guidance consists of individual mentor sessions and group activities. In the individual sessions the progress of the student's studies and career orientation are discussed. The student's personal talents and situation is the starting point of the session.</i></p> <p><i>In group activities, students can share experiences and learn from each other's experiences. Outside the classroom students perform various assignments and activities for the portfolio. The assignments and activities help students both to learn how to study and to increase their ability to manage and also gain insight into their personal work style, talents and interests. Finally, for study career orientation points, students may spend 112 hours engaging in their choice of activities that contribute to their personal career development and professional orientation</i></p> <p><i>Training session will support SLB, the major specific classes and the personal development of the students.</i></p>		



	<i>Topics year 2 ;deeper reflection, persuasion, networking, leadership, giving advice negotiations, presentation skills</i>		
Teaching method(s) and student workload	Individual sessions, coaching, group meetings/ training and various tasks and activities. The study unit consists of 4 credits. The 4 credits are 4x28 = 112 study hours, which are roughly divided as follows: 2 hours of individual sessions, 6 hours of group activities, 48 hours various assignments and activities, and 56 hours of activities for study career orientation points.		
Mandatory literature / material	<i>Literature (literatuur) / other (overig)</i>	<i>Description</i>	<i>Mandatory (verplicht) / Recommended (aanbevolen)</i>
Contact person	sigrid.wintermans@hvhl.nl		
Language	English		
Credits	4		
Term	JAAR		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Study Mentoring year 2		1	TestsOV	MONDELING		JAAR



Study unit - code	VFT3ASVE		
Study unit - name	<i>Assignment / Portfolio</i>		
Competences	Nr.	Competence	Level
Learning outcomes			
Content			
Teaching method(s) and student workload			
Mandatory literature / material	<i>Literature (literatuur) / other (overig)</i>	<i>Description</i>	<i>Mandatory (verplicht) / Recommended (aanbevolen)</i>
Contact person	joyce.polman@hvhl.nl		
Language	English		
Credits	2		
Term	PER1		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Portfolio		1	test 1-10; 1 decimal	PORTFOLIO		PER2



Study unit - code	VFT3FCVE1		
Study unit - name	<i>Food Analysis & Consumer Behavior</i>		
Competences	Nr.	Competence	Level
	VFT2	2. Experimenting	Professional
	VFT1	1. Researching	Professional
Learning outcomes	<p>The student is able to:</p> <p>Carry out chemical & microbiological calculations in food analysis</p> <p>Judge microbiological growth in lab scale experiments</p> <p>Work self-employed and safe in a laboratory</p> <p>Recognise and demonstrate an understanding of the specific decisions and behaviour of consumers while buying consumer products</p>		
Content	<p>Food analysis & consumer behaviour is a theoretical and practical module in which students will learn a couple of advanced Food analysis in chemistry and microbiology (e.g. spectroscopy, chromatography, working with pathogens, pasteurisation and preservation) The theory will be supportive for the practicals. Next to this, students will be introduced to the basic principles of consumer behaviour, and apply these principles in a food product.</p>		
Teaching method(s) and student workload	<p>Chemistry lectures (~30 hours)</p> <p>Microbiology lectures (~30 hours)</p> <p>Consumer behaviour lectures (~20 hours)</p> <p>Chemistry practicals (~40 hours)</p> <p>Microbiology practicals (~40 hours)</p> <p>Self-study (~50 hours)</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Jongen and Meulenberg. (1998). Innovation of Food production systems. ISBN: 9074134513	Mandatory
	Literatuur	Linnemann and van Boekel. (2007). Food product design, an integrated approach. Wageningen Academic Publishers. ISBN: 9086860125	Mandatory
	Literatuur	Wood MB. (2007). The marketing plan handbook. 3rd ed. Prentice Hall. ISBN: 0135136288	Mandatory
	Literatuur	Kotler et al. (2013). Principles of Marketing. EUROEAP ed. Or 6th rev. ISBN: 9780273742975	Mandatory
Contact person	joyce.polman@hvhl.nl		
Language	English		
Credits	7		
Term	PER1		



Entry requirements / prerequisites	
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Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food Analysis		4	test 1-10; 1 decimal	SCHRIFTELIJ K	135	P2WK6, PER1
TOETS-02	Portfolio Practical Reports		4	test 1-10; 1 decimal	PORTFOLIO		P2WK6, PER1
TOETS-03	Consumer Behaviour		2	test 1-10; 1 decimal	SCHRIFTELIJ K	90	P2WK6, PER1



Study unit - code	VFT3FPVE1		
Study unit - name	<i>Food Quality Project</i>		
Competences	Nr.	Competence	Level
	VFT1	1. Researching	Professional
	VFT6	6. Managing	Professional
Learning outcomes	<p>Students are able to:</p> <p>Create a report on a business consultancy case</p> <p>Design an advice and make recommendations on a business consultancy case</p> <p>Communicate properly in a professional setting regarding the business consultancy case</p> <p>Understand and apply key principles on Food Safety & Health</p> <p>Relate the advice and recommendations towards sustainable development in each respective business case</p>		
Content	<p>During this module, students will continue on their proposal and plan of action for the business consultancy case. They will do desk research/laboratory experiments depending on their client's wishes. They will be supervised during this term in feedback sessions, both individually and with the whole group. The project will end with a report and presentation at the client's company. The module also contains an overall examination on the major Food Safety and Health.</p>		
Teaching method(s) and student workload	<p>7 EC = 196 hours</p> <p>Group work on business consultancy case project (~100 hours)</p> <p>Feedback on food quality project (~30 hours)</p> <p>Self-study (~60 hours)</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Motarjemi et al. Food Safety Management, 1st edition. ISBN: 978-0-12-381504-0	Mandatory
	Literatuur	Whitney et al. Understanding Nutrition, 14th edition. ISBN-13: 978-1285874340	Mandatory
	Literatuur	Luning et al. Safety in the agri-food chain, ISBN: 907-6998779	Mandatory
	Overig	Hand-outs distributed via Blackboard	Mandatory
Contact person	martijn.kreeft@hvhl.nl		
Language	English		
Credits	7		
Term	PER2		
Entry requirements / prerequisites			



Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food Quality project Portfolio		8		PORTFOLIO		PER2
TOETS-02	Food Quality peer assessment		2		PORTFOLIO		PER2



Study unit - code	VFT3FQVE		
Study unit - name	<i>Food Quality</i>		
Competences	Nr.	Competence	Level
	VFT2	2. Experimenting	Professional
Learning outcomes	<p>Students are able to:</p> <p>Understand key aspects on food quality management</p> <p>Understand key aspects on food safety</p> <p>Set up a proposal on a microbiological food safety case</p> <p>Create a report on a microbiological food safety case</p>		
Content	<p>Students will be taught on the topic of Food Quality and Safety and Microbiology in this course. There will be a focus on quality assurance systems together with microbial safety. They will be introduced to a food safety case with a focus on microbiology. For this they need to write proposals, perform experiments and write a report.</p>		
Teaching method(s) and student workload	<p>7 EC = 196 hours</p> <p>Lectures on Food Quality and Safety (~50 hours)</p> <p>Lectures on Microbiology (~30 hours)</p> <p>Practicals Microbiology (~40 hours)</p> <p>Group work Food Safety case (~40 hours)</p> <p>Self-study (~40 hours)</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Motarjemi et al. Food Safety Management, 1st edition. ISBN: 978-0-12-381504-0	Mandatory
	Literatuur	Whitney et al. Understanding Nutrition, 14th edition. ISBN-13: 978-1285874340	Mandatory
	Literatuur	Luning et al. Safety in the agri-food chain, ISBN: 907-6998779	Mandatory
	Overig	Hand-outs distributed via Blackboard	Mandatory
Contact person	martijn.kreeft@hvhl.nl		
Language	English		
Credits	7		
Term	PER2		
Entry requirements / prerequisites			

Exams(s)



Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food Quality and Safety		6	test 1-10; 1 decimal	SCHRIFTELIJ K	135	PER2, PER4
TOETS-02	Microbiology / Food Safety		2	test 1-10; 1 decimal	SCHRIFTELIJ K	90	PER2, PER4
TOETS-03	Food Safety Case		2	test 1-10; 1 decimal	PORTFOLIO		PER2, PER4



Study unit - code	VFT3FSVE2		
Study unit - name	<i>Food Safety & Health</i>		
Competences	Nr.	Competence	Level
	VFT1	1. Researching	Professional
Learning outcomes	<p>Students are able to:</p> <p>Understand important aspects of food quality related to food products</p> <p>Evaluate sustainable development related to people, planet and profit/prosperity in food producing companies</p> <p>Set up a proposal on a business consultancy case concerning food quality aspects</p> <p>Design a plan of action on a business consultancy case concerning food quality aspects</p> <p>Communicate in a professional setting in the business consultancy case</p>		
Content	<p>In this first module of the specialisation Food Safety & Health, students are involved in the science of nutrition, health, and safety of food products. Product groups will be analysed on microbiological, chemical and physical hazards. Furthermore, the students will acquire a real-life business consultancy case concerning food quality. They will write a research proposal and create a plan of action for a desk study/laboratory experiments.</p>		
Teaching method(s) and student workload	<p>Lectures on Food Safety & Health (~50 hours)</p> <p>Group work on business consultancy case (~60 hours)</p> <p>Feedback on business consultancy case (~30 hours)</p> <p>Self-study (~70 hours)</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Motarjemi et al. Food Safety Management, 1st edition. ISBN: 978-0-12-381504-0	Mandatory
	Literatuur	Whitney et al. Understanding Nutrition, 14th edition. ISBN-13: 978-1285874340	Mandatory
	Literatuur	Luning et al. Safety in the agri-food chain, ISBN: 907-6998779	Mandatory
	Overig	Hand-outs distributed via Blackboard	Mandatory
Contact person	martijn.kreeft@hvhl.nl		
Language	English		
Credits	7		
Term	PER1		
Entry requirements / prerequisites			

Exams(s)



Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Food Safety & Health		7	test 1-10; 1 decimal	SCHRIFTELIJ K	135	P2WK6, PER1
TOETS-02	FSH Business Consultancy		3	test 1-10; 1 decimal	PORTFOLIO		PER1



Study unit - code	VFT3PAVE1		
Study unit - name	<i>Product Analysis</i>		
Competences	Nr.	Competence	Level
	VFT2	2. Experimenting	Professional
	VFT1	1. Researching	Professional
Learning outcomes	<p><i>Students are able to:</i></p> <p><i>Evaluate growth and classification of food micro-organisms</i></p> <p><i>Create a table with nutritional values based on chemical experiments</i></p> <p><i>Set up a research proposal and construct a report on the results of the sensory analysis</i></p> <p><i>Set up a research proposal and construct a report on the results of texture analysis and processing</i></p>		
Content	<p><i>Your own developed product will be analysed for the microbiological and chemical properties in the lab. You will process your product on kitchen scale, but you should be able to upscale this to factory scale with your knowledge about processing. Sensorial analysis and analysis with a texture analyser are also part of this module.</i></p>		
Teaching method(s) and student workload	<p>Lectures on Microbiology (~20 hours)</p> <p>Lectures on Chemistry (~20 hours)</p> <p>Lectures on Sensory (~10 hours)</p> <p>Lectures on Physics and Processing (~20 hours)</p> <p>Practicals Microbiology (~40 hours)</p> <p>Practicals Chemistry (~40 hours)</p> <p>Self-study (~50 hours)</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Jongen and Meulenberg. (1998). Innovation of Food production systems. ISBN: 9074134513	Mandatory
	Literatuur	Linnemann and van Boekel. (2007). Food product design, an integrated approach. Wageningen Academic Publishers. ISBN: 9086860125	Mandatory
	Literatuur	Wood MB. (2007). The marketing plan handbook. 3rd ed. Prentice Hall. ISBN: 0135136288	Mandatory
	Literatuur	Kotler et al. (2013). Principles of Marketing. EUROEAP ed. Or 6th rev. ISBN: 9780273742975	Mandatory
Contact person	joyce.polman@hvhl.nl		
Language	English		
Credits	7		
Term	PER2		



Entry requirements / prerequisites	
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Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Microbiology & Chemistry		6	test 1-10; 1 decimal	SCHRIFTELIJ K	135	PER2, PER4
TOETS-02	Sensory physics and processing		4	test 1-10; 1 decimal	SCHRIFTELIJ K	120	PER2, PER4



Study unit - code	VFT3PDVE3		
Study unit - name	<i>Product Development</i>		
Competences	Nr.	Competence	Level
	VFT2	2. Experimenting	Professional
	VFT3	3. Developing	Professional
Learning outcomes	<p><i>Students are able to:</i></p> <p><i>Evaluate cost price and feasibility of own developed product</i></p> <p><i>Recognise and demonstrate an understanding of the impact of culture on business behaviours and practices</i></p> <p><i>Evaluate and apply the product development cycle</i></p> <p><i>Create a new innovative food product</i></p> <p><i>Evaluate the sustainable aspects in their project, looking at people, planet and profit.</i></p>		
Content	<p><i>Developments in the food industry are faster and faster. Improvements take place all the time, furthermore trends, fashions and consumer's taste is changing all the time. In order to be a success the fierce competition has to be beaten. A good product is not enough, it has to be better than the competition and it has to be recognized as such.</i></p> <p><i>Product development is a team effort in which project management skills are of great importance, furthermore multi-disciplinary is necessary: creativity sessions are organized, consumer behaviour has to be investigated, knowledge of technology, food safety law and processing have to be put into practice. Besides that the development of packaging and how to launch the new product is important. All these aspects might lead to innovation in food products.</i></p>		
Teaching method(s) and student workload	<p>Product development in the sensory kitchen (~100 hours)</p> <p>Lectures on X-culture (~30 hours)</p> <p>Feedback on X-culture (~10 hours)</p> <p>Feedback on product development (~30 hours)</p> <p>Self-study (~30 hours)</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevelen)
	Literatuur	Jongen and Meulenberg. (1998). Innovation of Food production systems. ISBN: 9074134513	Mandatory
	Literatuur	Linnemann and van Boekel. (2007). Food product design, an integrated approach. Wageningen Academic Publishers. ISBN: 9086860125	Mandatory
	Literatuur	Wood MB. (2007). The marketing plan handbook. 3rd ed. Prentice Hall. ISBN: 0135136288	Mandatory
	Literatuur	Kotler et al. (2013). Principles of Marketing. EUROEAP ed. Or 6th rev. ISBN: 9780273742975	Mandatory



Contact person	joyce.polman@hvhl.nl
Language	English
Credits	7
Term	PER2
Entry requirements / prerequisites	

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Report and Presentation developed prod.		9	test 1-10; 1 decimal	PORTFOLIO		PER2, PER4
TOETS-02	Report & Peer assessment X-culture		1	test 1-10; 1 decimal	PORTFOLIO		PER2, PER4



Study unit - code	VFT3PGVE		
Study unit - name	<i>Product Group Analysis</i>		
Competences	Nr.	Competence	Level
	VFT1	1. Researching	Professional
Learning outcomes	<p><i>Students are able to:</i></p> <p><i>Analyse industrial process methods on a food sector</i></p> <p><i>Evaluate and monitor progress in a desk study</i></p> <p><i>Outline the steps taken during a project</i></p> <p><i>Present preliminary results in an individual oral assessment</i></p>		
Content	<p><i>Students have to describe the product group in which the new product (to be developed) belongs. A short description of the market, the competitors and comparable products and all relevant information needful to get a proper overview of the product group and of relevant subjects in food. Also the briefing of your to be developed product should be included. Also sustainable aspects should be part of this reports (planet, profit, people)</i></p>		
Teaching method(s) and student workload	<p>Group work research product group (~100 hours)</p> <p>Feedback sessions (~40 hours)</p> <p>Self-study (~60 hours)</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Literatuur	Jongen and Meulenber. (1998). Innovation of Food production systems. ISBN: 9074134513	Mandatory
	Literatuur	Linnemann and van Boekel. (2007). Food product design, an integrated approach. Wageningen Academic Publishers. ISBN: 9086860125	Mandatory
	Literatuur	Wood MB. (2007). The marketing plan handbook. 3rd ed. Prentice Hall. ISBN: 0135136288	Mandatory
	Literatuur	Kotler et al. (2013). Principles of Marketing. EUROEAP ed. Or 6th rev. ISBN: 9780273742975	Mandatory
Contact person	joyce.polman@hvhl.nl		
Language	English		
Credits	7		
Term	PER1		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)



TOETS-01	Report on product group		7	test 1-10; 1 decimal	PORTFOLIO		P2WK6, PER1
TOETS-02	Oral on Group Analysis		3	test 1-10; 1 decimal	MONDELING		P2WK6, PER1



Study unit - code	VFT3PLVE		
Study unit - name	<i>Practical Placement</i>		
Competences	Nr.	Competence	Level
	VFT6	6. Managing	Advanced
	VFT1	1. Researching	Professional
	VFT2	2. Experimenting	Professional
	VFT3	3. Developing	Professional
	VFT5	5. Advising	Professional
	VFT7	7. Professionalization	Advanced
Learning outcomes	<p><i>Student is able to:</i></p> <ul style="list-style-type: none"> • <i>Apply a complete analysis approach on a given problem, within the context of the working filed, in a company.</i> • <i>to understand and interpret the results, drawing valid conclusions based on the research/analysis objective and existing and generated information.</i> • <i>write a complete and coherent company/placement report, including recommendations.</i> • <i>organise and manage interactive meetings to communicate the practical actions to the company/organisation.</i> • <i>to analyse and effectively communicate the practical actions to the company/organisation.</i> • <i>To evaluate sustainable aspects (people, planet, profit)</i> 		
Content	<i>The placement project is a crucial element of the majors. Obtaining experience and expertise in a professional setting is the first and foremost achievement of the placement period.</i>		
Teaching method(s) and student workload	30 ECTS X 28=840 40 hours/week within a food/major-related company		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Overig	Course manual	Mandatory
Contact person	joyce.polman@hvhl.nl		
Language	English		
Credits	30		
Term	JAAR		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)



TOETS-01	Placement		1	test 1-10; 1 decimal	PORTFOLIO		JAAR
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Study unit - code	VFT3SMVE1		
Study unit - name	<i>Study Mentoring year 3</i>		
Competences	Nr.	Competence	Level
	VFT6	6. Managing	Advanced
	VFT7	7. Professionalization	Advanced
Learning outcomes	<ul style="list-style-type: none"> • <i>The student manages himself in his own work</i> • <i>The Student is making a career development plan and setting his own new learning objectives.</i> • <i>The Student is able to adapt his own performance on the basis of experience.</i> • <i>The Student is able to account to others for his own actions and giving reasons for choices to be made.</i> • <i>The Student is able to use reflection in order to confirm a professional environment in a practical and theoretical way</i> • <i>The student is able to use use reflection as a tool to make decisions in a management or leadership role.</i> • <i>The Student is able to manages himself in performing his duties and in his development and ensures that he is up to date with the latest developments in terms of knowledge and skills and in terms of ethical dilemmas and socially accepted norms and values. (BAS/DAS Level 3)</i> • <i>The student is capable of studying successfully and independently and to reflect on performance. (reflection-level 3)</i> • <i>The student is working on a professional attitude and familiarizing himself/herself with professional practice. (landelijk kernprofiel nivo 3)</i> 		
Content	<p><i>Study mentoring focuses on guiding students to teach them how to study and prepare them as professionals in their career. The guidance consists of individual mentor sessions and group activities. In the individual sessions the progress of the student's studies and career orientation are discussed. The student's personal talents and situation is the starting point of the session.</i></p> <p><i>Study Mentoring will focus on preparing for the second placement, minor choice and thesis.</i></p> <p><i>workshops will support SLB, the major specific classes and the personal development of the students.</i></p>		
Teaching method(s) and student workload	<p>Individual sessions, coaching, group meetings/ training and various tasks and activities.</p> <p>The study unit consists of 2 credits. The 4 credits are 2x28 = 56 study hours.</p>		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)



Contact person	sigrid.wintermans@hvhl.nl
Language	English
Credits	2
Term	PER1
Entry requirements / prerequisites	

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Study Mentoring year 3		1	TestsOV	MONDELING		P3WK6, PER1, PER2



Study unit - code	VFT4THVE		
Study unit - name	<i>Thesis</i>		
Competences	Nr.	Competence	Level
	VFT5	5. Advising	Advanced
	VFT3	3. Developing	Professional
	VFT6	6. Managing	Advanced
	VFT7	7. Professionalization	Advanced
	VFT2	2. Experimenting	Advanced
	VFT1	1. Researching	Professional
Learning outcomes	<i>Students will independently work on their own major specific assignment (thesis topic) and fulfil this with a report and a colloquium. Sustainability should also be an aspect of the thesis assignment (people, planet, profit)</i>		
Content	<i>The Thesis is the final assignment in the study programme. It's a major project starting with an order from a company or organisation. This implies tackling a problem, answering a question or completing an assignment, and results in a written report</i>		
Teaching method(s) and student workload	The project has to be completed independently from start to finish; the student has full responsibility for planning, executing and evaluating the entire project.		
Mandatory literature / material	Literature (literatuur) / other (overig)	Description	Mandatory (verplicht) / Recommended (aanbevolen)
	Overig	See course manual	Mandatory
Contact person	joyce.polman@hvhl.nl		
Language	English		
Credits	30		
Term	JAAR		
Entry requirements / prerequisites			

Exams(s)							
Exam - code	Exam - name	Examination	Weight	Rating scale	Exam type	Exam duration (in minutes)	Exam period(s)
TOETS-01	Thesis		1	test 1-10; 1 decimal	PORTFOLIO		JAAR





Appendix 5:

PROFESSIONAL COMPETENCES FOR FOOD TECHNOLOGY

1. Researching competence

The food technologist does research for their field that either contributes to finding a solution for a problem, the development of a method, or which leads to greater insight into a topic in their own work environment.

	Level 1	Level 2	Level 3	Level 4
	The student <i>conducts a basic study based on a question that has been provided</i> The student demonstrates this by:	The student <i>translates a problem that has been provided into a concrete question, selects a research strategy with supervision and conducts the study.</i> The student demonstrates this by:	The student <i>translates a problem into a research strategy and conducts the research.</i> The student demonstrates this by:	Experienced professional (see competence description above). The student demonstrates this by:
a	Communicating about the content of the assignment with the client (e.g. an internal or external client), analysing a case that has been provided and formulating a research question and dividing this into sub-questions.	Analysing the problem based on the relevant sub-questions and substantiating the selected research strategy.	Substantiating the selected research strategy.	Possessing enough skills and initiative to discover and analyse scientific problems.
b	Clarifying the question in consultation with the client, if needed. Formulating goals in consultation with the client based on a provided and simple objective.	Formulating sub-questions for the study. Analysing objectives in consultation with the client and turning these into the study that has been requested.	Making proposals about strategy and implementation.	Formulating the objective for the requested study based on the question.
c	Making use of the literature provided to clarify the question.	Selecting relevant sources and using these to further explicate the research question.	Making use of the relevant criteria to assess the reliability of the source.	Independently selecting and obtaining scientific literature to gain more understanding of the problem, while correctly assessing the reliability of the various sources.
d	Creating a work plan/plan of approach for the assignment in line with the protocol provided (including the objective,	Creating a work plan in consultation with the client, independently designing a plan for the implementation of the	Independently designing a work plan and substantiating the parameters that have been included.	Creating a feasible and durable work plan with a budget, keeping in mind quality assurance, safety,



	Level 1	Level 2	Level 3	Level 4
	structure, duration and planning, keeping in mind safety and environmental regulations).	research, keeping in mind the safety, quality and environmental regulations, etc.		health, wellness, the environment, sustainability and ethics.
e	Working according to the work plan/phased plan when working on the assignment.	Working according to the work plan when working on the assignment. Efficiently implementing the work plan and adjusting it if necessary.	Efficiently and effectively implementing the work plan and adjusting it if necessary.	Systematically conducting the work plan by making use of relevant methods, techniques and equipment.
f	Actively working together in a team.	Contributing as an equal team member in their own working environment through reflection and feedback.	Contributing as an equal team member and working together in a team in which professionals from other fields participate, if the assignment requires this.	Working together in a results-oriented multidisciplinary context.
g	Summarising and mathematically and statistically revising the result of the assignment if needed, structuring it to conform to the research questions and providing a clear overview.	Summarising and interpreting the results and results of particular sections in relation to the assignment/research question.	Logically and clearly combining results and results of particular sections and to make conclusions in relation to the research question.	Summarising, structuring and interpreting the results in relation to the research question.
h	Reporting orally or in writing about the assignment in accordance with the guidelines provided.	Combining the results and results of particular sections in one single report according to the applicable guidelines and standards.	Reporting about the study according to the standards for the professional field.	Reporting the results according to the standards for the professional field.
i	Formulating conclusions from the research results and, if needed, making a proposal to improve the implementation of the assignment/research.	Making a proposal for follow-up steps based on the combination of the results of particular sections.	Formulating a strategy for a follow-up study, making a proposal for follow-up steps based on the analysis of the results.	Making proposals based on the results for a continuation of the research.



2. Experimenting competence

The food technologist conducts experiments for their field to obtain demonstrably reliable results.

	Level 1	Level 2	Level 3	Level 4
	<p>The student <i>Conducts an experiment according to a procedure.</i></p> <p>The student demonstrates this by:</p>	<p>The student <i>selects a suitable procedure, adjusts it if necessary and conducts it.</i></p> <p>The student demonstrates this by:</p>	<p>The student <i>sets up experiments with supervision and conducts these independently and systematically.</i></p> <p>The student demonstrates this by:</p>	<p>Experienced professional (see competence description above).</p> <p>The student demonstrates this by:</p>
a	Being able to explain the objective of the experiment.	Selecting a procedure and explaining why it is suitable for the experiment.	Converting a generally described procedure or predetermined synthesis goal to a single or multiple working procedures and combining multiple methods into an experimental setup.	Translating a research question into a coherent experimental setup including working procedures.
b	Being able to explain the principal of the method used.	Assessing the available methods and procedures on their suitability and solving experimental problems (troubleshooting).	Selecting methods and techniques and anticipating possible problems with the experiment.	Displaying the necessary knowledge, insight and skills required to conduct work activities in a responsible, safe and critical manner with the correct methods, techniques and equipment.
c	Operating the equipment according to the procedure.	Assessing the available equipment for its suitability and adjusting settings if necessary.	Taking into account the possibilities and limitations of the equipment when setting up and conducting experiments.	Independently expanding their knowledge about methodologies and backgrounds, including the possibilities and limitations of the equipment.
d	Properly preparing and conducting an experiment based on a procedure and obtaining results within the time set out, in accordance with the safety and environmental regulations.	Creating a work plan for conducting the procedure, assessing this based on safety and environmental aspects and conducting it and obtaining reproducible results within the time set out.	Making a schedule for a number of experiments, conducting these and obtaining reproducible results within the time set out.	Closely following working procedures and adjusting these where necessary in order to obtain demonstrably reliable and reproducible results.
e	Conducting a procedure in accordance with the safety regulations.	Assessing the environmental and safety aspects of a procedure.	Taking into account the environmental and safety aspects of an experimental setup and discussing this with others in the work environment.	Taking into account safety, health, environment and hygiene and conducting the experiments as sustainably as possible.
f	Thoroughly and correctly revising the test results and assessing whether the result is realistic.	Assessing the reliability of a result based on statistical considerations.	Selecting a statistical or other method to assess the reliability of the result.	Applying the statistical techniques to process/validate the quality of the results.



	Level 1	Level 2	Level 3	Level 4
g	Maintaining a detailed and clear lab notebook.	Maintaining a detailed and clear lab notebook and including the conclusions from the experiment results in the report.	Maintaining a detailed and clear lab notebook and including the conclusions and substantiating the reliability of the results in the report.	Reporting the results according to the standards for the professional field.
h	Making a proposal to improve the implementation of a procedure, if necessary.	Making proposals to improve the procedure.	Making proposals to improve the procedure and, if required, suggest methods for follow-up experiments.	Making proposals for follow-up experiments based on the research results.
i	Making a schedule for the work that has to be done on the practical days to ensure that it is performed efficiently.	Making a schedule for doing the experimental work for a short-term project that only lasts a few weeks.	Making the schedule for the setup and conducting of experimental work for a long-term project (at least six months, as for the thesis), which requires regular adjustments to the planning based on progress.	Achieving the set objective quickly and efficiently by applying the project schedule.



3. Developing competence

The food technologist develops or improves a process, instrument, product or material or upscales or downscales a process in the food sector.

	Level 1	Level 2	Level 3	Level 4
	The student develops or improves using he process provided. The student demonstrates this by:	The student develops or improves by selecting or adjusting a process. The student demonstrates this by:	The student develops or improves by independently setting up a process. The student demonstrates this by:	The experienced professional develops or improves independently, in a complex situation or where transfer from a different field is necessary. The student demonstrates this by:
a	Using the criteria (schedule of requirements [programma van eisen, PvE]) which the product, process, instrument or material has to meet.	Adjusting the criteria which the product, instrument or material must meet (PvE) where necessary.	Formulating the criteria which the product, process, instrument or material must meet based on the demands or wishes of the client (PvE).	Formulating the criteria which the product, process, instrument or material must meet in a complex situation, based on the demands or wishes of the client (PvE).
b	Identifying the supplied subject-specific concepts (assessing whether and where they are identifiable) in the schedule of requirements.	Making a choice from a collection of supplied subject-specific concepts for the identification of the concept in the schedule of requirements.	Independently identifying subject-specific concepts in the schedule of requirements.	Independently identifying subject-specific concepts in the schedule of requirements in a complex situation.
c	Selecting subject-specific design parameters from those provided, which can influence the process, product, instrument or material.	Selecting the most suitable subject-specific design parameters from those provided which can influence the process, product, instrument or material.	Selecting the most suitable subject-specific design parameters, which can influence the process, product, instrument or material.	Selecting the most suitable subject-specific design parameters in a complex situation, which can influence the process, product, instrument or material.
d	Checking whether the subject-specific models which have been provided are in accordance with the PvE and to apply and validate them.	Selecting the suitable subject-specific models from those provided, checking whether these are in accordance with the PvE and to apply and validate them.	Independently selecting the suitable subject-specific models, checking whether these are in accordance with the PvE and to apply and validate them.	Selecting the suitable subject-specific models in a complex situation, checking whether these are in accordance with the PvE and to apply and validate them.
e	Using the method provided to investigate the subject-specific feasibility of the result.	Investigating the subject-specific feasibility and sustainability of the result.	Investigating the subject-specific and economic feasibility and sustainability of the result.	Investigating the subject-specific and economic feasibility and sustainability of the result in a complex situation.
f	Determining the amount of the raw materials provided and, if needed, the dimensions of the unit operations.	Selecting the most suitable of the raw materials and unit operations provided, both qualitatively (which) and quantitatively (how much, dimensions).	Independently selecting the most suitable raw materials and unit operations, both qualitatively (which) and quantitatively (how much, dimensions).	Selecting the most suitable raw materials and unit operations, both qualitatively (which) and quantitatively (how much, dimensions), in a complex situation.



	Level 1	Level 2	Level 3	Level 4
g	Drawing up the documentation of the development and the result in a supplied format.	Drawing up the documentation of the development and the result following detailed guidelines.	Drawing up the documentation of the development and the result according to the standard of the professional field.	Drawing up the documentation of the development and the result for a complex situation according to the standard of the professional field.

Glossary of terms

- **'Developing'** can mean 'designing', 'improving', 'optimising' or 'upscaling or downscaling' of a process.
- A **'process'** is when a 'component' undergoes a treatment in a 'machine', 'device' or other object. This can include a distillation column, reactor or heat exchanger.
- An **'instrument'** is a 'machine', 'device' or other object that has a physical, chemical or biological function. This can be a magnet, an analysis instrument or a booster.

- A **'component'** is a material or product or intermediary product that is treated in a process.
- A situation can be described as **'complex'** if it contains a large number of concepts, if there is a great deal of correlation between concepts or if there is correlation with a different field.
- **'or'** is inclusive, thus and/or.
- **'subject-specific'** is an adjective that is applicable in the context of food technology. This includes chemical, physical, biological, microbiological and technical.
- A **'subject-specific concept'** is a subject in the field for which theories or

models have been developed. This includes shelf-life models.

- A **'subject-specific model'** is a model of one or a combination of subject-specific concepts.
- The **'subject-specific feasibility'** is the chemical, physical, biological, microbiological or technical feasibility but not the economic feasibility. The economic feasibility is reported separately.
- The **'result'** is the developed product, process, instrument or material or the scaled process.
- The **'developing'** is the entire process required to arrive at the result.



4. Supervising/coordinating competence

The food technologist develops, implements and maintains a management system or components of it, so as to comply with laws and regulations, quality standards and norms and values of the organisation.

	Level 1	Level 2	Level 3	Level 4
	The student tests the work against the requirements of the various management systems. The student demonstrates this by:	The student makes a contribution to one or more management systems within the organisation. The student demonstrates this by:	The student implements and maintains a management system. The student demonstrates this by:	Experienced professional (see competence description above). The student demonstrates this by:
a	Identifying and naming any possible issues in implementing a management system.	Making suggestions for solutions for occurring problems during the implementation and maintenance of a management system.	Anticipating possible problems in the implementation and maintenance of a management system.	Analysing any problems related to the development, implementation and maintenance of a data management or management system.
b	Identifying opportunities for the improvement of the implementation of a management system.	Making proposals to improve the management system.	Formulating and implementing an improvement plan for a management system.	Formulating, implementing and evaluating an improvement plan which can be used to solve problems creatively, structurally and economically.
c	Indicating their familiarity with relevant legislation and regulations.	Applying elements of legislation and regulations to a management system.	Processing new legislation and regulations or socially desired developments into an existing management system.	Taking into account legislation and regulations and national and international standards, especially with regard to sustainability and trustworthiness.
d	Integrating the implementation of their tasks in the management systems used at their place of work.	Monitoring adherence to the guidelines of the generally applicable management system.	Maintaining (improving) the management systems used at their place of work or implementing a new system if required.	Coordinating activities regarding the development, implementation and maintenance of the management systems and data management systems or parts thereof.
e	Reporting on the management systems used and adherence to the guidelines when performing their work.	Reporting about the implementation of one or more management systems at their place of work.	Reporting about and presenting changes in one or more management systems.	Reporting and presenting the information according to the standards for the professional field.
f	Providing colleagues with information about the implementation of the management systems used, if required.	Properly informing colleagues about the content of a management system and about any changes.	Supporting colleagues in the implementation of a management system.	Properly informing colleagues about the content and implementation of the management system or data management system and about any changes.



Advising/Purchasing and sales competence

The food technologist offers well-founded advice on the design, improvement and application of products, processes and methods and engages in profitable transactions of goods or services in the food sector.

	Level 1	Level 2	Level 3	Level 4
	The student studies the problems and/or wishes of users. The student demonstrates this by:	The student contributes to solving the technical problem of a user. The student demonstrates this by:	The student provides concrete advice for a specific question. The student demonstrates this by:	Experienced professional (see competence description above). The student demonstrates this by:
a	Listening to the client.	Asking relevant and open questions.	Flexibly handling the changing demands of the client.	Having a service-oriented attitude.
b	Clearly and simply explaining the assignment.	Reporting or presenting the wishes of the client as identified.	Providing substantiated advice.	Clarifying the question of the client.
c	Analysing market research information.	Interpreting market research information.	Identifying and capitalising on market developments.	Setting up and conducting market research.
d	Proposing actions that would follow the market research.	Formulating a plan of action for market research.	Formulating an advice plan, taking into account their own competitive position.	Formulating and sharing advice.
e	Identifying the wishes of the client as a relevant and technical problem.	Identifying the wishes of the client.	Finding creative solutions for specific problems or developments.	Translating the wishes and questions of clients into feasible solutions or advice together with researchers and developers.
f	Knowing and understanding the client or user.	Building a relationship based on trust.	Taking into account the environment of the client.	Maintaining the relationships with clients in the correct manner.
g	Recognising various negotiation techniques.	Applying the correct negotiation techniques.	Convincing interested parties to ensure that the required activities can be performed.	Applying negotiation techniques for sales and purchasing.



5. Leadership/management competence

The food technologist provides direction and guidance for organisational processes and employees involved in the objective of realising the goals of the organisational unit or project they are leading.

	Level 1	Level 2	Level 3	Level 4
	The student <i>provides assistance and guidance to colleagues when asked.</i> The student demonstrates this by:	The student <i>provides assistance and guidance to colleagues to improve performance.</i> The student demonstrates this by:	The student <i>Ensures that the objectives and roles of all members of the team are clearly defined and supports the team members in achieving the team goals.</i> The student demonstrates this by:	Experienced professional (see competence description above). The student demonstrates this by:
a	Demonstrating their understanding of the position and function of their organisational unit (work placement/graduation location).	Using their own knowledge and insights when taking on new activities in the organisation.	Ensuring that colleagues clearly understand their role in achieving the goals of the organisation and providing the necessary leadership to promote this.	Having a vision for the organisational unit and implementing this.
b	Assigning roles and tasks.	Providing assistance for solving issues in the planning and prioritising tasks.	Providing a timeline, the priorities and other parameters in terms of time, money, quality, information and organisation when planning the tasks and role division.	Working systematically and in a project-based manner.
c	Being approachable and available for colleagues, fellow students and lecturers.	Motivating colleagues by complimenting them on their qualities.	Delegating tasks to colleagues that are in line with their position and qualities.	Coaching colleagues through inspiration, persuasion, motivation, being respectful, encouraging them to work together and through delegation.
d	Being honest and trustworthy towards colleagues, fellow students and lecturers.	Talking to colleagues about how they treat their peers.	Being open and clear about their own position and helping to resolve conflicts.	Setting an example for colleagues.
e	Supporting others in their initiatives.	Encouraging colleagues to develop their own initiatives.	Helping colleagues in formulating their initiatives.	Giving colleagues a sense of shared responsibility.
f	Contributing to meetings and employee consultations using their own work activities.	Participating in meetings and employee consultations and taking the initiative in finding solutions.	Allowing the participants in the meeting to make a purposeful contribution based on their role in the team.	Chairing meetings and employee consultations.
g	Providing clear and simple instructions or explanations for tasks to be performed.	Discussing with other colleagues to achieve a shared objective.	Encouraging colleagues toward progress in order to achieve the goals that have been set.	Communicating in a task and process-oriented manner.



6. Self-management competence

The food technologist independently guides their performance and development and ensures that they are up to date on the latest developments, also in relation to ethical dilemmas and socially accepted norms and values.

	Level 1	Level 2	Level 3	Level 4
	The student <i>reflects on their personal performance.</i> The student demonstrates this by:	The student <i>reflects on their personal performance and development.</i> The student demonstrates this by:	The student <i>manages their own performance.</i> The student demonstrates this by:	Experienced professional (see competence description above). The student demonstrates this by:
a	Working towards a set learning objective. Discussing the learning strategy and the results of this; being aware of the function of the learning objective and how that can be integrated into the learning strategy.	Determining their own learning objectives in consultation or independently and reflecting on the result.	Creating a career development plan and determining new learning goals for themselves.	Independently determining and implementing a learning objective and learning strategy and linking the result back to the learning objective.
b	Identifying the eventual need to adjust their own performance in the learning environment.	Using feedback on their performance to make adjustments to the working environment.	Adjusting their performance to the demands of different working environments.	Being able to quickly adapt to changing working environments.
c	Communicating about professional and ethical issues with others and being able to identify professional and ethical issues.	Identifying any professional and ethical issues and providing their opinion on these.	Determining their personal point of view using socially accepted professional and ethical standards.	Considering and making a decision when confronted with professional and ethical issues, keeping in mind the socially accepted norms and standards.
d	Looking for information to improve their own performance.	Processing critical feedback on completed work and performance and discussing this with colleagues.	Adjusting personal performance based on experience.	Receiving and giving feedback.
e	Critically evaluating personal performance and thinking. Being aware of the effect of their own attitude to work on others, such as project group members.	Being able to make their own conclusions about their own actions and, if necessary, express this to others.	Explaining their actions to others and supporting their decisions.	Critically evaluating their own actions and way of thinking and explaining and processing this.



Appendix 6:

BODY OF KNOWLEDGE AND SKILLS

Body of Knowledge

Process engineering/unit operations: mass and energy balances, efficient production, thermodynamics, measurement and control engineering, process description (PFD, P&ID), heat conservation (F_0 , D, Z)

Product knowledge and technology: industrial production methods (related to dairy, beverages, vegetables, meat, baked goods, ingredients), packaging technology

Product development/food chemistry: organic chemistry, analytical chemistry, biochemistry, interfacial chemistry, (emulsions, foams), rheology, knowledge of raw materials and additives, ingredient analysis, sensory science

Dietary science/health: human physiology, diseases of affluence, global food supply (ethics)

Preservation/microbiology: growth and classification of microorganisms, pathogens, fermentations, preservation techniques, cleansing and disinfecting, producing hygienically

Quality science: product quality, legislation and regulations, management systems, food safety systems, Tracking & Tracing

Business studies: organisational sciences, cost management and investment analysis, supply chain

Marketing: market research, internal analysis, external analysis, strategic options, consumer behaviour, business marketing

Body of Skills

Product development skills: implementing creativity techniques, developing recipes (for new products and for optimising existing products), specifying products and production processes at the scale of the laboratory and translating these into process parameters at a pilot and/or industrial level.

Process skills: being able to work safely with production equipment in the food industry whilst taking product quality into account, being able to adjust processes, producing food at pilot plan scale.

Laboratory skills: performing microbiological, chemical and physical (such as rheology) analyses following laboratory procedures and analysing the results.



Research skills: analysing problems, formulating research questions, performing a literature survey, planning and conducting research, statistical processing and analysing of data, discussing results and translating these into conclusions and recommendations.

Communication skills: writing, speaking, computer skills.

Social skills: working together (in an international environment), meetings, advice skills, working in a project-based manner, handling conflict situations, negotiating, reflecting on their own work, applying PDCA, setting priorities and argumentation.



Appendix 7:

PHASE OUT MODULES

Unit of study - code study unit	VFT1MSVE2
Unit of study - name	Quality Management in Food
Competences	Management/coordination level 1 BOK 4.2/7.5/10.3 ;Skill 3.1
Learning outcomes	The student is able to: Understand the operational, logistics and quality management processes of a small food processing activity; Design (on paper) the operational, logistics and quality management processes of a small food processing activity Apply safe microbiological techniques skills in a practical.
Content	<p>Goal: This study unit introduces the student into the organizational part of a simple food business.</p> <p>Topics: Together with ABA: Food quality & safety management systems different food quality & food safety tools: HACCP, ISO, BRC, Food law Logistics management business processes, CODP, inventory management, performance Project setting up vegetable cutting activity Managed and managing systems (logistics, quality and financial systems) and organization JIT-training (practical)</p> <p>For the course FT: Microbiology Practical</p> <p>Description: Food quality and safety management systems and logistics management are input for the term 3 project 'Setting up of a vegetable cutting activity'. Any safety and quality management system follows the rule of preventing rather than solving/treating. The main focus of these systems is to prevent consumer for developing food borne illness, hence a people oriented sustainability. The project introduces the student into designing the operational and organizational parts (logistics, quality and financial management) of a simple business activity. The project also introduces the student in the use of Excel and Visio as applied management tools</p>



	<p>The students are setting up the pilot system for a wholesaler who want to extend his activities from trading vegetables to processing vegetables into fresh ready to eat salads. The students do this for a virtual product that can be a mix of whatever they choose.</p> <p>Microbiology Practice will provide the students with the tools needed for applied microbiological hazard assessment.</p>
Teaching method(s) and student workload	<p>Food quality & safety management systems 100 hours <u>Lectures:</u> each week, topics on Quality and Safety of minimally processed vegetables, HACCP, ISO and Food law at the start of the term (after intro)</p> <p>Logistics management 46 hours <u>Lectures:</u> 2 ch per week, in weeks 2, 3, 4 and 5</p> <p>Microbiology Practice 40 hours Practical's including exam (theory and practical exam): 4 practicals of 4 ch Practical exam is assessment week (week 9)</p>
Rating scale	1.0 – 10.0
Examination	<p>VFT1MS1W1 “Showing knowledge of management systems (logistics & quality)” Type of examination: written Bottom mark: 5.5 Description: Insight into theory on logistics, safety and quality management and the basics of microbiology is assessed making use of a case setting, including project report.</p> <p>VFT1MS2W1 “Understanding microbiology” Type of examination: practical Bottom mark: 5.5 Description: Showing independently your control practical skills. To pass Microbiology practical the student should: 1. Be present all practicals, 2.Pass the practical exam.</p>
Mandatory literature	<p>Logistics: hand-outs Quality: hand-outs and “easy guide on making an HACCP plan” Microbiology: Manual and practical protocols, distributed via Blackboard</p>
Category of unit of study	<input type="checkbox"/> STD – standard unit of study
Contactperson	<p>Adriana Sterian: adriana.sterian@hvhl.nl Joyce Polman: joyce.polman@hvhl.nl Marise Haesendonckx: marise.haesendonckx@hvhl.nl</p>
Language	English
Credits	7 ECTS
Period	Year 1, period 3



Entry requirements/ prerequisites	none
Capacity/waitinglist	no

Exams

Name and code* of the exam	Weight	Rating scale exam	Cijferinvoerder(s) + username(s)	Enrollment exam in SIS?		Examtype	Exam duration (in day)	Exam applicv	Examperiod(s)								
					To schedule				Period1/examweek1	resit/examweek1	Period2/examweek2	Resit/examweek2	Period3/examweek3	resit/examweek3	Period4/examweek4	resit/examweek4	
VFT1MS1W2 "Showing knowledge of management systems	80%	1.0- 10.0	Joyce Polman Adriana Sterian	x	x	Written	18 0							x	x		
VFT1MS2W2 "Understanding microbiology	20%	1.0- 10.0	Joyce Polman Adriana Sterian	x	x	Oral/ practical	da y							x	x		