GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2022-2023

Quality Management in Food Packaging (I690012)

Course size *(nominal values; actual values may depend on programme)*

Credits 4.0	**Study time 120 h**	**Contact hrs**	40.0h

Course offerings and teaching methods in academic year 2022-2023

A (Year)	English	Kortrijk	lecture	14.0h
			excursion	4.0h
			lecture: plenary exercises	7.0h
			demonstration	2.0h
			group work	1.0h
			practicum	12.0h

Lecturers in academic year 2022-2023

Jacxsens, Liesbeth	LA23	lecturer-in-charge
Buntinx, Mieke	TW56	co-lecturer
Peeters, Roos	TW56	co-lecturer

Offered in the following programmes in 2022-2023	**crdts**	**offering**
Master of Science in Sustainable Food Packaging	4	A

Teaching languages

English

Keywords

Quality management – certification – quality control – quality assurance – sampling plans
Physical-mechanical characterisation of different packaging materials and packaging concepts

Position of the course

Quality management in food packaging is an advanced course to be able to set up a quality management
system, dealing with multiple perspectives of the definition of quality (e.g. safety, customer requirements,
sustainability, physical-mechanical characterisation etc.) towards a Total Quality Management System.
Different standards applied in production and trade of food contact materials are discussed (e.g. BRC,
ISO). Building blocks in quality management as traceability, good practices, quality assurance and quality
control (including product and process control, sampling plans) are explained. Physical-mechanical
packaging material/concepts characterisation are technically explained as how to measure quality of
materials. Technical quality of paper, cardboard and plastic packaging materials/concepts are studied in a
practical environment.

Contents

PART I: Quality management systems related to packaging

1. Definitions and building blocks in quality and quality management, total quality management
2. Certification standards applied in QMS of packaging materials production and trade (e.g. ISO, BRC)
3. Traceability of food contact materials and packaging materials

4. Good practices, Quality control and assurance activities in a Total Quality Management System for
packaging materials
5. Case studies on fulfilling requirements of standards (guided exercises)
6. Theory on sampling plan (product and process control) and exercises (guided exercises)

PART II: Physical-mechanical packaging material/concepts characterisation

7. European standards for packaging requirements related to packaging waste
8. Gas permeability
9. Plastics characterisation
10. Seal performance
11. Paper and cardboard characterisation
12. Conditioning and transport simulation

PART III: Mechanical and climatological influences on packaging during transport and storage

Initial competences

Competences obtained in the previous course unit 'Food Packaging Systems: materials, equipment and packaging conditions' (insight in the properties, production and logistics of packaging material, legal requirements of packaging materials)

Final competences

1 Apply the principles of a quality management system for packaging material production
2 Analyse the building blocks of a quality management system (good practices, QC and QA activities)
3 Apply the principles of a sampling plan for product and process control
4 Evaluate the principles in most important standards and certification scheme related to production and trade of packaging materials
5 Evaluate the standards in packaging material characterisation
6 Select appropriate test equipment, test methods and test conditions for the characterisation of packaging materials
7 Analyse tests for packaging material/concept characterisation
8 to communicate validated conclusions based on critical reflection and supported by scientific explanation

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture: plenary exercises, Practicum, Demonstration, Group work, Excursion, Lecture

Extra information on the teaching methods

PART I : Quality management systems related to packaging (18h)
Lectures (can be online): 9 hrs

- Definitions and building blocks in quality and quality management, total quality management
- Certification standards applied in QMS of packaging materials production and trade (e.g. ISO, BRC)
- Good practices (incl. Traceability), Quality control and assurance activities in a Total Quality
Management System for packaging materials (online – lecture) – 3h

Lecture : plenary exercises: 7 hrs:

- Case studies on fulfilling requirements of standards
- Theory and Exercises on sampling plan (product and process control)

Demonstration: 2 hrs: Invited speaker to illustrate QMS in packaging materials in practice
PART II: Physical-mechanical packaging material/concept characterisation (18h)
Lectures (can be online): 5 hrs

- European standards for packaging requirements related to packaging waste
- Introduction to practicals and group task

Group task (1hr): the processing of a standard in a workable method.
Practicals (in MPR&S): 12 hrs

- Gas permeability
- Plastics characterisation
- Seal performance
- Paper and cardboard characterisation

- Conditioning (T, RV and light) and transport simulation

PART III: Mechanical and climatological influences on packaging during transport and storage
Study visit BIV (4h)

Learning materials and price

Standards for packaging material characterisation, scientific papers, relevant websites, etc.

References

- ISO9000:2015
- BRC IOP packaging
- Auto control guide FEVIA-FAVV regarding food contact materials

Course content-related study coaching

Students can ask additional information during the interactive lab sessions; the teachers can also be
contacted by email.

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Oral examination, Open book examination, Written examination with open questions

Examination methods in case of periodic assessment during the second examination period

Oral examination, Open book examination, Written examination with open questions

Examination methods in case of permanent assessment

Report, Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is not possible

Extra information on the examination methods

Part I: PE: written exam with open questions and one question as open book with a case study on quality
management (students take up the role as auditor and apply the principles of quality management on a given
business situation) (50%).
Part II: PE: oral exam evaluating insights obtained in the lab sessions (20%). Exam questions start from the
lab reports and evaluate deeper insight in the related theory. NPE: Participation and behavioural evaluation
includes an active participation and an interested and critical attitude in the lab sessions. The group
assignment consists of the processing of a standard in a workable method and presenting it. Test results
obtained in the lab sessions have to be reported in high level reports (30%).
Participation during the company visit (part III) is also compulsory.

Calculation of the examination mark

Part I: 50% (min 8/20 should be obtained on this part in order to pass this course unit)
Part II: 30% PE – 20% oral exam (min 8/20 should be obtained on this part in order to pass this course
unit)

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be
failed by the examiner.
The student needs to participate in all assignments and exams that are part of the evaluation (period
aligned and non-period aligned). Students who eschew period aligned and/or non-period aligned
evaluations for this course unit, or when one obtains a score lower than 8/20 (not rounded up) on one of
both parts (period aligned or nonperiod aligned evaluation or PART I and PART II as defined above), they
will fail for this course unit. In that case the end score is set to 9/20 even when the calculation

indicates a
point of 10/20 or more.