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The introductory session is free for all participants of this course.

Reduction

- When a participant of a company subscribes for the complete course, a reduction of 20% is given to all additional subscriptions from the same company, even on single modules. Invoicing is then done by one company invoice.
- Pack4Food members receive a reduction of 20% on the prices mentioned in the table. AIG and VIBG members receive a reduction of 10%.
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Cancellation policy

When cancelling up to 10 days before the start of the course or module 25% of the participation fee will be charged. When cancelling less than 10 days before the start of the module, the full fee is due.

Training cheques

Ghent University accepts:
- For employees we refer to the KMO-portefeuille (http://www.kmo-portefeuille.be; use authorization ID: DV/2103 194).

Time and location

- This course is given via blended learning: online video lectures are combined with contact sessions. The online video lectures are available on a secure e-learning platform. The contact sessions consist of exercises, theoretical sessions, company visit or round table conferences.
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  - Introduction day: 28 February 2013, 13h-16h
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  - Module C: 28 May 2013, 10h-17h and 29 May 2013, 10h-18h
  - Module D: 27 June 2013, 10h-18h
  - Dates may change due to unforeseen reasons.
- Location of contact sessions:
  - Ghent University, Institute for Continuing Education, Campus Engineering Faculty, Building Magnel, Technologiepark, 914, 9052 Zwijnaarde, Belgium.
  - Practical arrangements on the company visits are announced later.

Language

English is used in all presentations, exercises and documentation, so a good knowledge of this language is necessary.

Reference book

‘Food packaging: Principles and Practice’ by G.L. Robertson (€ 77.95 including VAT) (optional for all participants).

The reference book is billed directly by the bookshop.
This course gives a broad and clear overview of the packaging of food products. It will start with the basics of chemical, physiological and microbiological degradation of food products and how packaging can affect these spoilage phenomena. In the next two modules, packaging materials are highlighted. Not only the production and the technical characteristics, but also special requirements and new technologies of these packaging materials are discussed. In the last module, attention is paid to the different filling techniques and to the marketing and distribution of food products.

After this course, the participants will be able to set up a good combination of food product, packaging and filling system which will deliver the desired shelf-life for a specific food product.

This course is given via ‘blended learning’: online video lectures will be combined with live contact sessions after each module.

Scientific Coordination

- prof. dr. ir. Bruno De Meulenaer, Ghent University
- prof. dr. ir. Frank Devlieghere, Department of Food Safety and Food Technology, Ghent University
- ing. Guy Dubogue, Procter & Gamble, Belgium
- prof. dr. ir. Peter Ragaert, prof. dr. Luc Vandevenne, prof. dr. Nele Vermeulen, Food and Packaging Technology, Ghent University
- prof. dr. ir. Ken Demeester, Arets Graphics
- prof. dr. ir. Bruno De Meulenaer, Department of Food Safety and Food Technology, Ghent University
- prof. dr. ir. Guy Dubogue, Procter & Gamble, Belgium
- prof. dr. ir. Ken Demeester, Arets Graphics
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- prof. dr. ir. Ken Demeester, Arets Graphics

This course discusses food packaging from multiple perspectives, which makes it an interesting course for all players who are — directly or indirectly — involved in the food packaging industry.

- Producers and suppliers of packaging materials will gain a clear insight in the sensitivities of food products and the subsequent requirements for packaging materials.
- Producers of food products will be able to find a suitable packaging solution in a more efficient way with a good balance between price and desired quality.
- Producers and suppliers of filling systems will be able to combine the right packaging material with the chosen food product in order to achieve the desired shelf-life.

Understanding the relation between properties of food, packaging and filling system should allow participants to use packaging for innovation of food products.

Target audience

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Understanding the relation between properties of food, packaging and filling system should allow participants to use packaging for innovation of food products.

Module A: Effect of packaging on the chemical, physiological and microbiological spoilage of food products

The sensitivity of different food components towards biochemical degradation and its consequences on food product quality (e.g. fat oxidation, discoloration, vitamin degradation) is discussed, including factors that could influence these degradation reactions. Besides biochemical degradation processes, various factors influencing the microbiological quality of packaged food products are discussed with particular attention to the effect of modified atmosphere packaging on the microbiological quality of food products. This module also includes an elaborated discussion on respiring products such as fruits and vegetables and how this respiration activity affects packaging concepts.

During the last contact session, a practical exercise will be organized, dealing with the behaviour of micro-organisms in food products (predictive microbiology) as well as with the selection of packaging materials for respiring products.

Date contact session: 28 March 2013 (10h–13h)

Module B: Production and thermal-mechanical characteristics of packaging materials

The packaging industry offers different materials and combination of materials with different characteristics. This part of the course starts with an overview of the different basic packaging materials such as glass, metal, paper, carton and plastics, including additives, inks and adhesives.

The origin of the raw materials, the production method and some application possibilities will be explained. During the presentations, the currently hot items such as migration and biodegradability will be included. Special attention will be given to the heat resistance of packaging materials in relation to the potential heat filling applications.

Date contact sessions: 28 March 2013 (13h00–17h)

Theoretical lessons about carton packaging and polymers, Technologipeak, Zwijnaarde.

23 April 2013 (10h–18h)

Company visit (A. Schulman) + theoretical lessons about adhesives, printing techniques and migration, Technologipeak, Zwijnaarde.

Module C: Specific requirements for packaging materials and new technologies

Firstly this module offers information on food packaging and its environmental aspects focusing amongst others on national and international waste prevention, waste policy and recycling strategies. Specific attention is also given to packaging materials based on bioplastics. Secondly, technologies to increase the functional quality of packaging materials are discussed barrier technology including plant science and active and intelligent packaging materials.

To be able to innovate, a number of innovative aspects have to be taken into consideration. But at the same time, new products should be competitive with the existing legislation, especially concerning migration and traceability. This will be combined with a GAP approach, based on the latest developments in the field. The use of a simulation model will be illustrated with practical examples. There will also be an extension of migration to the influence of packaging materials on aroma-components and the link will be made with loading security of secondary and tertiary packaging materials.

Date contact session: 28 March 2013 (10h–13h)

Company exercise, Technologipeak, Zwijnaarde.

Module D: Filling techniques and marketing aspects of food packaging

This module integrates the information of previous modules into the final packaging concept. An overview of filling techniques and equipment, both for solid and liquid food products is given. This provides participants the knowledge and possible strategies on how to implement or modify packaging lines in their company. Topics that are discussed include how we can apply modified atmosphere packaging? Do we need an aseptic filling system or is an ultra-clean system sufficient?

For liquid food products practical aspects have to be considered (PET, PM, HDPE). The production of these different types of bottles requires different equipment and potential customers have to know what the possibilities are in each group. For each application group, there is also the need for specific caps (dimensions, heat resistance, barrier, ...). Different filling lines play a role in an attractive packaging design, which should not compromise the other functions of packaging (e.g. barrier properties, environmental requests).

Finally, the module includes a practical session in which participants need to develop a packaging concept for a specific food product taking into account the obtained knowledge of the different materials as well as their own experiences.

Date contact session: 27 June 2013 (10h – 18h)

With an update of solid and liquid filling, case studies and a round table conference about whole supplier versus filling machine builder, Technologipeak, Zwijnaarde.

Dates contact sessions:

23 April 2013 (10h–18h)

Company visit (RPC-Coblecoat) + computer exercise (protopack) + round table conference about biopolastics (environmental aspects and migration (health), Technologipeak, Zwijnaarde.

More information and subscription

www.ivpweb.ugent.be/food

The course is organised through a combination of distance learning and contact sessions to limit the number of necessary travels.

All modules are supported by the handbook “Food Packaging: Principles and Practice” by G.L. Rombomen (77,95 € incl. VAT). This book is optional for all participants.
This course will give a broad and clear overview of the packaging of food products. It will start with the basics of chemical, physiological and microbiological degradation of food products and how packaging can affect these spoilage phenomena. In the next two modules, packaging materials are highlighted. Not only the production and the technical characteristics, but also special requirements and new technologies of these packaging materials are discussed. In the last module, attention is paid to the different filling techniques and to the marketing and distribution of food products.

After this course, the participants will be able to set up a good combination of food product, packaging and filling system which will deliver the desired shelf-life for a specific food product. This course is given via ‘blended learning’: online video lectures will be combined with live contact sessions after each module.

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- prof. dr. ir. Bruno De Meulenaer
- prof. dr. ir. Frank Devlieghere
- dr. ir. Luc Vandecavele
- dr. Astrid Vermeulen

Pack4Food
Department of Food Safety and Food Technology, Ghent University

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Understanding the relation between properties of food, packaging and filling system should allow participants to use packaging for innovation of food products.

Introduction
First contact session with an overview of the content of the course and the other contact moments in this course and explanation of blended learning methodology. Also information about the crossover project in order to receive the certificate.

Date and contact sessions:
28 February 2013 (13h-16h)
Technologiepark, Zwijnaarde, Belgium.

Module A: Effect of packaging on the chemical, physiological and microbiological spoilage of food products

The sensitivity of different food components towards biochemical degradation and its consequences on food product quality (e.g. fat oxidation, discoloration, vitamin degradation) is discussed including factors that could influence these degradation reactions. Besides biochemical degradation processes, various factors influencing the microbiological quality of packaged food products are discussed with particular attention to the effect of modified atmosphere packaging on the microbiological quality of food products. This module also includes an elaborated discussion on requiring products such as fruits and vegetables and how this respiration activity affects packaging concepts.

During the live contact session, a practical exercise will be organized, dealing with the behaviour of micro-organisms in food products (predictive microbiology) as well as with the selection of packaging materials for requiring products.

Date contact session:
28 March 2013 (10h-11h)
Computer exercise, Technologiepark, Zwijnaarde.

Module B: Production and thermal-mechanical characteristics of packaging materials

The packaging industry offers different materials and combination of materials with different characteristics. This part of the course starts with an overview of the different basic packaging materials such as glass, metal, paper, carton and plastics, including additives, inks and adhesives.

The origin of the raw materials, the production method and some application possibilities will be explained. During the presentations, the currently hot items such as migration and biodegradability will be included. Special attention will be given to the heat resistance of packaging materials in relation to potential hot fill applications.

Date contact sessions:
28 March 2013 (13h30-17h)
theoretical lessons about carton packaging and polymers, Technologiepark, Zwijnaarde.

Module C: Specific requirements for packaging materials and new technologies

This module gives an overview of the food packaging and its environmental aspects focusing amongst others on national and international waste prevention, waste policy and recycling strategies. Specific attention is also given to packaging materials based on bioplastics.

Secondly, technologies to increase the functional quality of packaging materials are discussed barrier technology including polymatheology and active and intelligent packaging materials. To be able to innovate, a number of innovative aspects have to be taken into consideration. But at the same time, new products should be compatible with the existing legislation, especially concerning migration and traceability. This will be combined with a GAP approach, based on the latest developments in the field. The use of a simulation model will be illustrated with practical examples. There will also be an extension of migration to the influence of packaging materials on aroma-components and the link will be made with loading security of secondary and tertiary packaging materials.

Dates contact sessions:
28 May 2013 (10h-17h)
theoretical lessons about barrier properties, aromas, bioplastics, primary/secondary/tertiary packaging, Technologiepark, Zwijnaarde.

29 May 2013 (10h-18h)
Company visit (RPC-Coldpack) + computer exercise (preoopack + round table conference) + theoretical lessons about bioplastics (environment); and migration (health), Technologiepark, Zwijnaarde.

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Finally, the modules include a practical session in which participants need to develop a packaging concept for a specific food product taking into account the obtained know-how of the different modules as well as their own experience.

Date contact session:
27 June 2013 (10h – 18h)
With an update of solid and liquid filling case studies and a round table conference about wholesaler versus filling machine builder, Technologiepark, Zwijnaarde.
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