



# E C O S I G N

## Ecodesign for food packaging

### UNIT 1: Introduction and general approach to food packaging Ecodesign



## Content unit 1, Ecodesign for food packaging

Generally UNIT 1 consists of:

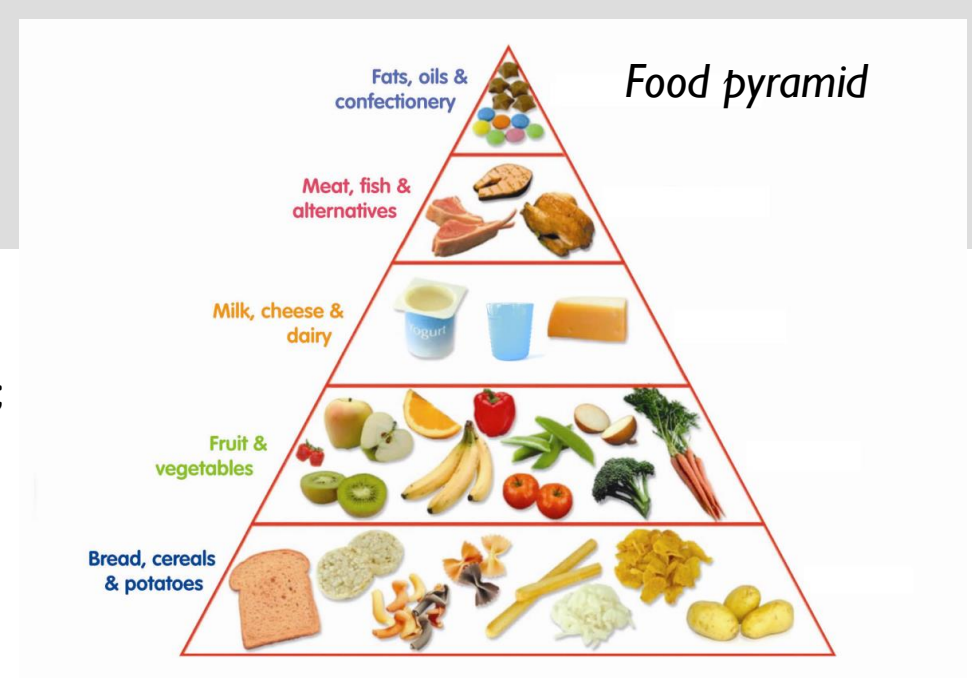
- ❑ Text – Introduction and general approach to food packaging Ecodesign - 15 pages
  - 1.1. The main food groups
  - 1.2. The main food processing technologies
  - 1.3. The main types of food packages
  - 1.4. Practical strategies for Ecodesign of packaging
- ❑ Two video – 4.5 and 3.5 minutes
  - Food packaging classification and used materials
  - Food packaging Ecodesign part of sustainability and Food packaging Ecodesign strategies
- ❑ Presentation – 17 slides
- ❑ Assignment – 1 pages

# The main food groups

The main food groups that must be packed are:

- Dairy products, e.g. milk, butter, yogurt, cheese, cream, ice cream;
- Fruits: apples, oranges, bananas, berries, lemons, etc.;
- Cereals, beans and vegetables, are often the broadest category in nutrition;
- Meat, labeled sometimes as protein. Examples: chicken, fish, turkey, pork and beef.

As you can see, foods of the group bread, cereals & potatoes at the base of the pyramid predominating, while the feed of group fats, oils & confectionaries is at the top, which means that it must be the most poorly represented in the daily food ration.



## The main food groups (2)

A classification of food about the nutritional value and about the effect of various foods on the human body

- *CLASS I. (FOOD WITH COMPLETE PROTEIN)*
  - Milk and dairy products
  - Eggs
  - Meat and fish
- *CLASS II. (FOOD WITH SEMI-COMPLETE PROTEIN)*
  - Vegetables and edible mushrooms
  - Legumes
  - Cereals and derivatives (except corn and husked rice)

## The main food groups (2)

A classification of food about the nutritional value and about the effect of various foods on the human body

- *CLASS III. (Food with incomplete proteins)*
  - Corn and husked rice
  - Fruits
  - Oilseeds and unrefined derivatives
- *CLASS IV. (Protein-free food)*
  - Animal fats and refined vegetable oils
  - Sugar and confectionery
  - Non-alcoholic beverages

# The main food processing technologies

## 1. THERMAL PROCESSING OF FOOD

- Pasteurization
- Sterilization

## 2. NON-THERMAL PROCESSING OF FOOD

- High Pressure Processing (HPP)
- Cold Plasma Processing
- Pulsed Light Processing
- Ultra-Violet Light Processing
- Electron beam irradiation

# The main types of food packages

- ❑ The packaging Ecodesign requirements:
  - reducing the package thickness;
  - removing the spaces, layers and components which are not necessary, and for some products, increasing of the bulk density by concentration (coffee, juices, detergents, etc.);
  - using, when it's possible, of recycled materials;
  - optimization of the products quantity inside the package intended for consumption, based on consumer needs
- ❑ The materials used for food packaging :
  - Paper and cardboard
  - Plastic
  - Glass
  - Wood
  - Metal
- ❑ Generally main types of food packages can be:
  - *Primary packaging* (sale packaging)
  - *Secondary packaging* (group packaging)
  - *Tertiary packaging* (transport packaging)

Further details on the classifications and materials used are presented in the Video: Food packaging classification and used materials

# Practical Strategies for Ecodesign of packaging

The requirements of Ecodesign include:

- designing for effectiveness;
- designing for optimization of resource consumption;
- designing for minimizing the environmental and social impact of materials;
- technical performance
- regulatory and environmental requirements and their impact;
- compatibility with the existing technological equipment and distribution systems;
- customer requirements
- improving image and brand value of product
- compatibility with existing range of packaging and/or the manufacturing system
- legislation and the operational/financial impact





## Practical Strategies for Ecodesign of packaging (2)

Packages must fulfill several functions:

- ❑ They need to ensure the delivery of the food to the consumer in good condition, whatever the stresses to which they are subjected during distribution and storage.
- ❑ They need to protect the content from vibration, moisture, heat, odors, light penetration, microorganisms or pest infestation, and they must not present leak.
- ❑ They must be easy to open (but difficult to open accidentally).
- ❑ They must be as easy to carry.
- ❑ They must be attractive enough to facilitate their purchase.

Further details on strategies for Ecodesign of food packaging are presented in the Video: Food packaging Ecodesign part of sustainability and Food packaging Ecodesign strategies



# ECOSIGN

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