

# SPECIALIZATION: SUSTAINABLE PRODUCT DEVELOPMENT: ECODESIGN OF FOOD PRODUCTS

**LEVEL:** MASTER 2

**PERIOD:** SEMESTER 1

**LANGUAGE:** EN

**ECTS:** 30

**TEACHER/COORDINATOR:** EMMANUELLE MARTIN-DERVAUX



## 1- Objectives and skills developed

Acquire fundamentals of product research & development

Continuously improve the environmental performance of renovated and new products

- › To be able to identify relevant environmental aspects across a food product life cycle and promote strategies to integrate sustainability at each step of the research and development activities.

Build the path to make a difference on a global scale

- › To promote a cross-fertilization between the company's departments or businesses in order to further expand the use of eco-design processes through each step of the company's activities

## 2- Content and Organization

Common course: Research & Development

- › Lectures
- › Workshops
- › Formulation sessions in food companies R&D labs
- › Group projects
- › Outings
- › Coelab innovation project

Specific course: Ecodesign of Food Products

- › Lectures
- › Group projects
- › Outings

3-Evaluation

- › Coelab project
- › Oral presentations other projects
- › Exams

## 4- Teaching units

COMMON COURSE

**Challenges for food companies:** Market trends (nutrition, sustainability), CSR approach, Consumers perception

**Essentials of product formulation and development:** Innovation management, Fundamentals of formulation (with lab exercises), Culinary expertise, Formulation of complex systems with different approaches or ingredients (clean label, gluten free, algae, vegetable proteins, with no added sugar, with fewer fats, bioprocess-

es...), Experimental design applications

**Technical choices impacts:** Case studies: nutrition and technological challenges, Research project: product-process interactions

**Legal and regulatory framework:** INCO regulation, INPI presentation

**Coelab innovation project:** Theoretical inputs: codesign, innovation

## SPECIFIC COURSE ECODESIGN OF FOOD PRODUCTS

**Ecodesign strategies:** Ingredients and recipe (sourcing procurement decisions, food products design and use), Processing impact on environment (monitoring, targeting and reporting, best available technology, clean technologies), Food companies testimonies: Danisco (DuPont), Barilla, API Restauration, Danone, etc

**Decision making tools:** Life Cycle Analysis, Other ecodesign tools, Cost-benefit analysis

**Development of value-added products from food waste** Situation and opportunities, Wastes recovery, Discarded food products valorisation: examples

**Moving towards a CSR strategy:** From ecodesign to ecosociodesign (society, consumers, value chain actors, workers, local communities), Communication (communication policy, consumer information and satisfaction, CSR reporting)