

IDENTIFICATION

Course code : E3AG5RD7
ECTS : 2

DURATION

Lectures : 4
Tutorial classes : 20
Labs : 4
Total : 28

Project :
Personnal work :

ASSESSMENT

Individual knowledge assessment
Project-based learning
Group oral presentation
Submission of a group report for the lab work.

TEACHING MATERIALS

Course materials (PPT) provided.

LANGUAGE

English

CONTACT

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UE : UE5-R

COURSE : Formulation

SCOPE OF THE COURSE

OBJECTIVES

Master the justification for selecting constituents leading to formulation in RD ; Master the process of creating a food product from idea to finished product "from farm to fork" with economic performance requirements ; Apply acquired skills through a practical situation involving the development of a new product based on agro-resources, particularly tropical ones. 4-How to choose while anticipating the technological properties of ingredients (Starches and hydrocolloids : their behavior during cooking and processing, effects of product and manufacturing process parameters, role of pH, role of acidifiers, role of temperature, role of agitation, interactions with other ingredients, importance of their implementation. 5-Addressing the aroma component : legislation, extraction methods, their use, their technology, absorption on carriers (dry mixing, matrix encapsulation, membrane encapsulation, molecular encapsulation, atomization, granulation). Spices and aromatic plants : their technology, roles and usage constraints. 6-Incorporation of other additives and/or ingredients : acidifiers, emulsifiers, vegetable and animal proteins. Study of preparation and assembly of constituents : preparation methods, technologies implemented. 7-Evaluation of container suitability and different types of packaging : cans, jars, plastic trays and lids, flexible packaging. Preservation methods : Appertization, Pasteurization, Freezing, Fresh. Legislative and economic constraints. Techniques for preparing products from fats. 8-Laboratory work.

COMPETENCE AND SKILLS

Develop a simple specification sheet based on predefined constraints (Nutri-Score, anti-food waste law, etc.) ; Design and implement a simple experimental plan ; Formulate and transform a product.

PROGRAM

1-Context and challenges of formulation in AA. 2-Methodology for product development : Defining the demand, developing a specification sheet, project planning and dashboard, identifying factors influencing formulation. 3-Determining formulation phases : ingredient research, implementation of a test protocol, evaluation parameters, validation on mock-ups, industrial testing, hedonic testing. Functional properties of ingredients, the transformation steps and their uses.

BIBLIOGRAPHY

Conception raisonnée des aliments, Cahiers de formulation, - EDP sciences. AU-BRY (J.-M.) and SCHORSCH (G). - Formulation. General presentation. [J 2 110] Formulation (1999). Pense-Lheritier, A.-M. Chapter 12. Formulation of a food supplement in liquid form and in chewable gum form. In Conception des compléments alimentaires ; Lavoisier, 2016 ; pp. 367-386 ISBN 978-2-7430-2221-1. J. ADRIAN, J. POTUS, R. FRANGNE : Food science from A to Z (3rd Edition, 2003), Lavoisier. G. LINDEN, D. LORIENT : Agro-industrial biochemistry, Masson.

REQUIREMENTS

Knowledge of tropical sectors, Life Cycle Assessment, Eco-design, functional properties and molecular interactions in foods, Nutrition : needs and nutritional

intakes, Marketing applied to AA.