Food production and packaging

1. **Course number and name:** 020FEACS5 Food production and packaging

2. **Credits and contact hours:** 4 ECTS credits, 2x1:15 contact hours

3. **Name of instructor:** Marina Daccache

4. **Instructional Materials:**

   - PowerPoint slides

5. **Specific course information**
   1. **Catalog description:**
      This course provides a comprehensive understanding of food packaging materials and processes. Students will explore the role of ingredients, learn about advanced techniques such as microencapsulation and texturization, and gain insights into various packaging materials and their manufacturing processes. Topics include lamination, coating, aseptic packaging, and considerations of permeability. By the end of the course, students will have a solid foundation in food packaging, preparing them to make informed decisions in the industry.

   2. **Prerequisites:** None

   3. **Required/ Selected Elective/Open Elective:** Selected Elective

6. **Educational objectives for the course**
   a. **Specific outcomes of instruction:**
      - Enable students to understand the role of ingredients such as proteins, water, starch, and biopolymers in modifying food product properties.
      - Familiarize students with microencapsulation and its applications in food packaging.
      - Explore various texturization techniques using extrusion to enhance food product quality.
      - Develop an understanding of film formation, foaming, thickening, and gelatinization processes in food packaging.
      - Classify and analyze different food packaging materials, including paper, corrugated cardboard, and glass, and assess their respective advantages and disadvantages.
      - Gain insights into specific food packaging requirements for different products and comprehend the machinery used in food packaging processes.

   b. **PIs addressed by the course:**

PI	2.2	7.1	7.2
Covered	x	x	x
Assessed	x	x	x

7. Brief list of topics to be covered

- Understand the role of ingredients such as proteins, water, starch, and biopolymers in modifying food product properties.
- Learn about microencapsulation and its application in food packaging.
- Explore texturization techniques using extrusion.
- Understand film formation, foaming, thickening, and gelatinization in food packaging.
- Classify packaging materials including paper, corrugated cardboard, and glass, and understand their advantages and disadvantages.
- Analyze metal and plastic as packaging materials, including their fabrication, advantages, and limitations.
- Comprehend lamination, coating, aseptic packaging, and the comparison with conventional packaging.
- Explore biodegradable and edible packaging options.
- Familiarize with machinery used in food packaging.
- Understand permeability considerations, including gas and vapor permeability in multilayer packaging.
- Examine specific food packaging requirements for products like bread, biscuits, coffee, milk, eggs, beverages, and snacks.
- Learn about mechanical and functional tests conducted on packaging materials.