Degree competences to which the subject contributes

Specific:

Teaching methodology

The teaching methods used in this course are lectures in which the teacher makes a speech to introduce the basic concepts of the subject and encourages students to participate doing or answering questions, cooperative learning exercises etc. There are also practical sessions so that students acquire lab skills. In order to acquire the lab skills and the knowledge of the foodstuff process, the innovative scientific-technical information must be searched by the students; besides this, they will must do the synthesis and analysis of experimental results.

Learning objectives of the subject

At the end of the course, the student must be able to:
1. Identify and evaluate the implementation of new trends and ingredients used in the food industry.
2. Apply the current regulations related to the food formulation
3. Develop a new food product formulation
4. To design evaluation tests of the new foodstuff

Study load

<table>
<thead>
<tr>
<th>Total learning time: 150h</th>
<th>Hours large group:</th>
<th>0h</th>
<th>0.00%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hours medium group:</td>
<td>40h</td>
<td>26.67%</td>
<td></td>
</tr>
<tr>
<td>Hours small group:</td>
<td>20h</td>
<td>13.33%</td>
<td></td>
</tr>
<tr>
<td>Guided activities:</td>
<td>0h</td>
<td>0.00%</td>
<td></td>
</tr>
<tr>
<td>Self study:</td>
<td>90h</td>
<td>60.00%</td>
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</tbody>
</table>
### Content

#### (ENG) FASES I DESENVOLUPAMENT DEL DISSENY DE NOUS PRODUCTES ALIMENTARIS

**Learning time:** 50h
- Practical classes: 12h
- Laboratory classes: 8h
- Self study: 30h

**Description:**
1.1. Innovative food concepts, trends and legislation
1.2. Introduction to nutritional genomics, nutrigenetics and nutrigenomics
1.3. New foods: functional foods, fortified foods, foods without allergens, organic food, genetically modified foods, and others
1.4. Experimental design in innovation food

**Related activities:**
- Activity 1. Participatory exposition sessions
- Activity 2. Individual assessment tests
- Activity 3 Innovation study of a new food product

#### (ENG) NOUS INGREDIENTS: EXTRACTES VEGETALS (SENSE FUNCIÓ PREBIÒTICA)

**Learning time:** 50h
- Practical classes: 14h
- Laboratory classes: 6h
- Self study: 30h

**Description:**
2.1. Lipids (omega 3 linolenic acid ...) and fat substitutes
2.2. Carotenoids: A and ß-carotene, lutein and lycopene
2.3. Antioxidants: flavonoids, tocopherols, phenolic acids, phytoestrogens
2.4. Amino acids and vitamins: nutritional supplements
2.5. Dietary fiber without prebiotic function
2.6. Other ingredients

**Related activities:**
- Activity 1. Participatory exposition sessions
- Activity 3. Innovation study of a new food product
- Activity 4. Visit to the company
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<table>
<thead>
<tr>
<th>(ENG) NOUS INGREDIENTS: COMPONENTS PREBIÒTICS I MICRORGANISMES PROBIÒTICS</th>
<th>Learning time: 50h</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Practical classes: 14h</td>
</tr>
<tr>
<td></td>
<td>Laboratory classes: 6h</td>
</tr>
<tr>
<td></td>
<td>Self study: 30h</td>
</tr>
</tbody>
</table>

**Description:**
3.1. Getting prebiotics ingredients, probiotics microorganisms and symbiotic foods.
3.2. Prebiotics: Inulin, fructo-oligosaccharides and others.
3.3. Probiotic microorganisms: Saccharomyces, Bifidobacterium, lactic acid bacteria.
3.4. Relationship between prebiotic and probiotic ingredients and the food matrix

**Related activities:**
- Activity 1. Participatory exposition sessions
- Activity 2. Individual assessment tests
- Activity 3. Innovation study of a new food product
### Planning of activities

| **(ENG) ACTIVITAT 1: CLASSES D'EXPLICACIÓ TEÒRICA** | **Hours:** 90h  
Practical classes: 38h  
Self study: 52h |
|--------------------------------------------------|-------------------------|
| **Description:**  
In theoretical classes content of the subject will be presented, and mechanisms for active discussion for students will be established. There will also be seminars with the participation of the productive sector (producers of ingredients, responsible for R&D department) | |
| **Support materials:**  
Virtual campus, databases, bibliographic material | |
| **Descriptions of the assignments due and their relation to the assessment:**  
Abstracts, problems and bibliographic works | |

| **ACTIVITY 2: WRITTEN TESTS ASSESSMENT** | **Hours:** 2h  
Practical classes: 2h |
|----------------------------------------|-------------------------|

| **ACTIVITY 3: INNOVATION STUDY OF A NEW FOODSTUFF** | **Hours:** 50h  
Laboratory classes: 16h  
Self study: 34h |
|---------------------------------------------------|-------------------------|
| **Description:**  
The innovation of a new food product will be studied by students. A study of developing a new food or modification of some existing food (modified ingredients, formulation) will be proposed. The students will work different stages of development of the food product. Whenever feasible will be conducted in an experimental laboratory, the process development in terms of process control and final product acceptance | |
| **Support materials:**  
Virtual campus, databases, bibliographic material, laboratories (microbiology, food, sensory) | |
| **Descriptions of the assignments due and their relation to the assessment:**  
Written report (partial and final deliveries) and oral discussion | |

| **(ENG) ACTIVITAT 4: VISITES A EMPRESES** | **Hours:** 8h  
Laboratory classes: 4h  
Self study: 4h |
|-------------------------------------------|-------------------------|

### Qualification system

The final qualification, N_final, is the sum of the partial grades:

- N1: grades of two written tests
- N2: grades of the laboratory sessions and the study of the new food product
- N3: grade of the visit
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**Regulations for carrying out activities**

The student will receive a calendar with the schedule of activities and delivery of exercises of various activities.

**Bibliography**

**Basic:**


**Complementary:**


