

Academic Year/course: 2021/22

30835 - Pilot Plant Practical Classes

Syllabus Information

Academic Year: 2021/22

Subject: 30835 - Pilot Plant Practical Classes

Faculty / School: 105 - Facultad de Veterinaria

Degree: 568 - Degree in Food Science and Technology

ECTS: 6.0

Year: 4

Semester: Second semester

Subject Type: Compulsory

Module:

1. General information

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such as:

- Attendance to 5 hours of seminars in the following topics: presentation of the course, scientific method, report preparation, leadership and teamwork.
- Preparation of a R+D+i project during the months of February and March of the academic year. To do so, the students will have at their disposal all the materials of the repository of the pilot plant including equipment manuals, powerpoint presentations and videos related to the equipment and control systems of the pilot plant. This proposal will require an estimate of the amount and costs of required raw materials and consumables. This activity will require teamwork and autonomous work for at least 20 hours and the attendance to 4 tutorial meetings with teachers of the course (4 h).
- Preparation for handling, safety standards, cleaning and disinfection of the equipment, and design of the processing line in the pilot plant (16 h)
- Realization of the project during 60 hours for 21 days at the Pilot Plant of food science and technology in May (4-5 h /day).
- Writing of a report containing the proposed project and the results obtained (35 h).
- Development of an audiovisual containing the description of raw materials and ingredients, main stages and conditions of manufacture of a new food, as well as the concrete description of the final product prepared by the working group (5 h).
- Tutorial meetings for mentoring, guidance and monitoring activities individually or in groups (3 h).
- Execution of several proposed evaluation activities (2 h).

Students must follow the regulations described in:

- Prevention: A guide for students at the University of Zaragoza:

https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/guia_preventiva_para_estudiantes.pdf

- Manual de seguridad en los laboratorios de la Universidad de Zaragoza y normas marcadas por la Unidad de Prevención de Riesgos Laborales:

<https://uprl.unizar.es/inicio/manual-de-procedimientos>

https://uprl.unizar.es/sites/uprl.unizar.es/files/archivos/Procedimientos/manual_de_seguridad_en_los_laboratorios_de_la

In addition, students will follow as well any instructions related to biosecurity given by the professor

4.2. Learning tasks

At the beginning of the academic year the offer of lines for the R+D+i projects will be defined. This offer may consist of (i) the integration projects performed by the teachers responsible for the participating courses in third course (Food Technology II, Applied Food Hygiene and Food Laws) during the previous year, (ii) at least one line for each of the courses related to the various productive sectors (Technology of milk and egg products, Technology of meat and fish, Technology of plant products and Enology), (iii) and finally, those proposed by groups of students using those raw materials established by the teachers of the course at the beginning of the course. The latter must be defined during the months of September-October with the teachers, so that the initial proposal can be presented by 1st November to the teachers.

Initial proposals should include a title and a brief summary (max. 150 words) in which the objective and the main needs of pilot plant equipment and raw materials for the project will be specified.

The teachers participating in the course will review and select the most appropriate proposals according to the novelty and originality, the availability of equipment, and other criteria such as the interest for promoting a particular line, rotation of topics, etc.

A number sufficient of projects will be approved to ensure that all enrolled students can develop a project work in groups of 4-5 students. This list will be made public in mid-November on the bulletin board of the degree and the ADD. Then, working groups will be established and assigned to a project and tutor. Academic CV of the students as well as studied elective courses, with a preference for students enrolled in those elective courses more related to the selected project.

Moreover, until the conclusion of the first semester, the teachers, in collaboration with expert teachers in the chosen project, and the proponent students will proceed to establish the feasibility of the projects and suggest necessary amendments prior to the second semester.

In the beginning of the second semester (February 15), each group will present their final project. This proposal should include a final title and a brief abstract (max. 300 words) in which the objective, the main equipment of pilot plant and raw materials for the project will be specified.

From this moment, four seminars will present the course, describing the scientific method, how to prepare a report, and transversal competences such as teamwork and leadership will be trained.

During the months of February and March, the teams will prepare the initial report and receive training in handling techniques and equipment. To do this, there will be materials that are part of the repository of the pilot plant including manuals, powerpoint presentations and videos on the operation of required equipment and control systems. For each project a brief economic study should be made reflecting the needs of raw materials and consumables for the realization of the projects, their costs and providers. During this period, students will receive advice from the teachers to determine the evolution of their abilities at pilot plant prior to the initial assessment step. This activity will require teamwork and autonomous work for up to 50 hours. Projects must be submitted by April 1.

Then, during the first week of April, students can visit the processing section of the pilot plant and under the supervision of tutors, can handle the equipment to be used in carrying out the project. Then, during the second week of April, the first evaluation activity will be performed to determine the quality of the proposed project and team abilities to carry out the project. Students who do not pass this phase will have 1-2 weeks to amend mistakes and present to a second evaluation. Should this not be overcome in this second chance the student must enroll in this course again the next academic year.

Projects will be intensively realized (4h / day) during the morning or evening for 3 weeks, preferably during the month of May of each academic year.

Finally, students must submit a final report and an audiovisual document of activities undertaken prior to 21 June (first call) or 10 September (second call).

The report should include the following information:

- Title of proposal
- Personal data of the student: surname, first name, ID number, address, telephone and email.
- Index- Summary (in Spanish and English)
- Literature review
- Goals
- Material and methods / experimental design / activities undertaken
- Development (Results and Discussion)
- Conclusions (in Spanish and English)
- Personal assessment of the subject
- Bibliography

Should the final report be prepared by all members of the group, indicate the responsibility of each student in the implementation and subsequent wording of paragraphs "Objectives", "Materials and Methods" Results and discussion "and"

Conclusions".

The audiovisual document should include the following information:

- Title of proposal
- Personal data of the student: surname, first name, ID number, address, telephone and email.
- Index
- Justification and objective
- Raw materials, ingredients and additives.
- Flowchart (indication of optimum treatment conditions)
- Description of the processed end product
- Bibliography

4.3. Syllabus

This is a course which integrates knowledge and skills developed through the degree in other courses. It is an eminently practical course in which each working group develops a different project related to different professional profiles of the degree. Therefore, a common program is not followed, but the programs of previous courses are used according to the needs of each type of project. As a result, a specific program is not detailed in this section.

4.4. Course planning and calendar

At the beginning of the course, the working groups will be constituted and work lines will be assigned. From these lines, students will submit a proposal and demonstrate their ability to carry it out autonomously in the pilot plant. For this, they will have at their disposal a repository of materials, powerpoint presentations and videos of protocols and operating manuals of the equipment and control systems necessary for the execution of the projects; and the possibility of training in the management of the equipment during the preparatory practices, usually during the month of April of each academic year.

After completion of the theory classes of the second period of the fourth year, the projects will be carried out in the pilot plant intensively (4 h / day) in the morning or afternoon, preferably for 15 days of May of each academic year. Given the special nature of this subject, the completion of this activity is considered mandatory. Once the project has been carried out, students must submit a report of the activities carried out on the date agreed to by the center within the regular period of the June and September exams.

The dates and key milestones of the course will be described in detail, along with other courses of the fourth grade in the Grade of CTA, on the website of the Faculty of Veterinary Medicine (link: <https://veterinaria.unizar.es/academico/plan-estudios-grado-cta>). This link will be updated at the beginning of each academic year.