

Academic Year/course: 2023/24

63291 - Innovation and Classroom Research in Industrial and Building Processes

Syllabus Information

Academic year: 2023/24

Subject: 63291 - Innovation and Classroom Research in Industrial and Building Processes

Faculty / School: 107 - Facultad de Educación

Degree: 584 - Master's Degree in Teaching Compulsory Secondary Education

601 - University Master's Degree in Teaching, specializing in Industrial and Construction Processes

ECTS: 4.0

Year: 1

Semester: Second semester

Subject type: Optional

Module:

1. General information

The course is compulsory for students of the Industrial Processes and Construction specialization, with 4 ECTS and will be taken in the second semester of the Master's program

The objective of this subject is for students to acquire the concepts, criteria and instruments necessary to design, analyse and participate in processes of teaching innovation and educational research in their specialty, with the purpose of continuous improvement of teaching activities.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), in such a way that the acquisition of the learning results of the subject provides training and competence to contribute to some extent to their achievement: Goal 4: Quality education and Goal 9: Industry, Innovation and Infrastructure.

Currently, teaching innovation and continuous improvement is also important due to the need to change methodologies that are taking place within the framework of the EHEA. In technical education, it is basically a matter of moving towards , which can be called "Learning by doing" (hands-on: competitions, prototype development coursework, including design, modelling, manufacturing, etc.). This requires greater involvement (from everyone) for better learning.

2. Learning results

1. Recognize, describe and evaluate innovative teaching proposals in the field of the corresponding specialty, identifying the theoretical assumptions to which they respond, and the problems related to teaching and learning that they try to solve
2. Explain the most important approaches and methodologies for evaluating educational activity in all its aspects and to apply some of the most established evaluation tools to specific teaching and learning situations.
3. Differentiate the different paradigms of educational research in the corresponding specialty and use them to evaluate research articles
4. Know and effectively use bibliographic and documentary resources related to educational innovation and research.

All these learning results aim to bring the Master's student, future teacher of Secondary/Professional Training, closer to the development of activities to be implemented in the field of teaching in schools.

The learning results obtained in the subject are important because the use of techniques to improve the teaching activity is essential to guarantee the efficiency of the teaching processes. For the future teacher it is very useful to have knowledge and skills related to teaching innovation, as well as integrated management of improvement processes..

3. Syllabus

The contents of the subject are:

Block 0. Context

- Introduction
- Trends in industrial process innovation
- Examples of process innovation

Block 1. Educational research

- Educational research
- Research methodologies: qualitative and quantitative
- Design and development of research projects in the specialty of processes
- Data identification strategies

- Preparation of reports.

Block 2. Teaching and educational innovation

- Design and development of teaching innovation projects
- Innovation as an improvement process

Block 3. Assessment

- Basic evaluation regulations
- Evaluation of the teaching-learning process
- Evaluation of educational innovation projects
- Assessment instruments:

4. Academic activities

The course has 4 ECTS which is equivalent to 100 h/student, with the following distribution:

- Master classes: 16 hours
- Practical classes: 14 hours
- Directed work: 20 hours
- Individual study: 47 hours
- Assessment test: 3 hours

The faculty is committed to publish in the first week of teaching the subject, a planned list of the deliveries to be made by the students to pass the subject.

5. Assessment system

Types of tests

Students who opt for the evaluation of the subject through continuous evaluation must take the defined tests of evaluation. The student must demonstrate achievement of the intended learning results through the following assessment activities:

1. Individual or small group realization of case studies related to the different modules in which the subject is structured (introduction and context, educational research, educational innovation and evaluation)
2. Individual or group practical work (2 persons maximum). Design of a complete innovation project based on a case of educational innovation/research in a subject specific to industrial and construction processes.

It will include its planning, development of the methodology to be applied and the generation of solutions for the improvement of its

learning environment summarizing the contents of the different modules. An academic report of the work and an oral presentation of the educational innovation and research project developed will be generated.

Both for the realization of the case studies and the educational innovation and research project, the student will follow the indications and criteria set by the teacher, so that the students demonstrate their competence in the organization, design and development of educational innovation and research projects in the area of industrial and construction processes

Assessment criteria

The evaluation criteria for the educational innovation and research project report and case studies are as follows:

- Structure of the report or document to be presented.
- Ability to synthesize, alternatives proposed, added value of the student.
- Ability to apply the methodologies explained in the classroom.
- Quality of the work, originality and argumentation.
- Contributions made by the student.
- Writing, spelling, formatting and layout of the document.

The evaluation criteria for the oral presentation of the educational innovation and research project are as follows:

- Preparation of the presentation: objectives, problems, sections used, conclusions obtained and future lines of action.
- Ease of tracking and time spent on each of the sections.
- Correctness and clarity of exposition, image emitted by the student at the time of exposition and language used.
- Autonomy in the defence, how the student responds to the questions posed

Likewise, the student's participation in the development of the subject will be evaluated through the following criteria:

attendance, attitude in class, willingness to do the work indicated, degree of involvement in the group and performance in the classroom.

Levels of demand (Grading criteria and requirements to pass the subject)

The grading criteria and percentages of the final grade corresponding to each of the tests defined are as follows

- Case studies: 20%
- Global subject work (teaching innovation project): 60%
- Oral presentation of the teaching innovation project: 20%

In order to pass the subject it will be necessary to obtain a 5 out of 10 in each of the sections.

Those students who do not opt for continuous evaluation or who do not pass the subject by this procedure, will be entitled to take a global test in which the key aspects of the subject will be evaluated

Standards for evaluation

Finally, it must be taken into account that the Regulations of the Norms of Coexistence of the University of Zaragoza will be applicable to the irregularities committed in the evaluation tests by means of academic fraud, as well as the application of article 30 of the Regulations of the Norms of Evaluation of Learning in relation to irregular practices other than academic fraud.

Global test and second call

In compliance with articles 9.1 and 9.3 of the Regulations of the Standards for the Evaluation of Learning of the University of Zaragoza, there is a global evaluation test, to which all students are entitled, and which will be held on the date set in the official exam calendar

Fifth and sixth calls

For the fifth and sixth call, there will be a global knowledge test in writing, whose value will be 100% of the grade