

63244 - Design of Learning Activities for Physics and Chemistry

Syllabus Information

Academic year: 2023/24

Subject: 63244 - Design of Learning Activities for Physics and Chemistry

Faculty / School: 107 - Facultad de Educación

Degree: 584 - Master's Degree in Teaching Compulsory Secondary Education
596 - Master's Degree in Teaching, specialization in Physics and Chemistry

ECTS: 8.0

Year: 1

Semester: Second semester

Subject type: Optional

Module:

1. General information

This subject supports the construction of a Didactic Knowledge of Physics and Chemistry Content in Secondary Education that facilitates a sustainable professional development, constituting a key element of training in terms of the design of learning activities that are in accordance with the competencies to be acquired, the proposed didactic objectives, the conceptual difficulties of the students and the use of formative evaluation procedures that promote such learning.

It is relevant for a professional practice committed to a society that is more aware of environmental and social challenges, sustainable and resilient. It is aligned with the Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), with special emphasis on Goal 4. Quality Education.

Subject dedicated mainly to the development of practical projects, attendance and active participation in the classroom sessions is recommended.

2. Learning results

The student, in order to pass this subject, must demonstrate the following results....

1. Is capable of transforming Experimental Science curricula into programs of teaching and learning activities and work in the Science classroom.
2. Is able to use models of design, planning and development of Physics and Chemistry learning activities in the Secondary Education.
3. Is able to elaborate teaching proposals and classroom organization that favour a significant learning of Physics and Chemistry in Secondary Education for a quality science education.
4. Is capable of didactically justifying their teaching proposal.

3. Syllabus

Didactic knowledge of physics and chemistry in secondary school from a reflective practice of the teaching profession. Importance of practical work and real examples of good teaching practices. Conceptions about learning the contents of physics and chemistry. Characteristics of scientific thinking in adolescence. Didactic transposition of the contents of physics and chemistry based on the training needs of diverse students with other approaches such as STS (Science, Technology and Society) and perspectives such as gender. Use of a methodology for the design and planning of learning activities focused on the learning needs of students, on their development in activities and on the creation of situations conducive to learning. Design and development of a teaching project in the subject.

4. Academic activities

The program includes...

- Theoretical presentations given by the faculty and collaborators of the subject
- Visits and outings outside the centre
- Experimental work in the physics and chemistry laboratory
- Small and large group reflection activities
- Preparation of individual reports
- Group elaboration of some of the design and planning tasks Presentations of both individual and group work

The calendar of activities, key dates, face-to-face sessions and presentation of assignments will be communicated through the Digital Teaching Ring (ADD) at the beginning of the teaching period

The dates of the final exams can always be consulted on the centre's website.

5. Assessment system

The student must demonstrate achievement of the intended learning results through the following assessment activities:

1. **Active participation in the different programmed sessions**, especially in the practical sessions as well as in the seminars and the sharing sessions.
2. **Student portfolio**. In this subject the portfolio should incorporate models and reflections related to the different activities, practices and outings carried out. In order to submit the partial reports throughout the term, it is required to have attended at least 80% of the theoretical and practical sessions corresponding to each of the programmed activities.
3. **Design of a didactic project**, in accordance with the methodological proposal developed in the program of the subject . Materialized in an individual written report in which the following will be assessed: Realism in the proposal of the goals and quality of the argumentation, rationale and description of the proposed learning activities.
4. **Presentation and oral defence of the didactic project**. Presentation and defence of the proposal. The following aspects will be valued: : order, clarity, communication skills, motivation capacity, use of resources, language, as well as the quality of the arguments used and their basis.

Levels of demand:

Portfolio (50% of the final grade): The individual reports of each of the programmed activities may be delivered throughout the term and will be evaluated and graded according to criteria adapted to the typology of each one of them, depending on their "theoretical or practical" character and their "individual or group" performance.

Written report of the didactic project (30% of the final grade): The project must be consistent with the methodological proposal presented in the subject.

Presentation and oral defence of the didactic proposal (20% of the final grade): It will be held during the last two weeks of the term. The presentation will be developed in a maximum time of 15 minutes.

In order to make effective the calculation of the weighted average in the final grade, it is necessary to have obtained at least 3.0 out of 10.0 in the sections of Portfolio, Didactic project and Presentation and oral defence of the didactic proposal

In the two calls of the year, the subject will have a global test that will be fixed in the academic calendar and that will consist of the delivery and oral defence of the reports of all the work done and indicated in the previous section: portfolio, didactic proposal and its presentation and defence

It is not necessary to hand in on the date established for the global test those assignments submitted and passed during the four-month period, except for those students who decide to revise and improve them in order to obtain better grades.

Fifth and sixth call:

In the case that this circumstance occurs, the same evaluation criteria and requirements specified as ordinary and general for the subject will be applied

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.