

Strengthening Teaching Competences in Higher Education in Natural and Mathematical Sciences



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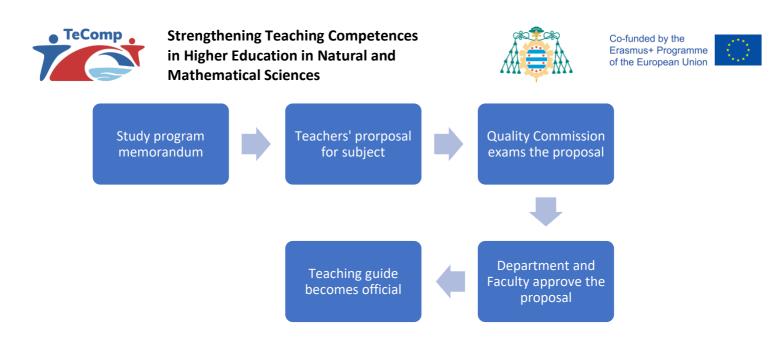
Report on situation of higher education, the application of pedagogical methods and IT technologies at the University of Oviedo

General framework

In the University of Oviedo the teaching methods and the organization of the teaching are coordinated by the teaching departments (which provide the teachers, and are organized by knowledge fields) and the faculties (which have the competencies in the quality control of the teaching practices). Furthermore, at university level, there exists a body called Institute of Innovation and Education Research (INIE, in the Spanish acronym), which is responsible of teacher training and it is also supported by the Centre for Innovation (C1NN), which provides technological support. In the following pages we will describe the pedagogical methods and IT technologies as well as the teacher training.

Teaching methodology

In every study program (bachelor's and master's degrees) there exist a memorandum, approved by the National Agency for Quality in Higher Education (ANECA), establishing a framework for the type of methodologies which will be used in every subject and the distribution of these types. Every year, the teachers who are assigned a course must present a teaching guide specifying those methods for the following academic year: what type of teaching methodology, what type of assessment, the weight of every assessment instrument, etc. This teaching guide must fit within the framework established in the memorandum. This is controlled by a Quality Commission in every faculty, and also the departments must approve the teaching guides. Therefore, teachers have a certain margin of freedom to decide, but they cannot change the methodology as it was established in the memorandum. The following figure illustrates the process:



Types of teaching sessions

The University of Oviedo acknowledges 4 type of teaching sessions:

- Expositive lectures: it is conceived for greater groups of students, having a less active role. The teacher assumes the leading role, conducting the lesson by expositions, presentations or explanations (written or oral, generally supported by technologies). It does not mean necessarily that students do not participate, because it depends on the group sizes. The University of Oviedo is very variated, so in some faculties groups for expositive lectures consist of 30 students, while in others they consists of 80 (the maximum size allowed at university level is 100 students for group). Thus, some teachers can concede a more active role to their students even during the expositive lessons.
- Practice lectures: this type is for medium-size groups, generally for each expositive lesson group there are two practice lectures groups (average size is between 20 and 40 students per group). As it names says, practice lectures are conceived with a basically practical orientation, thus, contrary to expositive lessons, here the students' role becomes much more active. Case studies, discussion groups, problem based learning, project based learning, problem solving, are the usual teaching methodologies for this type of lessons, obviously with differences depending on the discipline which is taught.
- Lab lectures: the size of these groups is limited by the physical restrictions on the laboratory which is used (number of seats, number of computers, etc.) and there will be always less than 15 students per group. Therefore, this is a type of session in which



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there is space for a great amount of autonomous work by the student, supervised by teacher, who can personally follow each student's progress.

• Group tutorials: these are sessions conceived also for smaller groups, as lab lectures. They consist of a periodical meeting with the teacher to analyze the students' learning progress by solving doubts, underlining particular ideas which could remain unclear, or organizing focus groups to discuss about a certain problem.

For each degree, and for each subject, the distribution of expositive, practice and lab lectures and group tutorials varies. Therefore it is not possible to give a general overview. Even within the same degree, there are great variations from one subject to another, depending on the content and the needs of lab using.

Online degrees

Before the pandemic, the University of Oviedo already had an online bachelor's degree. In that case, teachers must obtain an advanced level certification in the Virtual Campus. Courses are offered by the INIE and they consist of different contents (always at advanced level): corporative software (Office 365, Excel, Access, Onedrive), audiovisual resources for teaching, social networks and teaching, and Moodle.

Within the online degrees the University establishes different type of methodologies that must be accomplished:

- Asynchronous lessons: they are generally recorded by the teacher and uploaded to the Virtual Campus.
- Synchronous meetings: at least once a week, there must be one online meeting that could include a lesson or practical aspects.
- Self-assessment tasks: to help students' self-regulation in their learning progression.
- Teacher-assessed tasks.