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Support Guide for drafting, implementing and evaluating learning outcomes

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PROLOGUE

The kind of learning that corresponds to higher education depends on how we define its mission, a passionate debate, but in which it is difficult to achieve a far-reaching consensus. However, perhaps it is possible to agree on some key issues that are essential at present.

Currently, and certainly in contrast with those who see its role as advocating a more liberal type of training, the predominant concept links university education to professionalization, in part because the economy of advanced societies requires professionals with high level qualifications. It cannot be said, however, that this is a new idea. To mention just a few examples, medieval universities already assumed the training for certain professions and, in the nineteenth and twentieth centuries, universities were responsible for the training of administrative staff and bureaucrats; Ortega y Gasset (1930) used to encourage universities to perform this task successfully; or, finally, such prestigious institutions as the Massachusetts Institute of Technology and the Harvard School of Economics were created to provide education to fulfil the needs of a given period. It is true, however, that at present, this relationship has become more important, as economic development is much more linked to quality, especially university education.

In recent decades, this understanding of university education has been enhanced for two reasons, that are related in part. Firstly, the nature and organization of work has changed in a globalized world and, today, highly qualified professionals with certain characteristics are required, a fact that alters what society demands of universities: it is no longer enough for students to assimilate the knowledge developed to date, but, due to constant and rapid scientific and technological developments, university education is expected to prepare students to assimilate foreseeable future changes and even play a significant role in them.

Furthermore, the university itself, subject to such powerful forces of change as the aforementioned technical and economic developments as well as globalization, the democratization of entry, new technologies or the internationalization of all areas of activity, must undergo profound changes that also affect, and strengthens, its relations with society. Once again, it has been suggested that students be able to work and contribute to a constantly changing and very open world, from multidisciplinary and multicultural perspectives, as the future before us is uncertain.

As Bowden and Marton (1998) argue; how do we teach, with what we now know, to deal with an unknown future and even create one from the transformation of what we are and know today? A good option seems to be to focus on the ability to continue acquiring knowledge and training throughout life to adjust to new circumstances and to make decisions and solve problems in complicated situations and often with many unknown factors and, therefore, with high degrees of uncertainty.

In any event, the educational challenge is important and cannot be avoided. We must acquire, therefore, knowledge and competences related to certain disciplines[1], on the one hand, but also general competences to ensure, firstly, the ability embark on lifelong learning with the assistance of new advances and discoveries, as needs arise. In addition, we must also develop the ability to communicate and work

[1] These will affect to a great extent other types of learning.

in multidisciplinary and multicultural teams and, of course, to make the best use of all available resources.

It is undeniable that university education becomes, in an advanced society, a type of rite of passage, not only to acquire a certain desirable level of culture, but also a professional status that will significantly determine the future of the individual. Learning qualifies a person to perform many different actions, such as remember or recognize information or facts, understand abstract concepts or principles, explain facts, reason, argue, understand, apply knowledge in solving practical or theoretical problems, make judgements or make and justify certain decisions. But if we are pursuing high-quality training for a profession, learning is, above all, a different way of perceiving reality from the point of view of a discipline (or at least that part of reality to which a particular discipline refers). We are not just talking about accumulating knowledge, but rather transforming information into knowledge on which to base our professional performance and, furthermore, to judge it, assess it and use it to implement changes.

This now brings us to the highest level of learning and achieving it requires a coherent and well-informed approach by educational leaders and an in-depth approach (vs. a superficial approach, in the meaning of Marton and Säljö, 1976a and 1976b and many subsequent university training specialists) by students. But this in-depth approach is not only a characteristic of students; it develops through their interaction with an environment that favours this type of learning that transforms the individual learner and allows him to identify the crucial aspects of a situation or text so that they can be understood within the framework of a discipline and eventually be used to solve a problem or deal with a situation with the necessary resources (i.e. communicate, gather relevant information, argue...) .

In this context, competences, understood as the ability to implement knowledge and skills, are, on the one hand, something students need to learn and, on the other hand, allow the application of knowledge to introduce us to other forms of learning given that they serve to compare a way of understanding things; this form may be right or wrong and, indeed, this would not matter too much from the point of view of learning, provided that students take the opportunity, with the assistance of their teachers, to reflect on the results of their activities and learn from this feedback. In addition to these positive aspects, competency-based education also serves to define, before starting the learning process, expected outcomes and, in that sense, it guides the learning (and teaching) experience and is an excellent criterion for assessing process outcomes.

However, this approach to education has been severely criticized, especially in higher education, in contrast to other educational levels in which it could be more relevant as they target more mechanical and closed options, such as vocational training for example. The main criticism can be summarized in the fact that university education is aimed at more complex professions, in which there are not usually single and closed solutions but, on the contrary, very flexible solutions that are responsive to changing circumstances; hence, exclusively focusing on competences could limit the scope of education if understood and applied in an excessively narrow-minded and specific manner (Barnett, 1994, Edward and Knight, 1995). This would not apply, however, when working with them in the context that we have previously explained, where they constitute part of the educational objectives, which can be substantial. It idea is, in short, to admit that throughout a study programme, not only a certain role should be learned, but also

mental attitudes and habits that can promote creativity, flexibility and lifelong learning.

We are faced, then, with two ways of understanding the competences and learning outcomes, which, considering extreme views, would be as follows. On the one hand, a way that defines them in the broadest terms as meaningful professional and disciplinary tasks, for which the competences are an important part of the educational process and an opportunity to apply and contrast a way of understanding things and gathering the necessary feedback after due reflection. On the other hand, a view that sees them as the ultimate and unique end of education and defines them exclusively as atomized and observable responses to specific situations, even denying the crucial role of in-depth theoretical understanding when undertaking a profession. From this perspective, we could say that the choice is not in terms of competences or not, but on how they are understood and the role they play in educational objectives.

An essential principle of education is that you learn what you practice, always accompanied by feedback and reflection. We mentioned above that the main educational challenge that universities have is to train students to become good professionals and citizens for an uncertain future and to help create that future. If this is so, it follows that students should work in diverse and varied environments, so that they are able to perceive regular aspects through this diversity of contexts, as well as the relevance and limitations of their knowledge; the idea is to learn what knowledge can be applied to a certain range of situations and what cannot. Similarly, throughout their training they will have faced situations and open problems that will have required them to make decisions in uncertain conditions, as can often be expected to happen in their careers. All this must take place in a tolerant environment that allows trial and error. These conditions are those that can make lifelong learning possible, as students will have learned during their academic experience to deal with and resolve new situations that involve a high degree of uncertainty. An open and stimulating environment which, incidentally, should not only exist within the classroom but also in the institutions where training takes place.

According to Bowden and Marton (1998), an environment that facilitates quality learning is based on the following, among other aspects:

- A variety of methods that are suitable for the acquisition of different types of learning: concepts and theories, but also competences, skills or attitudes and values. This diversity of methods makes it possible to achieve the learning outcomes from various perspectives, so that they can be grasped more fully. We might add that with only two limitations: a) that the use of a method must be instrumental to achieve the desired objectives and b) that the approach as a whole is consistent so as not to disperse the student's attention with a variety of changing methodologies.
- The consideration of learning and teaching as a process of dialogue between academic staff and students and also between students or between students and certain situations or topics. In reality, different methodologies could be considered opportunities to initiate and cultivate this dialogue.
- Inclusion of different methodologies within a coherent framework that meets the above characteristics. In this sense, no teaching strategy is the only solution, but rather an excuse to invite students to act and, on the basis of their contributions, to create opportunities for discussion and reflection.

- Draw on realistic activities that students can recognize as socially valuable, as a means to stimulate their interest and motivation
- The teaching approach should be based on the students' previous knowledge as a the best way of ensuring success.
- The proposal must be realistic, adapted to available time and resources.

Of this Support Guide for drafting and assessing learning outcomes, we can say, first of all, that it is a timely document; in fact, a document of this kind, proposed by an important institution, has probably been necessary for some time. On the other hand, providing a guide that is concise while also sufficient and therefore useful, that will provide flexible guidance on how to draw up learning outcomes and proceed to their development and evaluation, is no easy task; not so much due to the difficulty of the task as to the controversies and possible misunderstandings that have arisen and to the many papers on this topic from different European institutions. In fact, quite possibly this Guide will not only clarify but also simplify the task that has been performed in many colleges and schools. Indeed, this Guide is an excellent document, very well documented and in line with the main guides in use, which collects and gives meaning to the relevant European documents, always numerous and from various sources, and to the complete study programme design, implementation and revision process. This greatly simplifies the work of academic staff when addressing this task and also provides examples of various disciplines that clearly illustrate what has been previously explained. All this with a broad and comprehensive sense of the most appropriate competences for higher education.

Therefore, we can expect this to be a valuable reference document to address the challenge currently facing programme degrees, which is their accreditation ex-post.

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1. WHY THE NEED FOR THIS GUIDE

With this *Support Guide for drafting, implementing and evaluating learning outcomes* ANECA aims to present a number of guidelines that must be taken into account when drawing up new study programmes and their subjects, as well as any changes resulting from considerations based on internal quality assurance procedures and re-accreditation processes to which all study programmes are subject under Spanish legislation.

The focus, guidance, taken from the documents of the European Higher Education Area, as well as the contributions of many authors, highlight the need for university educational systems to review their key pillars and concentrate on providing in-depth learning for university students and improving students' experience at university.

Thus, one of the new and key elements of new study programmes are learning outcomes that, in an initial approach to a definition, are elements of the curricular design that help describe what is expected of a study programme or of part of one. With this intention, ANECA aims to provide the university community with a tool to help clarify an on-going issue such as what learning outcomes are and what they are for, as well as some examples of good practices.

The European Commission, in its document, *Using Learning Outcomes,* notes that their use has an impact on education, training actions and on policies, emphasizing student learning by making it explicit. Learning outcomes represent one of the basic components for the transparency of higher education systems and to be able to recognise the qualifications of professionals.

The establishment of the European Credit Transfer System (ECTS) in official bachelor degrees and postgraduate studies has required the introduction of a new student-centred training model in higher education. This has required a methodological change in recent years: from a content-based approach - focusing on what academic staff teaches - to a results-based approach - i.e. what students are capable of understanding and doing once they successfully reach the end of their learning process.

This reformulation of the organization of a higher education programme has led to the introduction of a new concept: *learning outcomes.* Its use and implications have been key in promoting the student-based teaching-learning model in Europe, as its correct formulation is the basis to calculate the dedication of students and, therefore, the allocation of ECTS credits.

Using learning outcomes has increased the transparency of the results of European higher education and its qualifications, as its use makes the objectives of the degrees more explicit and, therefore, clearer and easier to understand for students and employers. It also makes it easier to compare qualifications across countries of the European Higher Education Area (EHEA), promoting academic and professional mobility.

Consequently, learning outcomes are of interest: a) for universities when defining their degrees and training of students, primarily through their courses; b) at domestic level when defining qualification frameworks or external university quality assurance evaluations; and c) in the international arena with a view to promoting the recognition, mobility, and transparency of degrees between countries.

In Spain, however, their use has been blurred by the concept of *competence,* a term that is much more widespread in our higher education system than *learning outcomes.* In fact, to date, the concept of competences has been used both in law and in the academic world almost exclusively to express what a student should know, understand and be able to do after graduation.

Programmes for undergraduate studies, master degrees and doctoral studies accredited to date include, in many cases, a large number of competences that students must prove they have acquired on graduating, including some that are difficult to quantify. ANECA, therefore, has considered that it is important to produce a support guide on learning outcomes for universities, coinciding with the re-accreditation ex-post of official university bachelor degrees, master degrees and doctoral programmes. ANECA invites the universities to take advantage of preparing the re-accreditation self-assessment report to reflect on the competences included in the degree proposal, with a view to changing them, if necessary - through the relevant change process - into real learning outcomes.

ANECA, aware that universities are responsible for defining the outcomes that their students must achieve at the end of the degrees offered, as well as the most suitable mechanisms to evaluate whether those learning outcomes have been achieved or not, is presenting this guide to provide guidance and support - not in a mandatory manner - hoping that the information it includes will help the universities to move forward in line with European recommendations towards a greater focus on learning outcomes, already widely established in many European countries.

More specifically, this guide aims to provide universities, assessment committees, educational authorities and other stakeholders interested in university quality with guidance in identifying, defining, drawing up, using and evaluating students' learning outcomes.

The document has been divided into four main sections. The first concentrates on defining what learning outcomes are - whether for degrees or subjects - their advantages and limitations. The second part provides practical guidance on how to draw up learning outcomes and how to link them to teaching actions and evaluation methods. The next section in the guide will guide readers in relation to the connection between learning outcomes and the Spanish Qualifications Framework; ending with a section dedicated to quality assurance and learning outcomes. In addition, a series of appendices that provide practical examples of all the concepts included in the guide have been included.

This document is neither the panacea that seeks to overcome all the challenges of changing from a content-based approach to a learning outcome-based approach nor a text with a universal pedagogical goal; it intends to provide, mainly university professors who are interested in this paradigm shift, a roadmap to facilitate the adaptation process. We also know that not all programme degrees or different scientific cultures are equally conformable to this new approach and that even within the same degree, it will be more difficult to adapt certain subjects to these changes, but our obligation as a university system is to be in line with the consolidation of European Higher Education Area and its principles, among which, a fundamental pillar is the structuring of study programmes in terms of learning outcomes.

2. WHAT ARE LEARNING OUTCOMES?

From an educational point of view, learning outcomes are considered as one of the cornerstones of the Bologna process. Over the years, a number of organizations and authors have offered different approaches to the concept and definition of learning outcomes:

> *Learning outcomes are explicit statements of what we want our students to know, understand orbe able to do as a result of completing our courses.*
> (University of New South Wales, Australia)

> *Student learning outcomes is defined as the knowledge, skills and abilities that a student has attained at the end (or as a result) of his or her engagement in a particular set of higher education experiences.*
> (Council for Higher Education CHEA, EE.UU.)

> *Learning outcomes are statements of what is expected that the student will be able to do as aresult of learning the activity.* (Jenkins y Unwin, 2001)

> *A learning outcome is a written statement of what the successful student/learner is expected tobe able to do at the end of the module/course unit or qualification.* *(Adam, 2004)*

> *Learning outcomes are statements of what is expected that the student will know, understand and/or be able to do after completion of a process of learning.*
> *Tuning Educational Structures* Glossary

The ECTS Users' Guide notes that learning outcomes are ***verifiable statements*** *of what* ***learners*** *who have obtained a particular* ***qualification,*** *or completed a* ***programme or its components, are expected to know, understand and be able to do.***

The *Framework for Qualifications of the European Higher Education Area* defines learning outcomes as *statements of what a learner is expected to know, understand and/or be able to do at the end of a period of learning.*

In the Spanish context, Article 2 of Royal Decree 1027/2011, of 15 July, setting out the Spanish Qualifications Framework for Higher Education (MECES), defines learning outcomes *as what students are expected to know, understand or be able to do.*

As can be seen, the different definitions do not differ too much. For the purpose of this guide, we shall consider the following definition:

> **Learning outcomes** are statements *of what a learner is expected to know, understand and/or be able to do at the end of a period of learning*.
>
> *A Framework for Qualifications of the European Higher Education Area, p.29.*

2.1. Advantages and limitations of using learning outcomes

Learning outcomes provide greater clarity and transparency for higher education systems and qualifications. They are important tools that clarify the results of learning for students, citizens, employers and educators (Adam, 2004).

For the University, they are a very useful tool for planning and organizing learning as they clearly state the expected results of the the teaching processes and make these more easily understood by teachers, students, employers and other agents in the university system. On the one hand they help guide the academic staff towards achieving certain goals that have been made explicit in terms of knowledge and competences. On the other hand, they enable students to know, beforehand, the challenges they will face throughout their education, i.e. what is expected of them at the end of their studies and how the learning achieved is going to be evaluated. Furthermore, the use of learning outcomes enhances the consistency of the student-centred teaching-learning model as it establishes a connection between learning activities, assessment methodologies and results (see section 3.4. of this guide).

At domestic level, from the point of view of the Spanish Qualifications Framework for Higher Education, the use of learning outcomes makes it possible to align qualifications with the requirements of a good university education. Regarding the labour market, they offer employers information on what graduates will know and be able to do. Furthermore, the use of learning outcomes is a good reference regarding the quality of the teaching, since defining them requires academic leaders to reflect on the desired results of the degree they are offering and, therefore, they provide guidance to internal teaching quality assurance systems to achieve those results. Meanwhile, quality assurance and accreditation agencies see learning outcomes as essential criteria for their external quality assurance systems.

Internationally, their use makes it possible to compare learning and qualifications between countries, facilitating the recognition of students' achievements. This has an immediate impact in terms of student mobility by increasing the transparency of the different international higher education systems.

Overall, we can state that learning outcomes are an excellent tool when it comes to structuring a study programme because:

- ✓ They promote a student-centred approach when planning study programmes, encouraging a change from teaching models based solely on *input* (focused on what the teacher taught in the classroom) to those based on *output* (on students and learning), providing a more balanced approach that addresses both *input* and *output.*
- ✓ They provide the higher education system with clarity and transparency, promoting coherence between training, evaluation and results, encouraging

the integration and consistency of different subjects with the overall results that students are intended to achieve.

- ✓ They provide better information to teachers, students and employers to the extent that students know exactly what is expected of them, and employers can know what graduates know and are able to do when starting a new job.
- ✓ They help to encourage the mobility of students and improve the comparability of qualifications at an international level, as they are in line with the qualifications frameworks of other countries.

Thus, we can conclude that learning outcomes are:

- A key element in the design and in the process of teaching and learning.
- As a descriptor of the intended results of a study programme.
- A facilitator when it comes to preparing other elements of a curricular design, such as training activities and evaluation systems.
- An element that links with and analyses other study programmes, facilitating the fundamental goals of the European Higher Education Area, such as transparency, mobility, accountability, employability or the attractiveness of the university system.

The use of learning outcomes is supported by education policies and by the daily work of some European universities. The concept of learning outcomes and their implications can probably be considered as one of the key issues in recent years in the field of European higher education. However, it is important to consider that their use can lead to some of the following limitations:

- Establishing in advance what students are expected to achieve by the end of the learning period may limit the teaching-learning processes of a more exploratory or experimental nature that adapt based on student diversity and that are considered of interest. Those who have reservations about using a learning outcome-based approach argue that it goes against a liberal conception of education and reduces academic staff to mere facilitators (Adam, 2004).
- What students know, understand and are able to do at the end of the learning period is, many times, more than the learning outcomes describe. A programme's learning outcomes may not describe all the learning achieved by students, since there are issues that are beyond description. This is an issue, however, which has to do with the appropriate definition of learning outcomes that, in any event, will be considered the minimum level required. Moreover, these constraints are less if the term is defined and understood in a broad sense and adjusted to what we expect from higher education, as we have tried to achieve in this Guide. In any case, the limitations will be fewer if based on a suitable formulation of learning outcomes.
- Defining a study programme in terms of learning outcomes requires dedication, effort, resources and overcoming obstacles. Changing the approach towards a student-centred model requires awareness by university academic staff, becoming familiar with its use and dedicating the time and effort required to think about the outcomes that students should achieve, as well as teamwork to achieve common and integrated objectives at a higher level. It therefore requires, in many cases, a significant change that often takes years to become effective.

2.2. Difference between objectives and learning outcomes

In general terms, the difference between the objectives and learning outcomes of a subject or a programme degree is not always clear. In many cases the two concepts are confused or used interchangeably as synonyms. The reason for this confusion is that, in many instances, objectives are drawn up based on the learning intended or even in terms of intended learning outcomes.

However, it is worth noting the differences between them at a theoretical level:

- The objectives of a subject/course are directly related to the teacher's intentions. They are typically general statements that indicate the fundamental contents, approach, direction and purpose behind the subject or programme from the teacher's point of view. Examples of objectives are:
    - *Provide a first approach to the study of the evolution of living standards throughout history.*
    - *Introduce students to the basic principles of linear algebra.*
- Learning outcomes, unlike the previous cases, are directly linked to the students and their accomplishments. They are measurable and often observable (or their consequences are, for example, based on what a student knows and can prove by performing activities that require specific knowledge). On the other hand, objectives, being intentions are more difficult to measure. Examples of learning outcomes are:
    - *Identify risks in civil engineering works.*
    - *Analyse audio-visual languages and their educational implications.*
    - *Describe the different types of pathophysiological mechanisms and processes that trigger eye diseases.*

Note how, when talking of objectives, the key element is the academic staff. However, in the case of learning outcomes, students are the central elements and are the responsible parties.

Fry et al (2000) examined the differences in the vocabulary used when describing learning outcomes and objectives. The following table displays some examples of verbs used in both cases[2].

Table 1: Examples of verbs used when writing objectives and learning outcomes.

Objectives	Learning Outcomes
Know Comprehend Determine Understand Capture Become familiar with	Distinguish between Choose Gather Change Identify Solve, apply, list

[2] See section 3.2. of this guide (Guidelines for writing learning outcomes).

2.3. Programme learning outcomes vs subject learning outcomes

There is a clear difference between the learning outcomes regarding education in general and learning outcomes for specific modules, topics or subjects. The former refer to what students will know, understand and be able to do as a result of the overall teaching process. In other words, they are the learning outcomes that a student is expected to achieve at the end of the learning process in order to obtain a qualification or a specific degree. On the other hand, subject, topic or module learning outcomes identify what students are expected to know, understand and be able to do at the end of a relevant academic unit. In this case, learning outcomes are directly linked to a particular teaching strategy and to specific assessment methods. This alignment between outcomes, teaching activities and assessment strategies makes the entire teaching-learning process transparent and ensures the internal consistency of the modules and subjects[3].

Although the guidelines for describing programme or subject learning outcomes are the same[4] - i.e. they are formally the same - there are important differences that should be taken into account when defining them on one level or another:

- Learning outcomes for programmes should include the knowledge, competences and *key* attitudes that graduates are expected to acquire from the teaching process. In other words, they indicate *key learning items*.
- Subject learning outcomes should contribute to achieving programme learning outcomes. Moreover, they should be in line with overall programme outcomes.
- And, conversely, programme learning outcomes should be prepared in the preliminary phases in order to ensure that they are acquired in the end. For example, many outcomes are evaluated in the final project, but it is risky not to have provided previous opportunities to acquire them.
- Acquiring subject learning outcomes should imply acquiring the learning outcomes specified for the programme; however, these should not be simply a compilation of the former, rather a key compilation of what students are expected to achieve or develop during the study programme in question, as certain outcomes require higher levels of complexity, i.e. they are not the mere sum of the parts.
- Programme learning outcomes must be in line with the corresponding level of the Spanish Qualifications Framework (MECES).
- Subject learning outcomes are much more *specific and concrete* statements than those related to programme learning outcomes in general. The latter refer to *broader and* more *general* issues to be achieved by students.

2.4. Learning outcomes and competences

The terms, *learning outcomes* and *competences, are linked to a wide range of concepts.* The dividing line between one and the other is not always clear and often

[3] See section 3.4. of this guide (Guidelines for aligning learning outcomes with learning activities and evaluation methods).
[4] See section 3.2. of this guide (Guidelines for writing learning outcomes).

depends on the context in which they are used. Incidentally, Adam (2004) states the following: *The relationship between learning outcomes and competences is a complex area: the subject of some debate and no little confusion.*

Learning outcomes are commonly expressed in terms of competences, which, in many countries, has led to both terms being used interchangeably and becoming treated as synonyms, hence the problem when it comes to clarifying the differences between them.

- The European Qualifications Framework for lifelong learning (EQF) clearly distinguishes between the two concepts, since competences are considered as part of the learning outcomes. These would be defined in terms of knowledge (assimilation of information, data, theories, etc.), skills (ability to apply knowledge and use techniques to complete tasks and solve problems) and competences (the proven ability to use knowledge, skills and personal, social and methodological abilities in work or study situations and for professional and personal development). Competences are described in this framework in terms of responsibility and autonomy.
- The *Tuning* Project (Educational Structures in Europe) considers that competences combine knowledge, understanding, skills, abilities and attitudes and are divided into specific and generic competences. According to *Tuning,* competences include "knowledge and understanding" (theoretical knowledge of an academic field, ability to know and understand), "knowing how to act" (practical application of knowledge to specific situations) and "knowing how to behave" (values as an integral element in the social context). *Tuning* sees learning outcomes, in turn, as an expression of the level of competence acquired by a student.
- In the EHEA Qualifications Framework *(A Framework for Qualifications of the European Higher Education Area)*, learning outcomes are the end product of teaching. The term *competence* is used in a broad sense allowing the gradation of abilities or skills, and it is considered to be included in the concept of learning outcomes. However, throughout the text, both concepts are used interchangeably, often making it difficult to distinguish them.

Unlike what happens in the rest of Europe, in the case of Spain, the use of the term *competence* is much more widespread than *learning outcomes.* In fact, to date, the concept of competences has been used almost exclusively to express what a student should know, understand and be able to do after graduation. Indeed, the legislation on higher education uses the term competence to refer to what has been previously defined as learning outcomes.

Thus, Royal Decree 1393/2007 of 29 October, on the organization of official university studies stated in its preamble that "the core element of the study programmes leading to the attainment of a degree must be the acquisition of *competences* by students, expanding, without excluding, the traditional content-based approach and teaching hours". Annex I indicates that, in pursuit of the correct accreditation ex-ante, universities must provide "the generic and specific *competences* that students should acquire during their studies, and which are required to grant the degree." The learning outcomes concept is mentioned, although not explicitly, in the preamble ("European credits, ECTS, are proposed as the unit to measure *learning outcomes* and the volume of work performed by students to achieve the objectives set out in the study programme") and in

paragraph 8 of Annex I (the university must submit the" university's general procedure regarding the assessment of students' progress and *learning outcomes).*

In the case of degrees that qualify for the practice of a regulated professional activity, the corresponding ministerial orders refer to the *competences* that students should acquire, and do not mention the term, learning outcomes, at all.

The definition of *learning outcomes* appears explicitly in Article 2 of Royal Decree 1027/2011, of 15 July, setting out the Spanish Qualifications Framework for Higher Education (MECES), as *what students are expected to know, understand or be able to do*.

For the purpose of this guide, learning outcomes shall be considered as concretions of competences for a certain level and the overall result of the teaching-learning process.

2.5. Expected features of learning outcomes

Learning outcomes describe what students should be able to do at the end of the training process or of the subject. Therefore, in order to be useful, they should ideally include a series of features that are listed below:

1. They must be clearly defined to be understood by all the agents of the university system, avoiding any ambiguity.
2. They must be observable and measurable to the extent possible, establishing, in any case, clear criteria for their evaluation.
3. They must be feasible and attainable by the students at the end of the learning period, while also posing a challenge that will spark their interest in learning. Finding this balance is part of the success of working with learning outcomes.
4. They must be designed to ensure their suitability and relevance with regard to the subject and/or teaching.
5. The learning outcomes for each subject must be directly related to the learning outcomes of the teaching process in general.
6. Learning outcomes must properly match the level set in the Spanish Qualifications Framework for Higher Education (MECES).

2.6. What learning outcomes should not be

Learning outcomes should not be a wish list of what we want the students to know, understand and be able to do at the end of the teaching process; they must be a set of statements that students can *achieve* if they successfully complete each one of the subjects that make up the study programme while also representing a breakthrough in their development.

Learning outcomes should be considered as tools that can improve a student-centred teaching-learning process, not as an end in themselves.

Learning outcomes should not be an endless list of activities that the teacher is planning to deliver in the classroom; they should focus on relevant aspects that students are expected to achieve at the end of a certain period of learning.

3. HOW ARE LEARNING OUTCOMES PREPARED, EVALUATED AND REVIEWED?

This section contains a series of practical guidelines that seek to support universities in the task of defining learning outcomes whether in the overall framework of teaching or in the context of the subjects that the make up the teaching programme. It will also provide guidance on how to evaluate them and implement them in learning activities and evaluation methods. First of all, we shall present the characteristics expected of any learning outcomes regardless of the content or level of education and we shall end with a section offering a list of guidelines that can be applied to review, correct and reconsider any learning outcomes that have been defined with a view to the permanent improvement of teaching through their redefinition.

3.1. Guidelines for writing learning outcomes

Learning outcomes should be clearly described so that they can be understood by the teachers, students, the university community, employers, quality assurance agencies and society in general.

3.1.1. The importance of a correct formulation

Learning outcomes are defined through statements or phrases that contain a verb that expresses an action, content or object on which the student has to act and a context or conditions in which the actions will occur. Different verbs can be used to describe different levels of learning. Thus, depending on the complexity of the topic, the required degree of depth or the level of autonomy required by the student, we will have to use different verbs when writing out learning outcomes. In principle, verbs such as *describe, explain* or *list* relate to basic levels of learning, while verbs such as *interpret, estimate or evaluate* are linked to more advanced levels of education; however, verbs such as *explain* or *evaluate* shall refer to learning outcomes that are more or less important depending on whether students are creating the response ex novo or, simply, repeating something that they have read or heard.

Given that one of the most important characteristics of learning outcomes is that they are measurable, it is significant that the verb chosen to describe them is not ambiguous or indeterminate. Therefore, it is preferable to avoid verbs such as *understand, know* or *become familiar with* when identifying learning outcomes, as establishing the level of understanding of a subject or the amount of knowledge required of something is ambiguous and difficult to assess. However, knowledge is important in higher education and, therefore, rather than discard it, we may find we have to assess knowledge indirectly by asking students to do something that requires a certain level of knowledge. Thus, "*write a report*", for example, requires being familiar with the most relevant information, selecting it, assessing it and expressing their views in the form of conclusions or recommendations.

There are numerous references in European literature regarding best practices when describing learning outcomes. However, the one thing all sources agree on is

the importance of using, when describing them, unequivocal action verbs[5] and taking Bloom's *hierarchy of learning objectives* into account (Bloom, Englehart, Furst, Hill and Krathwohl, 1956) as the basic tool for selecting the most appropriate action verb.

3.1.2. A useful tool for writing learning outcomes

What is commonly known as Bloom's Taxonomy or hierarchy is frequently used to describe learning outcomes as it offers a structure that illustrates different levels of complexity of learning outcomes and a list of action verbs that help in identifying learning outcomes (Kennedy, 2007).

While we shall provide an in-depth description of a specific hierarchy in this support guide, other classifications, based on specific needs, expectations, understandings or preferences can also be taken into account when writing learning outcomes. For example: the SOLO taxonomy (Biggs and Collis, 1982) or the revision of Bloom's taxonomy (Anderson and Krathwohl, 2001).

Here, we shall use Bloom's proposal as it is one of the most widely used. According to the work of Benjamin Bloom and his collaborators (*Op. cit.*), learning encompasses three distinct domains. However, they are frequently combined in the learning outcomes of higher education: the cognitive, the affective and psychomotor domains.

a) The cognitive domain is related to the intellectual process and was the domain most developed by Bloom. His research focused on developing a classification of the different cognitive levels during students' learning processes.

b) The affective domain refers to the emotional component of learning, namely, attitudes, values and ethics.

c) The psychomotor domain encompasses the physical skills and those relating to coordination, which are also important when speaking of certain types of learning activities.

Although, as mentioned, these domains are often combined, especially in higher and more complex outcomes, treating them separately can help to provide a better analysis when describing learning outcomes in a more comprehensive manner.

THE COGNITIVE DOMAIN:

While these components have been developed further, in more detail, by other authors, Bloom's classification is still interesting, in part, for its simplicity. According to this author, the learning that students perform in the cognitive domain evolves according to six categories that follow each other in a hierarchical relationship: knowledge, comprehension, application, analysis, synthesis and evaluation.

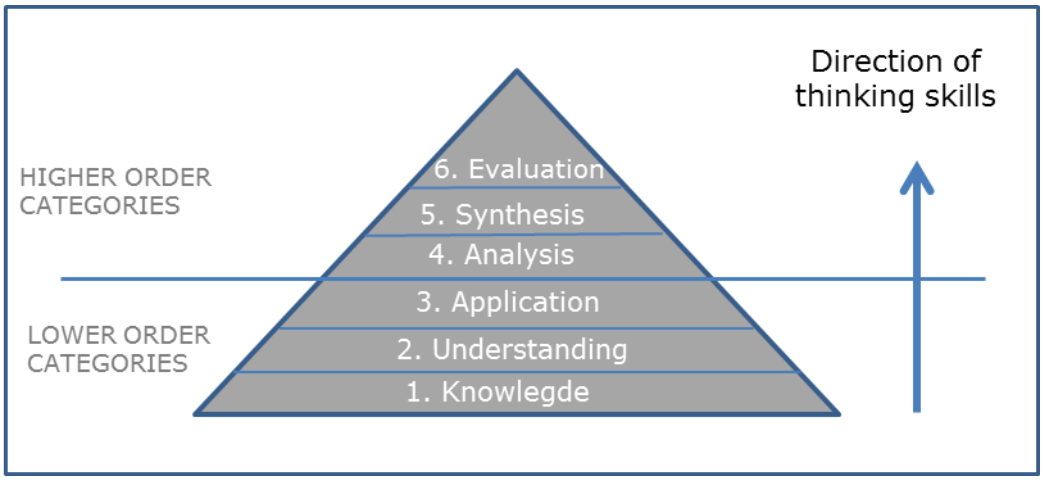
1. Knowledge: students recall and memorise information, without necessarily implying they understand it.
2. Comprehension: Students understand the information.
3. Application: students use what they have learned in new situations, i.e. they resolve problems using the ideas and concepts learned.

[5] Verbs that describe an action that can be performed. They express something a person can do.

4. Analysis: Students are able to distinguish and separate the information learned into its principles or elements, seeking interrelationships.
5. Synthesis: students can create something new based on the sum and compendium of the parts and on their analysis.
6. Evaluation: students can make judgements by estimating, appreciating and calculating the value of something.

Based on this hierarchical structure, each higher category consists of categories located beneath it. In other words, comprehension requires knowledge, application needs comprehension and so on. Consequently, Bloom considers learning as a process where academic staff should guide the way students think from the categories at the base of the pyramid - or minor categories - to the highest - or major categories, i.e. from the simple compilation of information and storage of knowledge to synthesis and evaluation (see figure 1). This evolution of their way of thinking will enable students to acquire new skills and knowledge during the learning process.

Figure 1: The ideal direction of the thinking process based on Bloom's taxonomy.



Linked to each category, the hierarchy provides a list of verbs that are very useful when it comes to writing learning outcomes, as they make it possible to evaluate each category in Bloom's taxonomy. Bloom's original limited list of verbs has been reviewed by several authors over the years. Table 2 displays the Spanish translation of those compiled by Kennedy (2007):

Table 2: Verbs corresponding to the different categories of the cognitive domain of Bloom's classification.

1. KNOWLEDGE	Mention, state, define, describe, duplicate, find, enumerate, formulate, examine, identify, list, mark, memorise, show, name, arrange, organise, present, compile, remember, relate, recite, summarise, tabulate.
2. COMPREHENSION	Associate, change, clarify, classify, build, compare, convert, deduce, defend, decode, describe, distinguish, discriminate, discuss, estimate, explain, express, extend, generalise, identify, infer, inform, interpret, modify, paraphrase, predict, recognise, rewrite, resolve, revise, select, translate.
3. APPLICATION	Adapt, apply, sketch, calculate, change, complete, compute, build, demonstrate, develop, discover, select, employ, find, examine, experiment, infer, interpret, manipulate, modify, show, operate, organise, practice, predict, prepare, produce, programme, recite, select, solve, transfer, use, value.
4. ANALYSIS	Analyse, calculate, categorise, classify, compare, connect, contrast, criticise, question, discuss, deduce, breakdown, determine, distinguish, discriminate, differentiate, divide, subdivide, examine, experiment, identify, illustrate, infer, inspect, investigate, show, organise, arrange, recite, summarise, separate, test, value.
5. SYNTHESIS	Discuss, categorise, combine, compile, compose, build, create, develop, design, establish, explain, formulate, generalise, generate, do, install, integrate, invent, handle, modify, organise, arrange, plan, prepare, propose, reconstruct, compile, rewrite, recite, reorganise, rearrange, reunite, revise, summarise.
6. EVALUATION	Attach, support, appraise, argue, compare, conclude, contrast, convince, correct, criticise, decide, defend, establish, discriminate, select, estimate, stipulate, evaluate, explain, interpret, justify, judge, measure, predict, score, recommend, recite, resolve, summarise, revise, validate, value.

Let's see some examples of how to describe learning outcomes in the different cognitive domain categories as defined by Bloom:

- Examples of learning outcomes related to *the acquisition of knowledge* by students:

  1. Describe the organization and functioning of the public sector in Spain, regarding both expenditure and revenue, especially taxes.
  2. List the renewable energies found in Forest and in the Natural environment.

- Examples of learning outcomes related to students' *comprehension*:

  3. Explain the pathophysiological processes and their manifestations as well as the risk factors that determine health conditions and diseases in different stages of the life cycle.
  4. Paraphrase the problems related to the structural, constructional and engineering concepts linked to building projects.

- Examples of learning outcomes related to students' ability to *apply learning*:

  5. Demonstrate the use of the relevant numerical methods to solve certain problems.
  6. Apply biochemical knowledge to the eye and the vision process.

- Examples of learning outcomes related to students' *analytical abilities*:

  7. Extract the relevant information from the rulings of the Constitutional Court to determine the verdict.
  8. Gather the relevant information on a particular field.

- Examples of learning outcomes related to students' *abilities for synthesis*:

  9. Design and plan surface and underground work.
  10. Interpret any available information on the land as well as all the related geographical and economic data and make the relevant decisions based on it.

- Examples of learning outcomes related to students' *abilities of evaluation*:

  11. Establish the prognosis of communication and language disorders from a multidisciplinary perspective.
  12. Interpret the relevant historical sources regarding the economic history of the Modern Age.

The verbs are not unique to each category. Some appear in more than one; it is the context, i.e. the rest of the formulation and the work performed in the classroom, which will determine to which category each one of the learning outcomes described above will belong. As an example, let's take "discriminate", which appears in 3 levels of the hierarchy: in Comprehension, it refers to a purely theoretical difference based on alternatives given to the students, while in the Analysis level, it is about the ability to differentiate in a pro-active manner and, finally, in the Evaluation level, it is linked to assigning a value.

THE AFFECTIVE DOMAIN:

A student's learning process not only requires acquiring knowledge but also assimilating a set of attitudes and values. Bloom's team defined five categories to describe how learning evolves in the affective domain: receiving phenomena, responding to phenomena, valuing, organisation and internalising values (characterization).

These categories include issues ranging from the mere willingness to listen to another person, displaying interest in the topic or respect for cultural differences to the ability to resolve conflicts, behave in a responsible manner, accept, display, and justify professional ethical standards or have one's own system of values.

Table 3 lists a series of verbs of interest to write learning outcomes that involve attitudes and values.

Table 3: Verbs used to evaluate the affective domain.

AFFECTIVE DOMAIN	Accept, hold, act, adhere, support, appreciate, assist, combine, share, complete, communicate, agree, cooperate, question, defend, demonstrate (a belief in something), differentiate, discuss, dispute, praise, listen, present, start, integrate, try, justify, judge, organise, arrange, participate, practice, ask, recite, resolve, respond, challenge, follow, summarise, have, unite, value.

Some examples of how to describe learning outcomes related to the affective domain are the following:

1. Uphold confidentiality in a relationship between a professional and a customer.
2. Implement the essential elements of the medical profession, including ethical principles, legal responsibilities and professional practice focused on the patient.
3. Select and adopt different leadership styles as appropriate to different situations that arise.
4. Resolve potential conflicts in professional practice.
5. Show, explain, and justify the profession's ethical standards.

THE PSYCHOMOTOR DOMAIN:

The psychomotor domain refers to learning that involves physical abilities or certain actions, such as assemblage, installations, handling elements or specific skills.

Subjects that require performing experiments in laboratories or disciplines related to art, music, health science or physical education imply learning in the psychomotor domain.

Bloom's research team did not complete its work in this domain. However, other authors completed the task that Bloom and his collaborators has started (1956), such as Dave (1970), who proposed a classification of the psychomotor domain into the following five categories: imitation, manipulation, precision, articulation and naturalization.

In this domain, learning would extend from simple observation of the behaviour of the teacher and its repeating that behaviour to the coordination of several actions and their integration in a natural and even creative manner.

Table 4: Verbs used to evaluate the psychomotor domain.

PSYCHOMOTOR DOMAIN	Adapt, administer, hold, adjust, alleviate, alter, fix, sketch, heat, calibrate, place, combine, build, copy, choreography, balance, prove, dismantle, detect, differentiate (tact), dissect, design, distribute, double, construct, execute, estimate, examine, establish, gesticulate, record, identify, imitate, handle, manipulate, measure, mix, operate, organise, present, react, refine, repair, represent, reunite, grind, use.

Examples of how to write learning outcomes in the psychomotor domain:

1. Place a certain type of bandage demonstrating that you have mastered the technique learned.
2. Work with various elements following good laboratory practice.
3. Demonstrate you have mastered the technical skills for a professional artistic activity (e.g. engraving techniques).

Once again, these different levels are frequently combined in the case of higher level outcomes. In keeping with a previous example, "preparing an environmental impact report (or a psychological evaluation) seeking the necessary information" includes competences in all domains (cognitive, affective and psychomotor), in addition to, as indicated above, knowledge, comprehension, determination to solve problems, analysis, synthesis and valuing. And, quite possibly, it is a significant task for various professions. Other examples of this integration would be:

1. Perform a physical examination of a patient, also evaluating his/her mental state.
2. Prepare urbanization, gardening and landscaping projects.

3.1.3. Implementation

Below are a series of recommendations that are intended to provide guidance to the universities in the task of defining learning outcomes. These recommendations reflect what is commonly considered as *good practices* in European literature in this regard, and do not purport to be mandatory in nature but rather a supportive role.

1. Include the following phrase, or similar, before listing the learning outcomes of a subject or teaching: "*Upon the successful completion of this subject/teaching process, students will be able to:".*
2. When writing learning outcomes begin with an action verb followed by the object of the verb and the context. Use a single verb per learning outcome. For example: students will be able to evaluate a simple case of language disorder that does not involve other difficulties.

3. Avoid considering only learning outcomes related to the lowest categories of Bloom's cognitive domain pyramid (know, comprehend). This may be relevant for a basic level of learning but for more advanced subjects or to describe learning outcomes at programme level, it is important to try to include the higher categories (analysis, synthesis, comprehension).
4. Use learning outcomes which include or combine the three domains described above (cognitive, affective and psychomotor) in those disciplines where this is required.
5. Only include learning outcomes that students will be able to achieve by the end of the subject or teaching process, avoid being too ambitious, but also ensure they pose a realistic challenge for students and that they will motivate them. Take into account the real time available during the learning period to assess whether too many learning outcomes that are impossible to achieve have been included.
6. Carefully establish the level of execution that corresponds to the desired outcomes for a particular academic level, describing the criteria that will be used to mark/score it. The description of the level will be especially important in the case of outcomes that belong to several subjects in successive academic levels.
7. Bear in mind that learning outcomes should be written in such a way as to be readily understood by other teachers, students and society in general.
8. Consider how learning outcomes can be measured and evaluated by identifying how we can know whether students have achieved the learning outcomes described (See section 3.3 . *Guidelines for evaluating learning outcomes) and the quality of* their execution. This will make it possible to provide a qualification.
9. Include only learning outcomes that are considered *basic* to define the *essential* learning processes of a subject or programme. Avoid too many

learning outcomes and avoid making their description too generic as, in these cases, they would cease to be a useful tool for the teaching process. The key is to include the number of learning outcomes that enable students to achieve the objectives of the programme or topic[6]. Between 5 and 10 is considered quite normal. We recommend you never exceed the higher limit of 10 learning outcomes.

3.2. Guidelines for evaluating learning outcomes

The favourable evaluation of learning outcomes is the prerequisite for awarding a student credits (ECTS Users' Guide, 2009). Evaluating generates the evidence of learning, therefore, when describing learning outcomes it is also necessary to determine the most appropriate evaluation methods and criteria to assess whether students have achieved the desired level of knowledge, comprehension and competencies.

Learning outcomes and evaluation methods should be, therefore, in line with each other. Thus, simultaneously to the specific formulation of the learning outcomes, and as part of an interactive process, we should consider which tools and techniques will be the most relevant to determine the degree of learning that students have achieved. Knowing this in advance will provide students with a clear understanding of what is expected of them and how they will have to prove it.

We mentioned that learning outcomes should be written in such a way that they can be fulfilled to the extent possible, either directly or indirectly (e.g. because students perform tasks that require a certain level of knowledge and explain, when asked, their actions). In any case, questions such as: *How can students prove what they have learned? How will they prove that they have achieved a specific learning outcome?* or *How can we know whether a learning outcome has been acquired?* can help us to reflect on the most appropriate evaluation methods and criteria so that students can prove their level of learning. Evaluation procedures should, therefore, be designed carefully, make available to the students and reviewed on a regular basis.

The following table lists the main evaluation methods, whether direct or indirect evaluation methods:

Table 5: Main methods of evaluation

DIRECT		INDIRECT
Written exams	Case studies	Surveys of graduates
Multiple-choice exam	Reports	Interviews with graduates
Projects, essays	Laboratory work	Interviews, surveys of employers
Resolution of problems	External placements	Discussion groups
Oral dissertations	Projects	Labour insertion rates
Portfolio	Rubrics	Academic achievement indicators
Direct observation of performance	Degree/Master dissertation, Doctoral thesis	
Preparation of posters		

All the methods listed in the table above have advantages and disadvantages when it comes to assessing learning outcomes. Depending on the nature of the learning outcome being evaluated, one or other method will be advisable, and the joint use of several evaluation methods throughout the subject or programme will maximize

[6] This idea is related to the English expression, '*fit for purpose*".

the validity of the evaluation process and minimize the potential for bias. In addition, the pursuit of greater objectivity in the assessment process can lead to the use of other methods that are perhaps less widely known but that have important advantages (for example: assessment based on rubrics, portfolio assessment or the direct observation of performance).

Since there will always be more than one way to measure whether students have achieved a certain learning outcomes, the key will be, therefore, to choose the most appropriate assessment method taking into account available time and resources.

Equally, all the methods should be based on clear and detailed criteria so that they can be reviewed, especially the more subjective type. In this case, an agreement must be reached with other members of the academic staff to ensure the objectivity of the procedure. The degree to which this agreement is reached will be the first measure of the goodness of the assessment procedure.

In any case, regardless of the method chosen, the evaluation of students must comply with standard 1.3. of the Standards and Guidelines for *Quality Assurance in the European Higher Education Area*[7] of the European Association for Quality Assurance in Higher Education (ENQA), which establishes that:

> *"Students should be assessed using published criteria, regulations and procedures which are applied consistently".*

Accompanying the standard are a series of guidelines that are set out in Appendix 6.2 of the said guide.

An international working group was set up in 2007, of which ANECA formed part, which focused on analysing different aspects regarding the quality assurance of student assessment. Its 2008 report, *Assessment Matters - The quality assurance of student assessment in higher education,* presented a series of principles for the assessment of learning outcomes that have been included in the following table.

[7] Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG).

Table 6: Assessment principles proposed in the *Assessment Matters, 2008 Report.*

Comparability and consistency	Assessment strategies and procedures focus on the learning outcomes.
	Assessment strategies are applied equitably across an institution and allow for comparability.
	Assessment strategies are applied consistently within institutions and across discipline areas.
Accountability	All individuals and committees involved in assessment are aware of, and act in accordance with, their specific and identifiable responsibilities.
Transparency	The assessment strategy being used for a programme is clear and easily available to all staff and students involved.
	Students are informed of the form(s) and extent of assessment they will be subject to, and what will be expected of them.
	The criteria used are relevant to the (programme's) learning outcomes being assessed, and are available to all staff and students involved.
Involvement	All staff involved in the delivery of a programme or its parts are involved in the design and implementation of the overall assessment strategy.
	Students have the opportunity to offer their views on the amount and type of assessments they undertake, and whether they are regarded as both 'fair' and 'effective measures of their learning and abilities.

3.3. Guidelines promoting correspondence between learning outcomes, learning activities and assessment methods.

Having described the learning outcomes that students have to achieve for their subjects or complete programmes, the next step is to develop an appropriate teaching - learning strategy. In general, the teaching strategy is based on the outcomes and assessment methods and consists in providing opportunities to practice activities, in different conditions and with different degrees of difficulty, similar to those that will be used to evaluate the students.

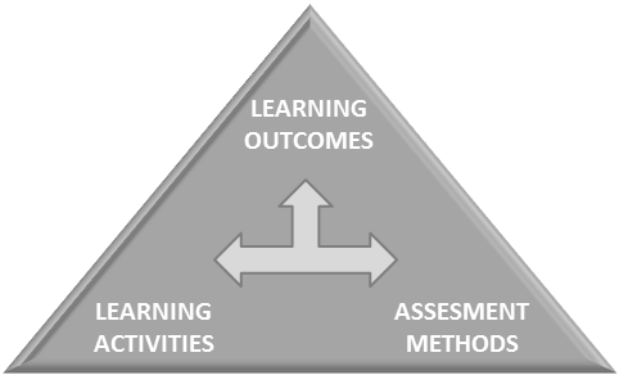
Questions such as: *"What learning activities will be the most suitable for students to achieve the expected learning outcomes?", "What teaching methods will enable students to achieve the learning pursued?"* or *"To achieve this particular learning outcome, What learning content should be addressed and how should it be structured?"* will help design learning activities that focus on the intended learning outcomes.

In an integrated teaching system, learning methods and activities as well as the assessment systems will be coordinated to achieve the defined learning outcomes. It is worth noting Biggs take on the matter (2003):

> *"When there is alignment between what we want, how we teach and how we assess, teaching is likely to be much more effective than when it is not (aligned)… Traditional transmission theories of teaching ignore alignment".*

The link between learning activities, assessment systems and learning outcomes is evident. The triangulation of the three concepts is the key to ensuring the quality of teaching and to strengthening a student-centred teaching - learning process. In addition, this alignment will help to make the learning experience more consistent and transparent and, ultimately, more meaningful.

Figure 2: Triangulation between LO, learning activities and assessment methods



ANECA considers the alignment between learning activities, assessment systems and learning outcomes of key importance. The assessment protocol for the accreditation ex-ante of official degrees (Bachelor and Master Degrees) indicates, in criterion 5, that *The study plan must show overall internal coherence between the competences, contents, learning outcomes, learning activities, assessment systems, teaching methods, time distribution of the modules and topics and their theoretic-practical nature*.

Similarly, the assessment protocol for the renewal of accreditation ex-post of official bachelor and master degrees and doctoral studies include, in the criterion 6. Outcomes, the following guideline:

Guideline 6.1 of the ACREDITA Programme	*The learning activities, teaching methods and assessment systems used are appropriate and adapt reasonably to the objective of achieving the expected learning outcomes.*

Therefore, to achieve the accreditation ex-post renewal of a degree, the university will have to provide detailed information on how the learning activities and the assessment methods used are directly aligned with the learning outcomes that students are expected to achieve (See the *Self-assessment Guide: Renewal of accreditation ex-post of official bachelor and master's degrees and doctoral studies. ACREDITA Programme)*.

In order to perform this triangulation between learning activities, assessment systems and learning outcomes, it may be of interest to use the following table adapted from Kennedy (2007):

Table 7: Relationship between learning outcomes, teaching activities and assessment[8]

Learning outcomes	Learning activities	Assessment
Congnitive domain Knowledge Comprehension	Master classes Readings (especially with comments, questions or discussion) Tutor sessions Discussions Group work Group presentations Seminars	Written or oral examinations Tests Assessment of projects or essays Assessment of presentations
Application Analysis Synthesis	Laboratory work Clinical work Problem or project - based learning Case studies Tutor sessions	Assessment of work based on explicit and public criteria: • practical work performed • conclusions or projects submitted • interaction during group work
Analysis Synthesis Assessment	Preparation of projects or technical reports Analysis of cases Analysis and criticism of texts, sentences, external reports Master classes after practical work Tutor sessions on projects	Assessment of work based on explicit and public criteria: • of projects • of reports • of the analysis of cases • Questions about justification of decisions taken ("why have you decided to…")
Affective domain: Integration of beliefs, ideas and attitudes	Role playing Preparation of reports and projects Case studies Tutor sessions	Assessment of work based on explicit and public criteria: • Role playing • Reports • Projects • Cases • Questions in tutor sessions
Psychomotor domain Acquisition of physical skills	Exercises Repetition of the skill in question with variants	Assessment of work based on explicit and public criteria

Appendix 3 of this guide includes examples that display the practical use of the above table for different subjects belonging to various knowledge areas.

[8] We must take into account that these relationships are more lax than what a table would suggest, although this is reflected in the repetitions. For example, field work or problem-based learning leads to the development and strengthening of comprehension and knowledge. However, we understand that there is sufficient specificity to submit the table (e.g. master-classes do not help in the application unless something that students have tried to do is discussed afterwards while it can help to develop their capacity for analysis, synthesis or valuation). In any case, detailed feedback to the student after the assessment is vital regarding their learning process.

3.4. Guidance for reviewing, correcting, and reconsidering learning outcomes

The limited experience of the Spanish university system in the use of learning outcomes means that, in most cases, their descriptions could be improved. In many cases, the learning outcomes included in the study programmes are ambiguous, difficult to understand or to achieve throughout the subject or the programme. In addition, the most common case is to have included a very large number of learning outcomes for subjects and for the programme and this makes them difficult to understand by all parties involved.

Consequently, based on the above, the learning outcomes should not be seen as something static. The practice of any teaching and learning model must include the regular and systematic review of learning outcomes and how they interact with the teaching methodologies and assessment systems.

The following questions can serve as guidance for the revision, correction and reconsideration of learning outcomes that have already been defined:

- Are the learning outcomes included in the subject/programme clear? Would any student understand what is expected of them at the end of the subject/programme? Have the learning outcomes been described using simple phrases?
- When defining learning outcomes, have you avoided ambiguity by avoiding verbs such as *know, comprehend, learn, become familiar with, be aware of, etc?*
- If the required by the subject, have learning outcomes related to the cognitive, affective and psychomotor domains been included, preferably integrated into meaningful outcomes?
- Have learning outcomes for the higher categories of the cognitive domain (synthesis, assessment) been included and are they significant for the profession(s) to which they are leading?
- Do the learning outcomes identified provide the necessary balance between their difficulty (attainable for students' academic level) while also posing a challenge that motivates students to work and learn? Are they reasonable and, at the same time, sufficiently ambitious from the programme degree point of view? Are they viable from a perspective of available time and resources?
- Can all the learning outcomes that have been defined be observed and assessed? What assessment method are they linked to?
- This particular learning outcome for this subject; is it related to a programme learning? And conversely, are the programme learning outcomes included in the prior and on-going outcomes, making it reasonable to expect that they will be attained by the end of the study programme?
- Will the teaching strategy designed for this subject make it possible to achieve, within the time available, all the learning outcomes that have been defined? Is it realistic to think that students can achieve all the learning outcomes defined based on the resources and time available?

- Are all the learning outcomes that have been included to achieve the objectives of the subject/programme necessary? Have too many been included? Do they all list issues that are considered *essential* or are they too specific? Can some learning outcomes be grouped or synthesized?
- Is there, for each learning outcome, a clear and consistent connection with the learning activities to achieve them and the assessment method to measure them?
- Are the learning outcomes of the degree in line with the Spanish Qualifications Framework?

Below, we have introduced two figures that show the possible steps required to achieve the appropriate definition and assessment of learning outcomes, for degrees and subjects.

Figure 3: Steps to define and assess degree learning outcomes

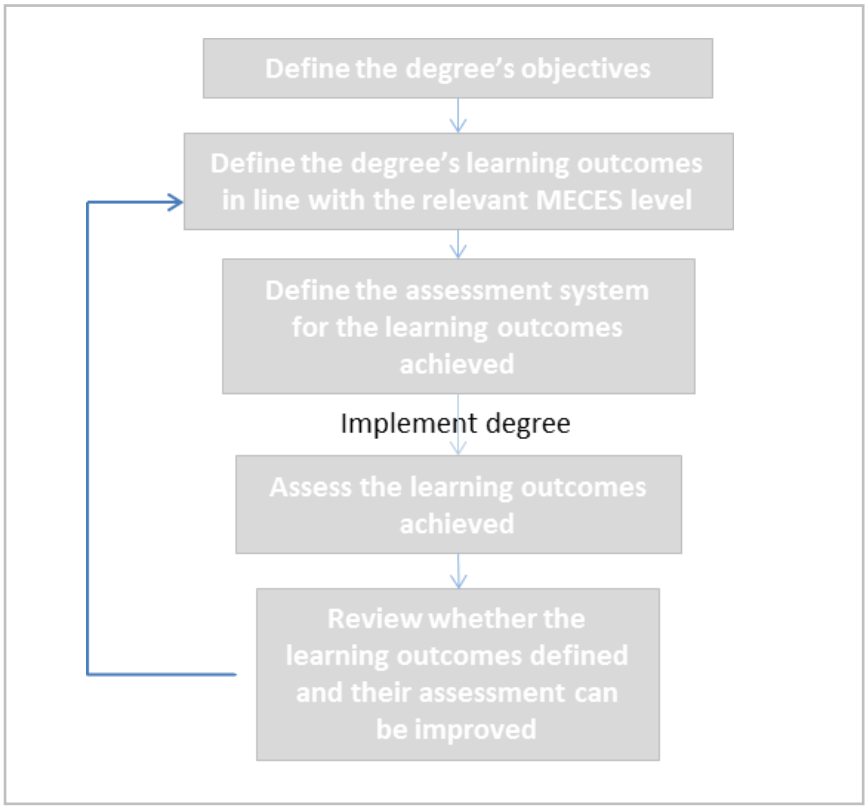
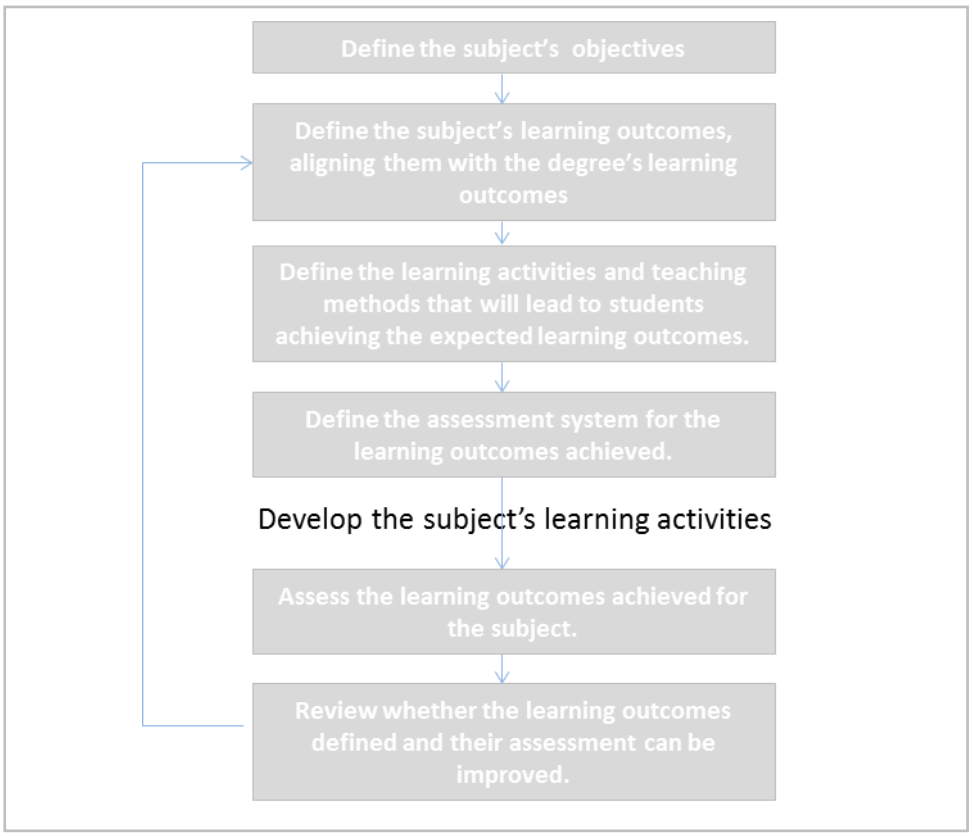


Figure 4: Steps to define and assess subject learning outcomes



Appendix 6.3 of this guide provides practical examples of how to reformulate competences set out in the accreditation ex-ante reports of official university degrees into expected learning outcomes.

4. LEARNING OUTCOMES AND THE SPANISH QUALIFICATIONS FRAMEWORK

The Berlin Communiqué of[9] 2003 urged EHEA member countries to develop the Framework for Qualifications of the European Higher Education Area as well as comparable and compatible national qualifications frameworks for higher education. The Communiqué stated that these frameworks should describe the qualifications in terms of levels and learning outcomes.

Two years later, in 2005, the Bergen Conference of European Ministers responsible for Higher Education took the decision to adopt the Framework of Qualifications for the European Higher Education Area, based on the so-called «Dublin Descriptors» and that provides for the existence of three cycles, each of them characterized by using generic descriptors based on learning outcomes. In other words, the Qualifications Framework for the European Higher Education Area defines generic learning outcomes for the different levels, i.e. it identifies the horizon of a particular teaching process as first, second or third cycle.

In Spain, the Spanish Qualification Framework for Higher Education (MECES) was established by Spanish Royal Decree 1027/2011, of July 15.

The main objective of MECES is to provide society with all necessary information on the level of learning acquired by graduates, and what that entails, as well as making the Spanish framework comparable with its European peers, facilitating mobility within the European Higher Education Area and the international labour market. MECES contemplates four levels that all Higher Education programmes or degrees include[10] : senior technician, Bachelor degree, master degree and doctoral degree.

The implementation of MECES makes it possible, on the one hand, to inform society and, in particular, the students on what their learning requirements are at each level and, on the other hand, provide employers with information on the related competences of the people they are going to employ.

As has already been noted in previous sections, MECES defines, in addition to the learning outcomes concept, qualification descriptors as the collection of learning outcomes that characterizes a certain level in a European context.

The learning outcome concept is, therefore, the key underlying integrating element when defining any national qualifications framework. In other words, to promote mobility and the international recognition of degrees and learning, it is necessary to use learning outcomes because the different levels defined in national qualifications frameworks are based on them.

[9] Communiqué of the Conference of Ministers responsible for Higher Education, held in Berlin on 19 September 2003.
[10] University Education, Higher Arts Education, Higher Vocational Training and Professional Education in Fine Arts and Design, as well as Higher Sports Education.

5. LEARNING OUTCOMES AND QUALITY ASSURANCE

5.1. The European reference

In the European student-centred educational model, education is linked to a process based on the outcomes students should acquire at the end of their learning process. As a result, having attained a bachelor's- master's degree or doctorate implies having achieved certain learning outcomes defined in advance.

Consequently, learning outcomes are a crucial element of any quality assurance system. This is the position of the European Association for Quality Assurance (ENQA), which sets out the following in the document titled *Standards and Guidelines for Quality Assurance in the European Higher Education Area*:

> *The quality assurance of programmes and awards are expected to include the development and publication of explicit intended learning outcomes.*

As a result, quality assurance and accreditation agencies from all over Europe, including ANECA, have developed external quality assurance actions that focus, among other things, on assessing how universities define, design and assess students' learning outcomes and how these are aligned with the learning activities.

When performing these assessments, ANECA takes into account the general principles regarding learning outcomes in the accreditation ex-post procedures published by the European Consortium for Accreditation, ECA[11], which can be found on the following table:

Table 8: General principles regarding learning outcomes in ECA accreditation procedures

Principle 1: Accreditation organisations should take into account learning outcomes in their assessments, thus enhancing Mutual Recognition of accreditation decisions.
Principle 2: Accreditation organisations should assess whether the learning outcomes are in line with the National Qualifications Framework and/or the Framework for Qualifications of the European Higher Education Area.
Principle 3: Learning outcomes are a shared concern of stakeholders and thus accreditation organisations should assess whether the higher education institutions consider stakeholders' opinion when designing or revising programmes and learning outcomes.
Principle 4: Accreditation organisations should assess whether learning outcomes and their assessment by higher education institutions are understandable and public.
Principle 5: Accreditation organisations should assess whether curriculum design and content enable students to achieve the intended learning outcomes and whether higher education institutions apply proper procedures to assess those intended learning outcomes.
Principle 6: In the case of programme accreditation, accreditation organisations should make explicit reference to the programmes' learning outcomes in their reports.

[11] Since 2008 ANECA has chaired the working group focused on learning outcomes of the said consortium.

Principle 7: In the case of institutional accreditation, accreditation organisations should evaluate the institution's provisions regarding the implementation and assessment of learning outcomes.

Each principle is linked to a series of recommendations that can be found in Appendix 5 and which must be understood as guidelines to be taken into account by quality assurance agencies when assessing learning outcomes. In addition, the European Consortium for Accreditation went one step further in 2013 and published the document *Learning Outcomes in Quality Assurance and Accreditation. Principles, Recommendations and Practice*[12] that reflects the experience of different ECA organizations on how to use the above principles in their accreditation procedures.

5.2. How are learning outcomes integrated in the quality assurance system for higher education in Spain?

ANECA evaluates the *expected* learning outcomes for the various bachelor and master's degrees and doctoral studies through its VERIFICA programme and the learning outcomes *achieved by* students through its ACREDITA programme[13]. In addition, ANECA assesses how universities inform their students about the learning outcomes that must be achieved through its MONITOR programme. On the other hand, ANECA's AUDIT programme evaluates the relationship between the students' learning outcomes and universities' internal quality assurance system and the DOCENTIA programme assesses the relationship between the learning outcomes and the quality of the teaching activity.

ANECA, therefore, assesses students' learning outcomes at different levels:

- On the one hand, it assesses whether the learning outcomes of bachelor and master's degrees and doctoral programmes correspond to the level and content required for a specific teaching process. The level is assessed by comparing defined expected learning outcomes with the corresponding MECES descriptor. For this purpose, ANECA is charged, in collaboration with other assessment agencies from the Autonomous Communities, with validating the coherence and consistency of the MECES level learning outcomes with the various knowledge fields.

  In addition, ANECA assesses whether the expected learning outcomes are measurable and in accordance with the requirements for granting a degree with the qualifications established in the European Higher Education Area[14].

  In the case of degrees that qualify someone to perform regulated professional activities, ANECA assesses whether the learning outcomes comply with the provisions of the relevant ministerial orders.

- On the other hand, ANECA assesses the internal consistency between the elements that make up the learning process and the learning outcomes. In other words, ANECA assesses whether the study programme, its contents, the learning activities, teaching methodologies, assessment systems, the

[12] This document can be viewed at the following link: www.ecaconsortium.net
[13] *Expected/intended and achieved learning outcomes*.
[14] Criterion 3 of the VERIFICA programme.

necessary human and material resources, teaching coordination... are suitable with a view to achieving the learning outcomes defined[15].

ANECA, therefore, assesses, in a first phase, based on the assessment for accreditation ex-ante, whether the teaching-learning process in global terms is designed in such a way to potentially achieve the expected learning outcomes (VERIFICA Programme).

In a second phase, once the degree implementation process has commenced, ANECA assesses the accessibility and intelligibility of the information provided on learning outcomes in the university's website through the relevant teaching guides (MONITOR Programme).

Finally, when a request is submitted to renew accreditation ex-post, ANECA evaluates whether the learning outcomes defined in advance have been achieved. That is to say, it assesses the learning outcomes acquired by students through the analysis of the relationship between the teaching activities, teaching methodologies and assessment systems used and the learning outcomes (ACREDITA Programme).

- In addition, ANECA also assesses how the internal quality assurance system of the centre/university ensures that the students' learning outcomes are measured, analysed and used for decision-making and to improve the quality of the teaching[16] (AUDIT programme and DOCENTIA programme).

  In other words, ANECA assesses whether the teaching process has the mechanisms that allow the collection and the continuous analysis of the learning outcomes acquired by the students, as well as strategies and procedures to improve on those results.

The VERIFICA, MONITOR, ACREDITA, DOCENTIA and AUDIT programme documents provide detailed information on how ANECA performs this assessment process regarding learning outcomes for bachelor and master's degrees and doctoral programmes at the different levels mentioned[17].

The following table shows where learning outcomes are integrated into the different ANECA programmes:

[15] Standards 5, 6, 7 and 8 of the VERIFICA programme, dimension 1.3 and 4.2 of the MONITOR programme and standards 1, 4, and 6 of the ACREDITA programme.

[16] More specifically, guideline 1.5. of the AUDIT programme and dimensions I, II and III of the DOCENTIA programme. In addition, standard 9 of the VERIFICA programme, dimension 3.1 of the MONITOR programme and standard 3 of the ACREDITA programme.

[17] For more information, please go to http://www.aneca.es/Programas/

Table 9: ANECA programmes and learning outcomes

	EXPECTED LEARNING OUTCOMES	*ACHIEVED* LEARNING OUTCOMES
VERIFICA	[redacted]	
MONITOR	[redacted]	[redacted]
ACREDITA	[redacted]	[redacted]
AUDIT	[redacted]	[redacted]
DOCENTIA	[redacted]	[redacted]

This demonstrates that learning outcomes are an essential part of the external quality assurance system in higher education in Spain and that, therefore, defining, measuring and aligning them with the Spanish qualifications framework for higher education is of paramount importance for universities and for the assessment and accreditation agencies.

6. APPENDICES

6.1. Guidelines for the assessment of students according to the ESG[18]

Guidelines for the assessment of students

The assessment of students is one of the most important elements of higher education. The results of the assessment process have a profound effect on the curricular development of students. It is, therefore, very important that the assessment is always carried out in a professional manner and that it takes into account the vast knowledge available on tests and examinations. The assessment also provides valuable information to institutions about the effectiveness of teaching and of the support offered to students.

Student assessment procedures must:

- be designed to measure the achievement of expected learning outcomes and other programme objectives;
- be suitable for their purposes, whether diagnostic, formative or summative;
- include clear and published qualification criteria;
- be performed by people who understand the role of assessment procedures in the progression of students toward the acquisition of the knowledge and skills associated with the degree they are studying;
- not rely on, wherever possible, the opinion of a single examiner;
- take into account all the possible consequences of standards on examinations;
- include clear rules that take into account missed classes, illnesses or other mitigating circumstances for students;
- ensure that assessments are performed in accordance with the procedures established by the institution;
- be subject to administrative accreditation inspections to ensure compliance with the procedures.

In addition, students should be provided with clear information on the assessment strategy that is being used in relation to their programmes, on examination and assessment methods they will have to go through, what is expected of them and the standards that will be applied to assess their performance.

[18] This appendix includes guidelines regarding standard 1.3 of the Standards and Guidelines for Quality Assurance in the European Higher Education Area.

6.2. Examples of the correspondence between learning outcomes, learning activities and assessment methods

Examples of alignment based on subjects. The information contained in the tables below has been altered with a view to facilitating the understanding of the previous sections of this Guide.

SUBJECT	EXAMPLES OF SUBJECT LEARNING OUTCOMES	CONTENT	LEARNING ACTIVITIES	ASSESSMENT SYSTEM
Project Management (6 credits) Mandatory learning **DEGREE:** University Bachelor Degree in Computer Engineering **INSTITUTION:** Autonomous University of Barcelona	Prepare the technical specifications for a computer project, compiling the information required.*	Success and failure of the projects. Project management methodologies. Integration management. Beginning of the project. Project feasibility. Project life-cycle. Quality planning, assurance and control. Follow-up systems and systems to control time and costs deviations. Project human resources management. Organizing the people involved in a project: Project director, project team, suppliers, stakeholders. Plan the procurement and hiring of resources. Selection of vendors. Contracts and tenders. Assessment, valuation and survey of computer applications and systems.	METHODOLOGY: Project Based Learning (PBL) : -Lecture by the professor presenting the project. -Group meeting in class to make decisions regarding how to approach of the proposed project. - Division of tasks that will be performed individually at home. The individual work students must perform will include: preparing diagrams, concept maps and abstracts; as well as searching for and consulting references on the subject matter and preparing proposals for the specifications sheet. - Meetings to pool results. Student participation should be active, proposing solutions, critically analysing the solutions put forward and contributing new ones.	10% Deliveries of the project. 40% Project developed in group (the specifications document has been submitted, in this case). 40% Individual theoretical-practical tests. 10% Activities developed in tutor sessions. Assessment Standards: • Adequate formal structure of a specifications document. • The information from the different sources has been introduced. • Knowledge of key subject elements. • Interaction and teamwork (taking a leading role, completing assigned tasks, collaborating, negotiating).

*This example has intentionally been developed from a **single** learning outcome in order to explain the alignment between the various elements taken into account in the design of the subject more clearly.

SUBJECT	EXAMPLES OF SUBJECT LEARNING OUTCOMES	CONTENT	EDUCATIONAL ACTIVITIES	ASSESSMENT SYSTEM
Physics Applied to Pharmacy (6 Credits) Basic Training. **DEGREE:** Bachelor Degree in Pharmacy. **INSTITUTION:** University of Castilla - La Mancha Note: This example covers the practical part of the subject.	Measure fundamental physical properties, based on theoretical principles and using the instrumentation of the pharmaceutical laboratory.*	Magnitudes, units, errors and dimensional analysis. Static and Dynamic. Work and Energy. Fluids. Hydrostatics. Fluid Dynamics. Viscosity. Principles of thermodynamics: - Applications to ideal gas. Electricity. - Wavelike phenomena.	Practical classes in the laboratory. Seminars. Mandatory tutoring (classroom based) to prepare portfolios. Individual work.	Prepare a brief portfolio on the subject's practical training to reflect on the knowledge acquired and the use of this knowledge. This must include a self-assessment exercise performed by the student, an agenda with the tasks performed and other evidence, which is specified in the subject's practical training guide. Assessment standards: - Drafting and formal issues. - Evidence provided. - Demonstration of knowledge: ▪ Selection and development of a practical application. ▪ Correct use of the instruments. ▪ Self-assessment of the practical training selected. - Participation in Seminars Weight of the subject in the overall marks: 40%.

*This example has been intentionally based on a **single** Learning Outcome considered in the design of part of the subject.

SUBJECT	EXAMPLES OF SUBJECT LEARNING OUTCOMES	CONTENT	EDUCATIONAL ACTIVITIES	ASSESSMENT SYSTEM
Global Economy (3 credits) Mandatory learning **DEGREE:** Master's Degree in International Economic Analysis **INSTITUTION:** Rey Juan Carlos University	Position relevant economic developments in relation to major institutions in the international economic order, as well as their historical evolution throughout the last century. Interpret and construct the main macro-magnitudes and indexes that measure economic activities and compare them among the various world economies. Analyse and assess the main features of the relationships and structures of the world economy.	The objective of the subject is to provide students with the knowledge that will allow them to understand and analyse the characteristics and consequences of implementing and using new practices in the international economy when applying them to problems related to: -commercial globalisation -technological globalisation -financial globalisation -regional integration processes	The subject will use a practical approach and will be primarily entered on commenting and analysing reference material. In-class learning activities: Classes delivered the teacher using audiovisual and reading material for discussion in the classroom. Out-of-class learning activities: Lectures, exercises and practical tasks required to obtain the ECTS credits allocated to this topic.	Assessment system based on the continuous follow-up of students through a combination of: - written tests to assess the development of analytical and synthesis skills and the acquisition of the knowledge acquired in theoretical and practical sessions, seminars and lectures; - drafting an economic study that seeks to evaluate the capacity to solve specific problems of the world economy from a practical perspective (diagram problem solutions), as well as the capacity to write economic documents; - regular discussions of economic news and articles to develop a critical and work spirit, individually or in a group.

*This example has intentionally been developed from **several** learning outcomes in order to explain the alignment between the various elements taken into account in the design of the subject more clearly.

Example of alignment based on a study programme. The information contained in the table below has been altered with a view to facilitating the understanding of the previous sections of this Guide.

STUDY PROGRAMME	EXAMPLES OF STUDY PROGRAMME LEARNING OUTCOMES	STRATEGIES AND ACTIONS TO ACHIEVE THE LEARNING OUTCOMES	ASSESSMENT SYSTEM
DEGREE: Degree in Primary Education Teacher **INSTITUTION:** Jaume I University 240 ECTS Regulated professional activity	- Identify the curricular areas of Primary Education, the interdisciplinary relationship between them, the assessment criteria and the body of didactic knowledge regarding the respective teaching and learning procedures. - Design, plan and assess teaching and learning processes, both individually and in collaboration with other academic staff and professionals at the centre. - Effectively deal with situations of language learning in multilingual and multicultural contexts. - Correctly perceive occasions to reflect on the teaching delivered and innovate on the basis of cases submitted or observed - Use information and communication technologies in the classrooms. - Select the visual information that will contribute to the learning process, to civic education and to enhancing cultural levels. …	To achieve the competences established in the ministerial order and defined in this study programme, the following teaching and learning activities have been planned: - Theoretical instruction: The teacher will present the theory and students will take notes or participate. - Practical instruction: teaching/learning where students must apply the contents learned in theory classes. This includes classes that present problems and exercises such as laboratory tasks, as well as work placements. - Seminars: This is a space for reflection and/or for an in-depth treatment of contents that students have already been working on. The following teaching strategies are also taken into account: - Resolution of exercises and problems. - Problem-based learning (PBL) - Case studies - Project-based learning - Cooperative learning - Learning through a Virtual Classroom Other educational activities related to the improvement of the university experience: mobility actions, work placements and training and educational cooperation agreements, tutoring plans, adjusting the students' workloads, etc.	Tools planned for the assessment of topics / subjects of the Study Programme that academic staff will present and explain within the context of the subject: - Portfolios. - Agendas and/or notebooks. - Preparation and/or delivery of academic work. - Tutor interviews and/or expert reports: - Written examination (test, development and/or problems): - Master-supervisor report - Reports on practical instruction - Observation/execution of tasks and practical tasks - Participation in seminars and/or tutor sessions - Dissertations and posters - Self-assessment and assessment among students - Projects - Solving cases - Resolution of exercises and problems. INTERNAL QUALITY ASSURANCE SYSTEM AND PROGRESS / LEARNING OUTCOMES ASSESSMENT The commission that assesses dissertations, on the one hand, and the tutor and supervisor of work placements will assess the competences of the degree that students have achieved. The annual results will make it possible to perform an overall progress assessment and assess the students' learning outcomes for each programme degree. The analysis and review of these data is performed, in the first place, by Degree

			Committee. The Deputy Director or Assistant Dean for the programme degree will inform the Board of the Centre, for approval, of any proposals for improvement or changes to the study programme that may derive from this analysis. The Sub-commission of the Quality Committee, in charge of reviewing and monitoring the Internal Quality Assurance System, shall notify (…)

6.3. Example of how to reformulate accreditation ex-ante report competences into expected learning outcomes

This support guide explains that accreditation ex-ante reports of official degrees assessed by ANECA have opted, in general, for two ways of presenting "learning outcomes": 1) wording competencies in terms of learning outcomes and (2) including competences simultaneously with learning outcomes.

In this sense, for example, Universities routinely include the following types of competences in such reports: general and specific competences, plus a third group called cross-cutting competences which are specific to the Centre or University. Therefore, we can argue that general competences (and even Degree objectives) can be considered the learning outcomes for a given Degree and that specific competences would correspond to the learning outcomes of the module / topic / subject, especially when the report does not define learning outcomes as such. Cross-cutting competences are not considered in this appendix as not all study programmes include them.

With this guide, ANECA does not intend to instruct Universities to use a specific form of presentation for the accreditation ex-ante reports of official Degrees. However, it does insist that, in any case, the learning outcomes must be sufficiently clear and that these should be well defined in the accreditation ex-ante report, as a proposal for the revision and improvement of existing study programmes and with a view to facilitating the assessment process when renewing accreditation.

Based on these initial assumptions, ANECA has put forward, in this appendix, a series of examples on how to transform the competencies described into expected learning outcomes. These changes to the competences can be applied through an amendment to the study programme, in accordance with article 28 of Royal Decree 1393/2007, as amended by Royal Decree 861/2010.

Below are examples based on actual study programmes of Spanish universities that include:

1. Competences, analogous to learning outcomes, as defined in the Official Degree's accreditation ex-ante report from ANECA's Verifica programme.
2. We have included a brief analysis in accordance with the guidelines put forward in this support guide.
3. Then we have included the example resulting from applying the analysis performed.
4. Finally, certain aspects that should be taken into account by the applicant and which exceed the possibilities of this appendix have been added.

DEGREE LEARNING OUTCOMES

	EXAMPLE 1: Bachelor Degree in **Political Science** by the **University Carlos III of Madrid**	**EXAMPLE 2:** Master's Degree in **Education Quality and Improvement** by **the Autonomous University of Madrid**	**EXAMPLE 3:** Phd Programme in **Science** by the **Rey Juan Carlos University**
TO BE REVIEWED	1. Master political and social research methods and techniques. 2. Use quantitative and qualitative research data 3. Be familiar with political communication techniques. 4. Ability to use information and communication technologies (ICT) and analyse their impact on the political system.	1. Refine and update specialised scientific and technical training in educational itineraries or specialities. 2. Complete a perspective on change and innovation processes, paying attention to the ideas and milestones that precede them from a diachronic viewpoint. 3. Promote didactic research on educational innovation, quality in education, teacher training, evaluation and personalized attention in education and lifelong learning. 4. Encourage the reflexive integration of theory and practice, paying attention to processes of change and improvement in each educational institution or programme and the context to which students are introduced.	1. Perform in contexts in which there is little specific information. 2. Find the key questions that need to be answered in order to solve a complex problem. 3. Design, create, develop and launch new and innovative projects in their knowledge area. 4. Work in a team or autonomously in an international or multidisciplinary context. 5. Pool knowledge, cope with complexity and make judgements based on limited information. 6. Criticism and intellectual defence of solutions.
Actions to be performed / Changes required	Assess whether, based on reading these competences / learning outcomes, the profile of a graduate for this Degree can be inferred. Revise the verbs used (e.g. Master?, Use?). Specify, in the wording of the competence, what is expected and adapt it to the context of the degree (competence 2 and 3). Provide a better wording for competence 4, since students are capable of using ICTs before entering these studies. However, it is important to emphasise the second part. Check compliance with MECES standards and with Royal Decree 1393/2007.	Focus on what students have to do in the learning programme. Assess whether, based on reading these competences / learning outcomes, the profile of a graduate for this Degree can be inferred. Revise the verbs used (Complete? Promote? Encourage?) Assess any possible overlap and, if relevant, group competences as there are four competences and essentially two core ideas: 1) Change / innovation process for educational improvement; and (2) educational research. Use clear wording (e.g. Competence 2). Revise wording (1. Improve…speciality…specialities).	Rearrange competences / learning outcomes in order of importance, with a view to expressing what defines a graduate. Assess whether the competences / learning outcomes expressed make reference to learning activities and assessment systems (competences 1 and 6) To facilitate what you want to do, use verbs (competence 6) Avoid overlapping to the extent possible. There are competences that can integrate others (competence 5 includes 1 and 2). Adapt to the Degree. From reading it, it is not possible to know or suspect what Doctoral programme or even what knowledge area the said programme belongs to. One competence (Work in…) is not an educational competence and does not belong in a doctoral programme as it can be performed without this level of education.
REVIEWED	Students, upon completion of the learning programme, should be able to: a) Analyse the social and political reality through the acquisition and initial use of applied research tools. b) Communicate using specific techniques that are typical of politics, based on an objective analysis. c) Use specific information and communication technologies to perform political functions.	Students, upon completion of the learning programme, should be able to: a) Put together a learning plan for a given context, based on a specific and up-to-date revision of documents. b) Design and implement a research or innovation project based on different fields, such as teacher training, quality and educational assessment, etc. c) Use the necessary means to assess changes introduced in the learning process.	Phd students, at the end of their doctoral thesis, should have performed the following and/or be able to: a) Design, develop and launch new and innovative projects in a specific experimental field related to the line of research chosen. b) Pool knowledge, cope with complexity and make judgements based on available information. c) Defend, in an academic manner, the methodological solutions applied to the preparation of a Doctoral Thesis.
Subsequent verification	Check whether the changes introduced affect other levels of specificity. Check whether it is consistent with the Tier 2 standards of MECES.	Check whether the changes introduced affect other levels of specificity. Check whether it is consistent with the Tier 3 standards of MECES.	Check whether the changes introduced affect other levels of specificity. Check whether it is consistent with the Tier 4 standards of MECES.

LEARNING OUTCOMES OF A MODULE / TOPIC / SUBJECT / SEMINAR, etc.

	EXAMPLE 4: Bachelor Degree in **Political Science** by the **University Carlos III of Madrid**	**EXAMPLE 5:** Master's Degree in **Education Quality and Improvement** by **the Autonomous University of Madrid**	**EXAMPLE 6:** Phd Programme in **Science** by the **Rey Juan Carlos University**
TO BE REVIEWED	1. Understand the policy's conceptual aspects, theoretical frameworks and approaches. 2. Understand the various elements that make up political systems and the environment in which they interact. 3. Understand the structure and functioning of political institutions. 4. Know the fundamentals of compared politics. 5. Understand the behaviour of political agents. 6. Understand the behaviour of citizens and democratic values. 7. Know how electoral processes work. 8. Understand contemporary political theories and ideologies. 9. Understand the historical dimension of political and social processes. 10. Understand the structure, organization and operation of the Public Administrations at different levels. 11. Understand the governance policies. 12. Understand the legal framework under which the Public Administrations work. 13. Understand the economic environment and the economic dimension of the public sector. 14. Ability to plan, implement, evaluate and analyse public policies. 15. Understand international politics. 16. Understand the structure and functioning of the European Union.	1. Integrate knowledge and critically analyse the most remarkable policies, programmes, practices, institutions, individuals and movements in the history of educational innovation, associating social and ethical responsibility, linked to the evolution of education, to their complexity. 2. Integrate knowledge and critically analyse the contemporary elements of the concept of quality and quality policies applied to education implemented in various national and international educational systems as well as their assessment and accreditation methods. 3. Make judgements based on the comparative analysis of different approaches and standards related to educational quality, from an international and contemporary perspective. 4. Interpret international instruments for measuring the quality of education. 5. Design and implement institutional classroom-oriented assessment and intervention programmes aimed at the development of institutions and the professional development of academic staff. 6. Prepare projects and reports focussing on research, innovation, change and improvement of teaching centres. 7. Advise and provide specialised and non-specialised academic professionals reasoned conclusions on quality programmes.	1. Be familiar with the scientific method, its principles, process stages and types. 2. Ability to integrate scientific knowledge, analyse it and make decisions to solve a problem based on social and ethical responsibility and applying professional ethics. 3. Ability to plan experiments, using the most suitable design in each case, to check hypotheses raised. 4. Have detailed knowledge of the scientific field related to the Doctoral Thesis, be capable of identifying the main research challenges and contribute to its methodological and conceptual development. 5. Skill in handling the bibliographic and documentary sources as well as the tools needed for field work relating to each line of research. 6. Ability to write publications and communiqués, structuring them in accordance with typical patterns used in prestigious national and international scientific journals, conferences or congresses.
Actions to be performed / Changes required	Excessive use of the verbs "know" and "understand". Based on the infinitives used, it is difficult to know what learning activities are necessary to achieve the competence. Use verbs that make it possible to anticipate learning activities and assessment systems. Assess whether competences have been included that may exceed the context and possibilities of the Degree (competence 6). Assess whether there are too many competences in the module. They can be grouped and synthesized. Several can be condensed (competences 15 and 16). Harmonic presentation. For example, competence 14 requires a higher cognitive, procedural and attitudinal requirement than the rest.	Clarify, through better wording, the differences between competences 1 and 2 and between competences 2 and 3. If applicable, add and also assess whether "critically analyse" includes "integration of knowledge". In order to clarify competence 5, the thematic areas should be disaggregated. As presented, they can be "general" or Degree level. Competence 7 is directed at "specialized" and "non-specialised" educational professionals regarding the quality programme. If no further information is available, the competence is not sufficiently contextualized.	Harmonize the wording of the expected competences or learning outcomes. Synthesize the wording for a clearer explanation (competence 4). Formulate in terms of learning outcomes (competence 5). Assess whether competence 1 is typical of PhD level and if whether it is not contained in other specific competences.

REVIEWED	Students who complete this module should be able to carry out the design, implementation, evaluation and / or analysis of public policies. For this, they will have to: a) Prepare a synthetic study that comprehensively analyses the various elements of a given political system (local,...), taking into account the different behaviours of politicians and citizens. b) Review the main documentary sources in order to observe or analyse: 1. the history of various political and social processes, 2. a comparative study of political systems, and 3. international politics, especially focusing on the European context. c) Have an general idea of public administrations: legislative framework, structure, organization and operation, management, budget analysis, etc.	Students who complete this module should be able to: a) Perform a critical review of the most important milestones in the history of educational innovation, especially taking into account: strategies and educational policies, programmes, etc.. b) Comparatively analyse different contemporary national and international education systems. c) Interpret the results obtained by the main instruments used to measure educational quality. d) Perform a technical / expert assessment of educational quality programmes, communicating the findings or results effectively to both experts and non-specialist audiences.	At the end of seminar X of Doctoral programme X, participants will be able to: a) Select and use bibliographic and documentary sources as well as the tools needed for field work relating to each line of research. b) Plan experiments, selecting and using the most suitable design in each case to check hypotheses raised. c) Act with social and ethical responsibility and professional ethics. d) Identify the main challenges of the proposed research. e) Contribute to the conceptual and methodological development in the field of study. f) Write publications and communications, structuring them according to scientific standards and conventions.
Subsequent verification	Apply these changes to section 5 of the lesson programme. Design learning activities that make it possible to achieve these goals or adapt to those previously designed.	Apply these changes to section 5 of the lesson programme. Design learning activities that make it possible to achieve these goals or adapt to those previously designed.	Revise the seminar's learning activities, matching them to the competences / learning outcomes proposed.

6.4. Principles and recommendations of the European Consortium for Accreditation, ECA, on learning outcomes in accreditation procedures.

Principle 1: Accreditation organisations should take into account learning outcomes in their assessments, thus enhancing Mutual Recognition of accreditation decisions.

A. Accreditation organizations explicitly include learning outcomes and their assessment in their external quality assurance procedures.

B. Accreditation organisations assure that their LO-related standards and criteria are applied consistently and that experts are trained accordingly.

C. When assessing programmes, accreditation organisations assure that the intended LO of a programme are available to the review team at the start of a QA procedure[19].

Principle 2: Accreditation organisations should assess whether the learning outcomes are in line with the National Qualifications Framework and/or the Framework for Qualifications of the European Higher Education Area.

A. Accreditation organisations assess whether the intended LO satisfy national and/or international requirements with respect to the relevant level and possibly subject/discipline. These requirements may refer to the National Qualifications Framework, to the overarching Qualifications Framework of the European Higher Education Area, to the academic community and/or to the professional field.

B. Accreditation organisations assess whether an awarded qualification is at the stated level in the stated discipline and they evaluate how the institution monitors it.

Principle 3: Learning outcomes are a shared concern of stakeholders and thus accreditation organisations should assess whether the higher education institutions consider stakeholders' opinion when designing or revising programmes and learning outcomes.

A. Accreditation organisations consider whether programmes and/or institutions have clearly identified both their internal and external stakeholders.

B. Accreditation organisations assess whether both internal and external stakeholders actively participate to the process of designing and revising the programme's LO by participating, for instance, in meetings, pedagogical boards, satisfaction surveys, evaluation procedures.

Principle 4: Accreditation organisations should assess whether learning outcomes and their assessment by higher education institutions are understandable and public.

A. Accreditation organisations assess whether the LO and the way they are assessed are published conveniently and easily accessible to the relevant stakeholders.

B. Accreditation organisations assess whether LO descriptions and the assessment methods are understandable. Therefore, particular attention should be paid to:

[19] Recommendation 1.C would be particularly important in the case of ex ante accreditations.

- whether LO are written in concrete and clear terms (simple and short sentences),
- whether LO focus on what students are expected to be able to demonstrate and describe observable abilities which can be assessed,
- whether LO focus on what students are expected to be able to demonstrate and describe observable abilities which can be assessed.

Principle 5: Accreditation organisations should assess whether curriculum design and content enable students to achieve the intended learning outcomes and whether higher education institutions apply proper procedures to assess those intended learning outcomes.

A. Accreditation organisations assess whether the educational aims and objectives are adequately transformed into intended LO.

B. Accreditation organisations analyse whether the teaching & learning activities enable students to reach the intended programme LO.

C. Accreditation organisations evaluate whether the assessment methods applied by the HEI are appropriate to measure the achievement of the intended LO. They check whether there is alignment between LO, teaching & learning activities and assessment methods.

D. Accreditation organisations assess whether the internal quality assurance measures of the programme include mechanisms to ascertain the achievement of the intended LO.

E. Accreditation organizations assess whether higher education institutions ensure students achieve the intended learning outcomes.

Principle 6: In the case of programme accreditation, accreditation organisations should make explicit reference to the programmes' learning outcomes in their reports.

Accreditation organisations include the assessed programme's LO in their reports. Reference is made to the LO that are valid for the programme at the time of the accreditation.

Principle 7: In the case of institutional accreditation, accreditation organisations should evaluate the institution's provisions regarding the implementation and assessment of learning outcomes.

A. Accreditation organisations assess whether the implementation and assessment of LO is based on a carefully tailored strategy at the institutional level.

B. Accreditation organisations assess whether the internal quality assurance system of HEI includes provisions for the implementation and assessment of LO as well as mechanisms to ascertain the achievement of the intended LO.

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