



Leonardo da Vinci



SPANISH EDUCATIONAL SYSTEM AND MODULARISATION

Starting from the Spanish educational system, we can describe chronologically the different types of modularisation system you can find .

Following the options outlined to the lad that has obtained the elementary teaching, we can find that there are two: Continuing in the system or leaving the educational system. If he or she leaves the system, has few options to find an steady job. Although it is possible to obtain it, he or she will surely be able to get low qualification temporary jobs.

If he or she continuous in the educational system, it is outlined the possibility to choose to stay at high school or to opt for vocational training. This cycle lasts two years, when the students are in an age between 16 and 18. If they choose to follow the high school option they will probably follow an university career, if they make it in the vocational training what they will achieve first is a series of technical knowledge to be able to exercise a technical job in a future. This vocational training is organised in modular basis. If they leave the formative system they are both practically in the same situation they were when they had acquired the elementary teaching.

In the high school it is usually taught knowledge, while in the vocational training it is taught technical skills. In the vocational training follows up a modular approach, depending on the job you want to do, you will attend different modules.

The range of the offers of employment, when they acquire the title of half grade in the vocational training, are wide, while paradoxically it hardly exits job offers for students of high school. There are an important nucleus of high school students who decide to move to vocational training to get the title that allows them to have access to the labour market. There are also a series of government initiatives that stimulate the practical tuition of these students of vocational training as they are studying.

If we follow the chronology, high school's student can also opt to have access to the University, in this case the student will have to pass the so-called "selectivity test". This test doesn't give access to the labour market.

If the student passes this test, he or she will be able to have access to the University, which usually happens at the age of 18. From this level on, the student can have access with more possibilities to the labour world and to a practical experience which had not received before. These possibilities increase even more if the student decides to carry out some kind of postgraduate course, a kind of Master degree that includes training in their formative programs.



Age	General Régime Teaching			Special Régime Teaching				
	University Tuition		Doctor 3rd cycle	Arts Teaching		Languages Teaching		
18	Homours Degree (Graduate; engineer) 2 nd cycle		Homours Degree (Graduate; engineer) 2 nd cycle	Advance technical	Superior Title	Superior Title	Superior Cycle	
	Graduate; technical engineer 1 st Cycle		Graduate; technical engineer 1 st Cycle	Advance Studies of conservation and restoration of cultural goods made of ceramic, design and glass.	Superior degree	Superior degree		
16	High School Title		Superior Technician Title Formative cycles of superior degree in specialised vocational training	Superior Technician Formative cycles of Superior Degree in Plastic Arts	High School Title	Professional Title	4 th 3 rd 2 nd 1 st	
	2 nd	Natural and Health Sciences Technology	Technician Title Formative cycles of medium degree in Specialised Vocational Training	Technician Title Formative cycles of medium degree in Plastic Arts	3 rd cycle	Medium degree		6 th 5 th 4 ^o 3 rd 2 nd 1 st
1 st	Humanities and Social Sciences Arts	High School						
12	Graduate in Secondary Education Title		Certification		1 st cycle		Elementary Cycle	
	4 th	Compulsory Secondary Education	Social Guarantee Programs					4 ^o 3 ^o 2 ^o 1 ^o
3 rd	2 nd cycle							
2 nd		1 st cycle						
1 st								
6	6 th	Primary Education						
	5 th							3 rd cycle
4 th	2 nd cycle							
3 rd	1 st cycle							
2 nd								
1 st								
3	6 th	Pre-School Education						
	5 th							2 nd cycle
0	4 th							
	3 rd							3 rd cycle
	2 nd							
	1 ^o		Specific Vocational Training	Plastic Arts and Design	Music and Dance	Dramatic Art		



VOCATIONAL TRAINING SYSTEM (TECHNICIAN TITLE AND SUPERIOR TECHNICAL TITLE) AND HOW MODULARISATION IS APPLIED

Modularisation is spread all over the vocational training system, students can choose different subjects and they have different options. This modularisation is always according to specific job profiles.

Formal Vocational Education has four components:

- § General Education, aimed at developing common general skills, attitudes and knowledge.
- § Basic Vocational Education, intended for developing the basic scientific and technical knowledge and skills needed for a certain group or family of professions.
- § Specialised Vocational Education, the content of which deals with knowledge and skills that are more oriented to producing workers and which treats a profession as a set of job positions; it leads to professional training.
- § On-the-Job Occupational Training, the knowledge and skills that are required for a specific work position, and which are acquired through placements in a real working environment.

Recently the desire to relate education more closely to employment has led to compilation of an official national *Catálogo de Cualificaciones Profesionales* (Inventory of Vocational Skills). Its purpose is to put order and system into the mass of skills identified in industry and into their related education and training, so as to better meet employers' needs. The skills are categorised in the following ways.

- § Occupational Families: these categories are established according to the models used in Basic and in Specialised Vocational Education.
- § Levels of Vocational Skills: applying the same criteria as the European Union, there are five of these (numbered from 1 to 5). Level 1 is basic working knowledge and skills, and level 5 means highly qualified knowledge and skills.

Furthermore, the skills are organised into 'units of competence', meaning sets of work abilities that constitute the minimal units valid for recognition and accreditation. The units include both specific abilities (those that are peculiar to a professional activity) and other requirements for adequate work performance. Each skill is accompanied by information about the area in which the sectors of industry that require it have to operate, and the occupations or jobs connected with that skill.

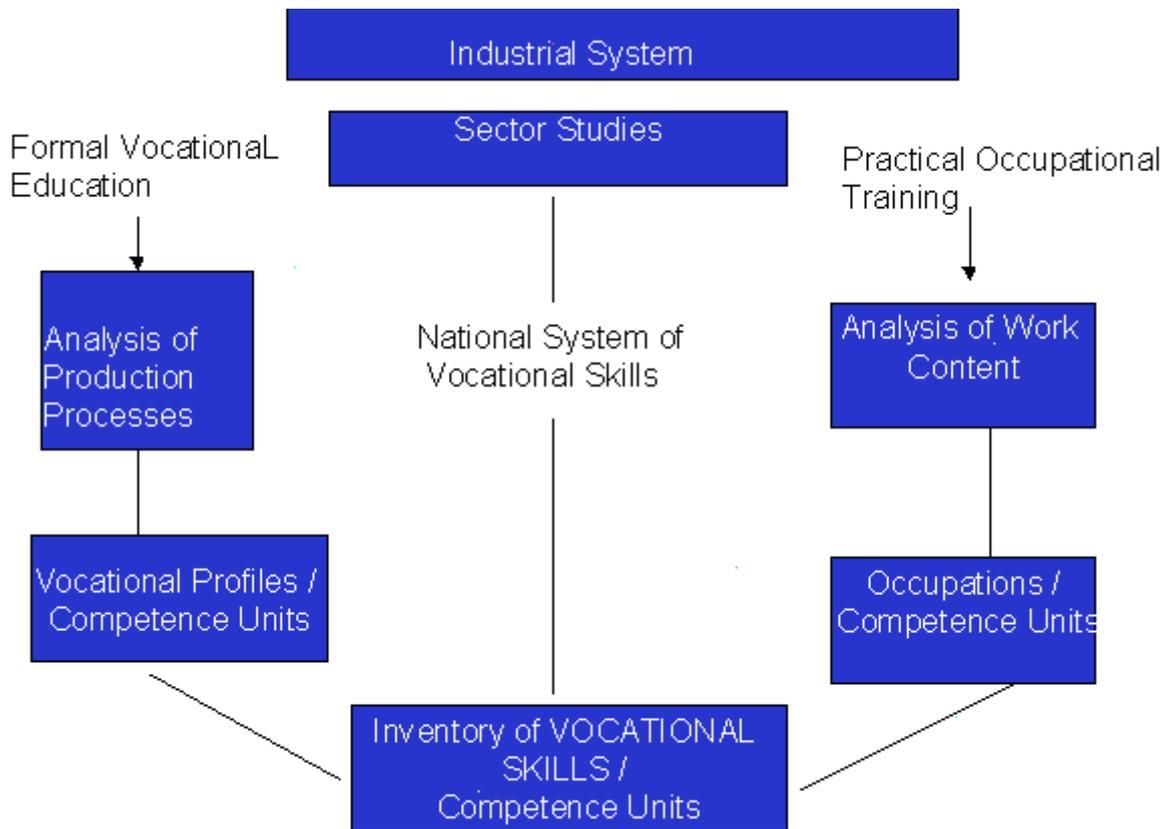
Meanwhile, the *Catálogo Modular de Formación Profesional* (Modular Inventory of Vocational Education) sets forth the learning modules that people need in order to acquire each of the skills in demand on the labour market. In this way, education and employment are tied closely together. Each module is described with a specific number of hours duration, details of the knowledge and abilities to be developed in it, and the evaluation criteria. Along with the modules go the requirements for the institutions in which they are to be taught.

Expert working groups have been formed for each occupational family, with the task of determining that family's skills. The group members are appointed by the Consejo General de la Formación Profesional (Vocational Training Council). The Instituto Nacional de las Cualificaciones (National Skills Institute) is responsible for coordinating the work of the groups. Its first undertaking has been to analyse the industrial sector in order to identify the skills for which there is a demand. The product of the analysis is an outline description of each skill, and this is then submitted for comment to trade



organisations, unions and government departments, as well as to the most important professional organisations and associations in the whole sector.

The following diagram shows schematically how the Inventory of Vocational Skills is compiled.



With all these contributions in hand, it is possible to draw up specifications for a given competence and prescribe the training that is needed in order to acquire it. There is then a second round of consultation with the social stakeholders and government bodies before the skill is submitted for examination to the Vocational Training Council. Finally, it is up to the government, in consultation with the Vocational Training Council, to approve the skills as they are to be listed in the Inventory, as well as the learning modules in the Modular Inventory of Vocational Education.



Higher education in Spain is provided by both public and private institutions. The Ministry of Education with the departments of higher education in the universities coordinates the activities of state and private institutions and proposes the main lines of educational policy. The "Consejo de Universidades" sets up guidelines for the creation of universities, centres and institutes. It can also propose measures concerning advanced postgraduate studies, the defining of qualifications to be officially recognized throughout the country and standards governing the creation of university departments. The legislation on university autonomy provides for administrative, academic and financial autonomy.

The Ley de Reforma Universitaria (LRU) gave rise to a renewal of the existing plans of study, presently intermediate degrees (three years) and superior degrees (five years, six for medicine) which are being replaced by two different types of studies: those of the single cycle, which will run for three years and are directly professional; and those of three cycles in some cases, receiving diplomas which are professionally valid; the B.A.'s (always with various specialties) and the Doctorate (two years and a final thesis).

The basic unit of plans of study include required subjects grouped in courses that the students will have to follow consecutively and elective courses. The courses taken may be mainstream courses (at 30% of the total in the first cycle or 25% in the second) which are those that the University Councils declare obligatory; or electives, chosen freely by the student (at least 10% of the total).

The following **official degrees** can be obtained at Spanish Universities:

<p>I. Bachelor, technical engineer or building surveyor (Diplomado, Ingeniero técnico or Arquitecto técnico)</p>	<p>These are described as "first cycle" courses. They usually have a duration of three years.</p>
<p>II. Bachelor with Honours, Engineer or Architect (Licenciado, Ingeniero or Arquitecto Superior)</p>	<p>In these courses, after completing the first cycle, students undertake a second, in-depth cycle for specialisation in their respective areas and preparation for their professional area. The total duration of these courses is usually four or five years.</p>
<p>III. Doctor</p>	<p>Admission to doctorate studies is only possible for graduates with a Licenciado, Ingeniero or Arquitecto Superior degree. Doctorate students must complete a series of courses for two academic years with a minimum of 32 credits (320 hours) and present a doctoral thesis, which must be approved. The thesis must be original research into material related to the scientific, technical or artistic field of the doctoral programme undertaken by the student.</p>

The group of subjects organised by the universities is called **Curriculum**. If completed, the student has the right to a degree.

The **credit (crédito)** is the assessment unit. It corresponds to ten hours of theoretical or practical teaching. Credits are obtained via the corresponding verification system of the knowledge acquired. This assessment is generally in the form of written or on occasions oral examinations, established by each university.



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Subjects (Asignaturas) included in the curriculum may be:

I. Majors (Asignaturas troncales)	Compulsory material in all curricula leading to an official degree. They represent 30% of the subject load during the first cycle and 25% in the second cycle
II. Compulsory subjects (Asignaturas obligatorias)	These are designated by the university as compulsory for the student within the corresponding curriculum
III. Optative subjects (Asignaturas optativas)	The university establishes these subjects for the students to choose from
IV. Free choice material (Materias de libre elección)	All curricula must devote at least 10% of all credits to this type of material, which the student will apply to subjects, seminars or other activities he/she can choose freely from those given by the university or another university, if permitted by the corresponding joint agreement

OTHER TRAINING DELIVERED AT UNIVERSITY THROUGH SPECIFIC ORGANISATION IN ORDER TO SUPPLY VOCATIONAL TRAINING

One of the strong points of any university has to be the link between the education it dispenses—whether undergraduate or postgraduate—and the needs of the real world of business. This link is not only vital for practical reasons, it is also ethically desirable.

There is a current of opinion among academics that the function of a university should not be to respond to market demands. We too do not believe that it should be necessary to respond to every market demand. Consider, for example, what may happen when the job market calls for certain specific professional qualifications. This in fact occurred a few years ago in the electronics industry, when there was a constant demand for more telecommunications engineers. Encouraging student enrolments in degree programmes in this subject was not the best response. Indeed it would have been a disastrous mistake, for when the electronics bubble burst in 2000 it would have caused a chaotic oversupply. On the other hand it is no use shutting one's eyes to an overwhelming reality, which is that on the one hand students enrol for an education that can help them get a job but on the other hand the present programmes do not conform to business expectations.

The programmes need to be adapted not to specific business demands but to general requirements that would keep our students and other professionals up to date in the working world.

Let us call these business needs 'vocational *competencies*', because what businesses need is people who are competent to carry out certain activities. At present the universities provide the training for this kind of competence through but rather for particular scientific and technical *knowledge*. Therein lies the biggest divergence between the universities and the business world: the universities are concerned with scientific and technical content, while businesses are concerned with vocational competence content—that is, with what a person knows how to do.



Even when the scientific and technical content of degree programmes is revised, one is often left with the feeling that it still fails to take into account the needs of businesses. As in any other ‘undertaking’, failure has just one crucial cause: inability to answer affirmatively the question, “Have we listened to what our ‘clients’ want?” It may seem somewhat mercenary, but we take the view that universities train people to be workers, and that therefore its clients are businesses. But how to get their answers to this question if the universities do not even ask them?

Let us have no illusions: at present few firms approach the universities and ask them to design a training programme made to measure for their workers. Those that are capable of doing so are the large companies, and many of them already have a Human Resources department of their own that takes care of this kind of activity. There are some exceptions, and in those cases it is the universities—or university subsidiaries like the foundations that are typical of Spanish universities—which ought to take the first step and offer their services. The training must not only be designed to meet the general requirements of the firm requesting it, but it must also fit in with their way of working. This means that the firm will want the training to be given in a certain way, in a specific place, following a specific timetable, using specific means, and of course with an evaluation method that will enable them to check whether it has been effective in the short, medium and long term.

The vast majority of Spanish and European firms are microbusinesses and they make use of pre-packaged programmes that are not specific to a particular firm but to a particular sector.

Spanish Universities and in some cases in conjunction with Spanish Chambers of Commerce founded Non for Making Organisation in order to supply these complementary knowledge, they are called University Enterprise Foundations or University General Foundation.

These organisations were set to act as a meeting point between businesses and the University and to build bridges between the latter and its social context.

One of its main activities is to help students and graduates integrate into the professional workforce, and to do this it relies on its training or Employment departments. The following are the Service’s objectives.

- Facilitate workforce integration and professional development for students and graduates
- Provide students with information and guidance to improve their knowledge of the labour market as well as of the businesses and organisations that it comprises, and give them the tools they need in order to make a start in it
- Guide businesses and institutions on how to recruit and incorporate young people from the universities
- Provide complementary training demanded by the labour Market
- Study the work situation of our graduates, the career expectations of our students and the human resources needs of the firms and organisations in our vicinity, with a view to facilitating and improving access to the labour market

Obviously a university degree does not automatically ensure a job these days, but nor is it an obstacle to meeting the demands of the labour market. Nevertheless, though the education provided by a university may be suitable at the outset, an average degree programme lasts five years, and during that time the requirements of the market may have changed considerably both in substance and in form.



Furthermore the market requires different professional profiles combined with different basic academic training according to sector, and that in turn implies different career opportunities for each of our University's degree programmes or areas of training.

In any event, what is clear is that the labour market is a changing one, and its demand is cyclical. The cycle moves faster or slower depending on the sector. Therefore any university should be prepared to evolve in order to adapt to market needs. It should understand clearly that a university education is only an undercoat: it applies an important vocational base, but one that needs to be refreshed continuously. It needs to be supplemented with other educational or experiential activities that would enable graduates to adapt better and better to market conditions and make more stable careers whatever the situation.

In order to do so, the foundation make the following :

- Analysis of final year students' work expectations.
- Analysis of the actual work situation of students. This is done 3 or 4 years after graduation, at a time when their careers should be starting to take their final direction.
- Analysis of business firms' actual requirements concerning this type of degree.

From these analysis these organisation often they have valuable information about demanded skills for specific job profiles and also horizontal (core) competences demanded by the Labour Market . These foundations build training programmes in relationships with these market demands. These training are recognised by the University as Free Choice material and finally included somehow in a formal syllabus.

In order to be accredited by the University as free choice material has to fulfil some requirements of numbers of hours delivered that it can vary and depends on each faculty.

MODULAR TRAINING AT THE UNIVERSITY

Modular Training at the University it is used at Optative subjects and free choice material at the moment and also in all training packages developed by their Universities Foundations.

In our point of view there is two kinds of modular training:

1.- Proper Modular training:

Talking about **Optative modules**, students should choose among a portfolio of modules already established by each Faculty.

In respect to **Free Choice material** In some occasions students can choose modules from other University degrees programmes. It is also that the foundations when they design training programmes they split up a training programme in several training programmes like modules but with a whole content consistent in each module.

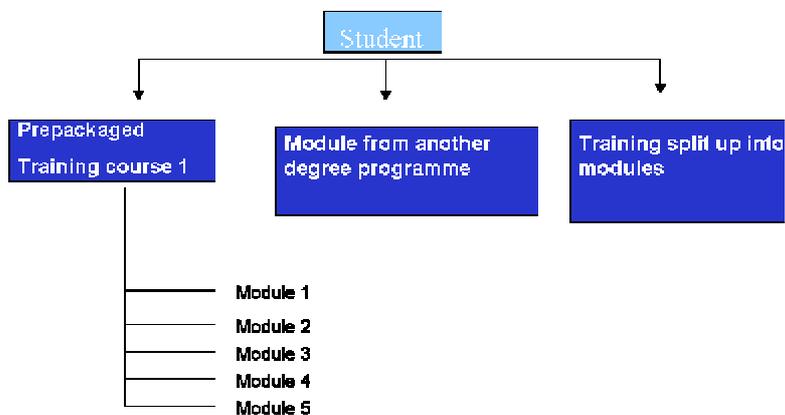
Lets put the example of a training course which has to cover 4 competences, it can be split up on to 4 training course. The only request is that fulfil the requirements asked by each Faculty.



2.- Prepackage Training programme:

It is the case of free Choice Material where the student can choose from different training programmes but they can not choose the modules. In order to be accredited they have to fulfil all modules of each training programme. It is the case of a training in an specific job role. For example lets imagine that the Foundation creates an specific programme for e-commerce manager, if the student wants to be certified in this field. The student can choose if they want to attend this training course or another job role programme, for example IT support training manager. But once he/she choose what training programme, she/he must fulfil all modules from this programme.

KINDS OF MODULAR TRAINING AT UNIVERSITY IN FREE CHOICE MATERIAL



INVOLVEMENT IN EU PROGRAMMES

Universities and its foundations has been involved in several EU programmes which use modularisation as the key concept on the development of new training material, specifically Leonardo programme, like for example FGUVA has been involved in programmes like EU- PROJECT MANAGER, E-COMMERCE AND the current project which tries to establish a network of quality in vocational training called EQN that it is based on the principle of modularisation.

All these projects has served to understand the value of the modularisation concepts and its benefits like for example:

- Reaching much more target audience to training courses.
- Adaptation to students needs, since they choose what it is of his/her interest.
- Sharing knowledge, material and experts from different backgrounds

NEW TENDENCIES: CORE COMPETENCES A CONCEPT TO BE MODULARISED

Spanish and also other European Universities often as expressed before, provide enough knowledge but they miss some important request from companies , it is the core competences they request from an University degrees. These competences are those competences that are common or can be common to whatever job position where a university degree graduate (alumni) is employed. These are competences like: Teamwork, Critical thinking and problem solving, oral and written skills, etc. these competences should be possessed for all degree students independently from what university degree they came from. These competences are easily modularised and also they are what the market is demanded.



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It will enlarge the understanding of what modularisation means and how it can be used at university level, creating platforms which allows students to choose and to get train in one or several core competences depending on their own needs.

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