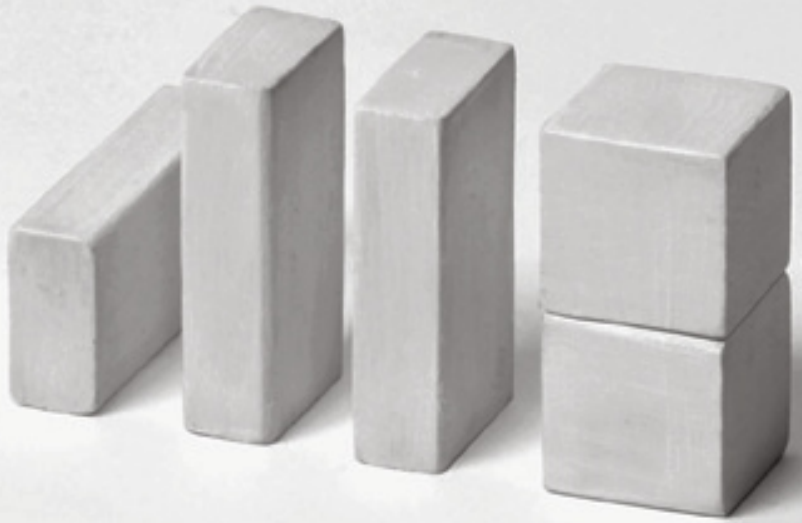
Formación Curricular de Diseño para Todos en Arquitectura



Education on Design for All in Architecture Curriculum

INSTITUTO DE MAYORES Y SERVICIOS SOCIALES (IMSERSO)

The Instituto de Mayores y Servicios Sociales proposes, manages and monitors national social services plans and has several centres with specific functions in the fields of disability and elderly people.

FUNDACIÓN ONCE

The Fundación ONCE is the expression of the commitment and solidarity of visually impaired Spanish people with other groups of people with disabilities.
The Fundación ONCE works for equality of opportunities and the improvement of the quality of life of people with disabilities, through plans for Universal Accessibility, Design for All and by encouraging the training and occupational placement of this group.

COORDINADORA DEL DISEÑO PARA TODAS LAS PERSONAS EN ESPAÑA

(EIDD - Design for All Europe in Spain)

Founded in 1996, our Association aims to bring together all bodies, administrations, corporations and professional firms with an interest in Design for All, understood as a conception of environments, products and services so that everyone, including future generations, irrespective of gender, age, abilities or cultural background, can enjoy all the elements of their environment and take part in social development.

Education on Design for All in Architecture Curriculum

TABLE OF CONTENTS

0.
PROLOGUE

0. PROLOGUE

Coordinadora del Diseño para Todas las Personas en España

Francesc Aragall, President of the Coordinadora
Jesús Hernández, Vice-President of the Coordinadora

After publishing the "White Book of Design for All in Universities" in 2006, as a result of the cooperation between the *Coordinadora del Diseño para Todas las Personas en España,* the *Instituto de Mayores y Servicios Sociales (IMSERSO)*, the *Fundación ONCE para la Cooperación e Inclusión Social de Personas con Discapacidad* and different bodies at Spanish universities, and in accordance with the very positive acceptance of both the concept of *Design for All* and the various contributions made throughout the first project, the Coordinator understood that it was the right time to take the next step and increase awareness about the experiences acquired, as well as spreading their actual implementation in universities.

Therefore, this new project was proposed in order to take advantage of a moment at which universities, as a reflection of society itself, are undergoing a process of change due to the Bologna accords, which advocate the harmonization of the curricular plans for university degree programs in the member states of the European Union. All of the universities that cooperated on the preceding project expressed their agreement that it was very advisable to bring together the contributions for the inclusion, as is required, of *Design for All* in the curricula.

Yet again, this project was made possible thanks to the economic support of the IMSERSO and the Fundación ONCE.

Therefore, this set of publications contains five open proposals for curricula in the same number of university education subject areas. In order to achieve a more immediate benefit for society, the decision was reached to work on the technical degree programs most directly related with the constructed environment and information technologies, and therefore those indicated below are the fields which were selected:

- Architecture
- Design
- Information Systems and Telecommunications
- Road, Channel and Port Engineering
- Industrial Engineering

In order to produce the documents which were later published, five seminars were held, one for each degree program, at which different teams from the different Spanish universities involved were brought together. They reached agreements regarding the contents to be used in drafting a final proposal, which was approved by the project's Scientific Committee.

We hope that this collection constitutes an effective form of support for those university faculties which are already including *Design for All* within their educational programs, as well as a stimulus for those which have yet to deal with the inevitable challenge of doing so in order to contribute to providing the future professionals who will be building the future of our society with the most well-rounded education possible.

1.
INTRODUCTION

1. INTRODUCTION

Design for All, an approach: design thinking for social integration

Avril Accolla
Vice-president of EIDD-Design for All Europe

All the actors involved in education are essential in the process of having satisfied, independent individuals enjoying a Society for All, Design for All gives new perspectives and possibilities to this field of expertise and action. Getting rid of certain specific barriers can be relatively easy when we have both the will and the means. Building a world that values human diversity and caters for the needs and desires of a complex, globalized society is a challenge: Design for All faces this challenge with a holistic approach and a process based on design thinking.

In striving for a Society for All, we need to achieve synergy in professional consulting and awareness in all aspects and levels of the process. That's one of the reasons why the release of these five white books relating to five different areas of professional culture is so exciting (design, architecture, industrial engineering, ICT, civil engineering).

While developing this project, it has been a pleasure witnessing the great level of awareness and development of Design for All among the Spanish colleagues, authors for these white books.

The research and the planning inputs are both a practical guide to work with and an

inspiration. The broad and renaissance approach gives an insight on how deep and powerful such a proposal can be. Both the methodology and the content produced represent a needed breakthrough in the university curricula.

There are many important challenges in these documents and set by these documents. One of the most subtle, but equally relevant, is the proposal to have Design for All and human diversity transversally permeating all the subjects in which the relation with the individual makes a difference, so flanking a further specific course on Design for All. Focusing on human diversity in various areas and levels will also start a capillary research which will give, both professors and students, those tools most needed for the further Design for All specific course. This will lead to a cultural revolution: not acceptance anymore, but true valuing of the richness of human diversities and integration.

Future professionals will build and rule the society. Leading them through what is human diversity and how much it influences the result of our planning and actions will make that paradigm shift which will shape an inclusive and more effective development because it starts from the understanding of the needs and aspirations of *real* people.

When welcoming Design for All approach, which will be the effects in education? This is an issue that is not so common to find debated. In the proposals and experiences presented we can find a Design for All approach to the pure content (what subjects to teach), the form of the content (how enabling is the content, from a cognitive and sensorial point of view), the way the content is dealt with (ways of teaching, working and experiencing which value human diversity), finally how enabling the structure and the organization of the university is. These themes, not strictly connected to a specific faculty and profession, can be fruitfully

developed in a research program on Education for All.

Stakeholders and decision makers are as essential as planners and developers in the Design for All process of achieving a Society for All. It is a key factor to introduce the relevance of human diversity and Design for All to the law and business worlds.

Managers will be aware of just how much more successful the business gets through Design for All and start asking for it, with a clear benefit for society.

Legislators will have better tools to set guidelines (not technical data) which are open to the diverse needs, but strict with the necessity to strive for integration.

Therefore, I hope that the initial proposal to develop a white book on the Design for All Curricula with both the law and the business faculties will happen in the near future within the next step of this outstanding project.

In these books there is no mention to accept, tolerate or even respect human diversities: maybe that's the greatest message, the step forward, Design for All cutting edge of innovation. Human diversities are a reality as such and working holistcly with them will lead to a more efficient, effective, beautiful and exciting project. Desires and aspirations are in the same league with needs and necessities: being able to enter it is simply not good enough; the person interested in entering must want to enter and enjoy the experience.

Design for All does one of the most difficult jobs, it values human diversities. That's why Design for All is a winner: gets *real* people satisfied.

A comic may set the pace

Are we Superman's clones, one size and one mind?

Superman dresses himself up as Clark Kent to mingle among us, real Clark Kents, who disguise ourselves as Superman to conform to the designed artificial environment.

We adapt to standards, expecting nothing more than standardized answers to standardized needs set by a *Deus ex Machina*, quite absentminded and with little clue of our real needs.

Standards have a sensible purpose when achieving matches between parts of machines, based on their similarities. Humans are not machines: standards simply don't fit and don't work.

Design for All has a broader picture: using design thinking for social integration.
Design for All answers by respecting human diversities and using them as one of the richest tools to achieve social integration in the most effective, creative and satisfying way.

Our discomfort in managing daily life (handicap) is generated by social and design factors: it is not generated by our disabilities, competences, knowledge etc. The things and environments we use were not devised for us, but for somebody else: somebody with a benchmark imagery technically dedicated to the specific situation of use, somebody who speaks a different language, somebody with a different system of cultural de-coding, somebody with different intentions and necessities of use, somebody who is younger or older, stronger, and so on.

Why does this happen?

In today's design practice, human diversity is not perceived as a complex reality to cater for. When it is considered, human diversity is limited to mere anthropometric evaluations: how much does the size of the palm of your hand matter (which, by the way, it is not easy to find in manuals) in the use of a remote control which implies de-coding, comprehension and managing the interface in different use situations?

Ergonomics has long been proposing the systemized and structured involvement of the end user in the phases of concept, design and control. This is a fundamental and valid principle: but do the hypothetical users examined and involved represent us? For example, does the methodological system applied to evaluate the use of packaging for medicines anticipate greasy hands, the presence of smoke, a headache and residual panic?

Design for All, glimpses

- **Design for All**

In 2004 EIDD Design for All Europe in its Stockholm Declaration© defines Design for All as "design for human diversity, social inclusion and equality".

The nature of the Design for All culture and philosophy is a working in progress one: intrinsically updating and self-poietic.

Design for All is an approach, a paradigmatic evolution of the way of thinking, looking at and acting.

Design for All is a design concept: it manages social complexity with a seamless holistic approach. It is a radical innovation which obtains a better life quality for All.

Design for All is a methodology and is implemented in a process.

Design for All finds in holistic ergonomics[1] one of the most structured and adequate complex tools in exploring and understanding human diversity.

1. *Bandini Buti L. (2008), "Ergonomia Olistica", FrancoAngeli, Milano*

Ultimately, Design for All is design at its best, performing excellence in the functional, communication and aesthetic aspects, no matter if it's a building, a political campaign, education, a theme park, a city or society in itself.

- **Use and experience**

Using something it is not like experiencing something. Seldom, maybe never, we use things or situations or environments: we do experience them.

Use is a laboratory like simplification of what actually happens: use it is more an analysis parameter to simplify a research then anything else. Use refers to a mono-target utilitarian aim of discharging a need or carry out a specific function.
Evidently enough we are not users. We do not behave like users. We do not act like users. Facing a situation, emotions are involved. Senses are involved. Desires, aspirations and expectations are involved. Culture and habits are involved. We are *experiencers*, not users. There's also a strong element of unpredictability to be managed.

Planning and designing for human diversity in a context of experiences opens up a great variety of possibilities, challenges and richness.

Designers do not design bad or good things, they design experiences, which can end up

successfully or disastrous. Mono-target utilitarian functions are simply not enough to provide comfort, satisfaction and well-being. The Design for All approach answers to the needs, abilities, desires and aspirations: Design for All is about creating the best experience for all.

- **Beauty**

If it is not beautiful, it is not Design for All. Bold to say, but quite true.

Design for All recognizes and exalts the role of aesthetic quality in the processes of comprehension and use/experience. Aesthetic excitement it is a specific users' need as the others, in many cases one of the most relevant. Design for All must answer it as it answers to the other needs. As D.A.Norman says, there's also a strong emotional factor in the way objects are used, the emotional side of design can be more influential then the practical ones.

Human nature it is naturally drawn to beauty, and beauty is, among trends, fashions and mores, actually a recognizable factor.

Cognitive psychology shows us that beauty not only is a pleasure, but can also enhance both the comprehension and the comfort of use. Positive emotions amplify our creative thinking and reacting.[2] A beautiful environment has an effect on the social relations and tends to be more respected.

Synaesthetic beauty performs a maximum level of efficiency and effectiveness in comparison with a mono-sensorial quality experience. Synaesthesia does facilitate cognitive processes, and gives a more intense and richer experience.[3] A planner or a designer, who works effectively on a multisensorial synergy, not only provides a better experience for all, but gives

2. On relations between emotions and cognitive processes, Joseph E. Le Doux "The Emotional Brain: The Mysterious Underpinnings of Emotional Life" ed. Simon & Schuster.

3. R. Lurija, The Mind of a Mnemonist, 1968.

various possibilities to the different residual sensorial abilities.

Synaesthetic beauty it is intrinsically a tool for a Design for All approach.

- **All**

Design for All is for All. Who are those All? How do we implement a utopia?

The All of Design for All are all the individuals who desire to experience the designed item (a product, an environment, a service, etc.) which the decision makers want to implement: this is the Design for All target.

Desire is the key issue, and it is the real correct and only element of discrimination. Desire is one of the elemenst which brings Design for All as a winning approach in a mature market, as the one many of us are living in. Design for All marketing, a discipline recently founded, deals with the typical issues of market segmentation in relation with the inclusive Design for All approach and human diversity investigating tools. Among the innovative marketings, it is quite effective also to explore the relations between Design for All marketing and Co-creation marketing, Aesthetics marketing, 3 Values marketing and Lateral marketing.[4]

During the Design for All process the user varies many times, according to the part of the value chain we are concentrating on, the item we are designing, the level of abstraction we are in that specific moment (idea series 0), etc. The All are differently defined in the meta-design phase and in the design one.

4. D.Gilardelli, in A. Accolla (2008), "Design for All. Il progetto per l'individuo reale" FrancoAngeli editore, Milano.

In a strictly design phase, are defined autonomous experience, autonomous users and limit users.[5] These are design tools that help the implementer of the design brief to create the most enabling experience possible. This also becomes feasible when the critical issues of a project are designed to meet the challenge of human diversity and not to solve the problems of barriers.

5. A.Accolla (2008), "Design for All. Il progetto per l'individuo reale" FrancoAngeli editore, Milano.

- **Involving**

The Design for All approach involves from the very first beginning, before the design brief is even mentioned, designers, users, decision makers/entrepreneurs and human sciences professionals. The decision making process counts and features a constant consulting and feedback with these actors till the very end of the process, using different tools according to the phases.

Doing so, the Design for All process gets the best possible result from the actors and competences available.

Getting public and private decision makers onboard is essential for Design for All: they are the ones who decide to start a Design for All process from the very beginning. They also contribute through the process with a specific and relevant experience.

Getting the designers onboard from the initial steps provides the process with the self-poietic design thinking, which makes a strategic difference.

Asking the contribution to all the diverse users and consumers of the value chain will ensure a result that answers their needs and aspiration. It will also help the designers to go beyond subjectivity.

The consulting of the human science concerning the project area, will give the planners and the designers the necessary tools to know better about human diversity and implement the Design for All process valuing human specifities.

Under these circumstances, failure is particularly difficult to achieve.

- **Accessibility**

Accessibility it is a *condicio sine qua non* for Design for All. If it is accessible though, not necessarily it has a Design for All approach. Accessibility it is necessary, but not sufficient. If something is accessible I can use it, but the real question is: am I really in a position to experience it thoroughly? Do I want to use it?

An environment, a service, a product is a relevant result of a Design for All approach when the person experiences it with satisfaction in all its possibilities, one's abilities, necessities and aspirations are respected, and one's specificities are valued.

In an old-fashioned comic, a wise character use to say “Not all the diverse are the same”.

It is defined “functionally accessible social discrimination”[6] the identification of all those systems which provide *ad hoc* solutions, designed to cater only for the specific needs of a defined user group, solutions which are placed with no synergy in a system designed for an non-existent standard user. This strategy creates discriminatory situations for the user group to be included, and quite often also for others. A kind of designed discrimination that happens when design process for inclusion is based on a mere juxtaposition of various exclusive approaches. It happens when we try to group individuals under the umbrella of a

6. A. Accolla in “The processes to implement Design for All, setting the frame” EIDD International Conference “Work for All”, Waterford 2006.

'common function', a 'common ability', and so on. A typical example is the blind implementation in public spaces of accessibility norms, placing specific areas for disables (the norm actually refers to wheelchair users when writes 'disable') separated from the rest of the people, meaning also friends and family. The person who uses a wheelchair, her/his family and friends, are actually socially discriminated because they can't enjoy the movie together, or the tennis match, or whatever activity they have chosen.

- **Norms and laws**

Norms have a fundamental function: they create an unquestionable obligation and they force decision makers to comply with some basic necessities of the user. When planners and designers conform to norms uncritically and correcting their finished work, there's a high risk of damage, of functionally accessible social discrimination, or even a long stop in the drive of cultural and social creative development. There's a high risk to level solutions to the lowest performance.

The implementation of Design for All in the social, political and business development areas promotes the definition of norms and laws through a holistic and inclusive methodology. Norms can be defined with the participation and co-designing from the very beginning with representatives of various disciplines, the stakeholders and the different users of the whole value chain. This avoids what have happened more then once, when an unaware legislator or a very proactive specific group designed a law which strictly enables only a specific group, actually disabling the others.

Often norms are perceived by designers and planners as a plaster against creativity. The wrongly designed ones can really become a nightmare. Generally speaking though, it can be a

design methodology issue. Design for All considers norms as a requirement among the various others that a project usually has, (such as production issues, budget, shelf-life, etc.) and works with them from the very first steps of analysis and ideation. As a result it creates an effective synergy between the elements and avoids disabling situations both on the material and social level.

- **Common aspects**

As a designer and a design director I work close with marketing and ergonomics, doing so I've found quite interesting aspects which hold quite some relevance in a Design for All approach.

Design for All, marketing and holistic ergonomics express the new humanism. The three disciplines have three different backgrounds, three different approaches with the same challenge and the same target: the human being in the center, with man and for man in his individuality and specificity.

Historical evolution is similar in the three disciplines: the more mature they are, the more they tend to reach man and satisfy his more subjective, peculiar and specific needs. Each one of these discipline with its own tools: ergonomics broads percentiles, marketing focuses on individual perceived values, Design for All theorizes valuing the difference through the *modus progettandi*.

They are three mirrors of the same society which evolves in the same direction.

- **Teaching and sharing, a personal experience**

In the last decade I've experienced teaching Design for All and related subjects, such as holistic ergonomics, design direction, system design, to various type of students in different realities: public and private universities, companies, boards, events, etc.

With such a humanistic and complex subject such as Design for All approach, which needs first of all awareness, cultural and philosophical understanding, I've experienced that the Socrate's maieutic approach is quite effective and rarely fails. It is both time and energy consuming, so means need to be carefully planned.

At all levels, from first year students to mature middle-high managers, without application and implementation of some sort, the concepts are lost and sometimes misunderstood according to personal expectations. Also the capability of being proactive in the field fades away. It remains though a good level of curiosity and an inspired awareness of a new challenge and an immense opportunity: this will lead some to go deeper.

Tactic tools vary quite a lot according to the area of expertise of the audience. On a strategic level, cultural anthropology and cognitive psychology are opening the minds to a dawn on human diversity which then keeps them alert on the other steps, such as deepenings, examples, tools, etc. The highest challenge in teaching Design for All is making people concretely aware of the deepness and capillary relevance of human diversity and its freedom and unpredictability. This is a scary step, because once acknowledged, it changes irreparably the students' vision on their work, activity and approach.

The second huge challenge is, once they have understood the nature and the vastness of human difference, to convince them that it is not utopic to work with it and cater for it.

Teaching to future or actual designers I witness daily how design way of thinking, looking at and acting, quite naturally goes for a synaesthetic, multisensorial Design for All experience. The design tools, both on a strategic and tactic level, are so efficient in a Design for All approach that they seem to be made just for it (and maybe it is so, if we analyse the bottom line of a Design for All approach).

Teaching to future or actual managers, within the design field or not, I experience the cliché the design world is suffering and how a Design for All approach can atomized it. The surprise of human diversity brings in an astonishing paradigm shift which has the great value not to be disputable. The striking strategic power of the sheer design tools such as "questioning the *status quo*" gives the managers, combined with the immense opportunities of human diversity, a good glimpse on the concrete feasibility of relevant economic growth through social integration.

2.

EDUCATION ON DESIGN FOR ALL IN ARQUITECTURE CURRICULUM

2. EDUCATION ON DESIGN FOR ALL IN ARQUITECTURE CURRICULUM

2.1. Structure of contents

The curriculum which is proposed for the university degree in Architecture is of a modular structure with the curricular contents and competences to be worked on having been arranged into thematic modules, which in some cases are required and in others optional. The goal is to place a priority on the required subjects over the others which are optional. By doing this, it is made possible for the future degree programs of the different universities to benefit from sufficient flexibility when introducing those contents related with *Universal Accessibility* and *Design for All* into the thematic blocks which make up those degree programs.

Although there are contents which may upon first glance seem distant from the professional practice of people holding degrees in Architecture and Engineering, etc., in the case of *Universal Accessibility* and *Design for All* they are considered fundamental for achieving an effective, accessible physical environment.

Therefore, a structure made up of three types of training is proposed. As a whole, they will amount to a total of 30 ECTS credits.

The types of training proposed are those which are indicated below:

1. Common Training
2. Specific Training
3. Practical Training

The proposed training structure achieves compliance with *Royal Decree 1393/2007 of October 29, 2007, whereby the organization of official university education programs in Spain is established*, in terms of its purpose, which is none other than developing the structure of official university teaching, in accordance with the general guidelines issued pursuant to the European Higher Education Area, as established in Article 1 thereof.Likewise, in Article 3.5.b of the aforementioned Royal Decree, a set of general principles is established, upon which the new degrees must be based. These include the respect for and promotion of Human Rights and the principles of *Universal Accessibility* and *Design for All* in accordance with that which is established in Final Provision Ten of *Law 51/2003 of December 2, 2003 on Equal Opportunities, Non-discrimination and Universal Accessibility for People with Disabilities (LIONDAU)*. Doing so requires the inclusion of subject matter related with the aforementioned rights and principles.

As a result, bearing in mind the requirements of the Royal Decree on the organization of university education programs, as well as the experience gathered in providing training on the subject of accessibility at the university, a set of contents have been brought together for each of the three types of training mentioned above, bearing in mind their specific characteristics.

2.1.1. Common Training

Common training is defined as training which is transversal and indispensable, and which should be included in the basic education for the different degree programs of those professionals who hold responsibilities, at whatever level, involving the design and construction of the physical environment in which all people carry out the various activities of their everyday lives. And it is defined in this way, because this training is to be aimed at ensuring that students acquire the basic knowledge and skills in the subject of *Universal*

Accessibility and *Design for All*.

The minimum contents which must be included in the common training are those indicated below in Table 1.

Table 1. Contents of the Common Training

Contents of the Common Training	1) Equal opportunities and the factor of quality of life for the people
	2) Human diversity, differentiated needs
	3) Legal framework and basic regulation

This common training accounts for 20% of the total credits which are proposed as a part of the curricula as a whole.

2.1.2. Specific Training

The specific training for the degree in Architecture is the training aimed at ensuring that students acquire the knowledge and skills ("competences") specific to their degree in the subject matter of *Universal Accessibility*, in terms of all those competences included within *Order EDU/2075/2010 of July 29, 2010, whereby the requirements are established for the verification of official university degrees which enable the degree-holder to exercise the profession of Architecture*.

Therefore, it is proposed that the contents regarding the subject of accessibility be configured through the various specific areas which may fit within the fields of teaching that form part of the degree program in Architecture.

The minimum contents of the specific training are those which are indicated below in Table 2. It is proposed that they account for 50% of the total number of credits.

Table 2. Contents of the Specific Training

Contents of the Specific Training	Areas of Teaching within the Architecture degree program
1) Accessibility in the newly constructed physical environment: Building, Urban Planning and the Natural Environment	- Physics - Installations and Services - Architectural Constructions - Architectural Graphic Expression - Mechanics of Continuous Media and Theory of Structures - Architectural Projects - Urban Planning and Territorial Organization - Legal Architecture - Applied Economics
2) Accessibility in the existing physical environment: Restoration in Building and Urban Planning	- Physics - Installations and Services - Architectural Constructions - Architectural Graphic Expression - Mechanics of Continuous Media and Theory of Structures - Architectural Projects - Urban Planning and Territorial Organization - Legal Architecture - Applied Economics

3) Accessibility in Tourism and Entertainment	- Installations and Services - Architectural Constructions - Architectural Graphic Expression - Architectural Projects - Urban Planning and Territorial Organization - Applied Economics - Urban Sociology
4) Accessibility in the Natural Environment	- Installations and Services - Architectural Constructions - Architectural Graphic Expression - Mechanics of Continuous Media and Theory of Structures - Architectural Projects - Urban Planning and Territorial Organization - Legal Architecture - Applied Economics - Urban Sociology

2.1.3. Practical Training

The third fundamental part of the curriculum is made up of practical training, given the type of students for whom the curriculum is intended.

This training system involves carrying out practical tasks in projects which form part of the concrete reality of the city and the natural environment, corresponding to each field of specific training.

The contents of the practical training are indicated below in Table 3.

Table 3. Contents of the Practical Training

Contents of the Practical Training	Practical Exercise 1. Intervention in an urban area in the city: building and urban project.
	Practical Exercise 2. Intervention in an area in the natural environment: building and environmental project.

This practical training accounts for 30% of the total number of credits in the program.

2.1.4. General Configuration of Contents and Credits

To provide a summary, the breakdown of the credits which is proposed would be as shown in Table 4 below.

Table 4. Summary of the assignment of credits for the degree in Architecture

Type of Training	Number of Credits (ECTS)	Number of Student Course Load Hours *	% of Total Credits in the Training
Common	6	150	20
Specific	15	375	50
Practical	9	225	30
Degree TOTAL	**30**	**750**	**100**

* *The number of hours per ECTS credit is 25, including those with attendance in person and those that do not require attendance.*

2.2. Knowledge and skills to be acquired by the students

The list of knowledge and skills (competences) which the students must acquire is indicated below.

Basic Competences

1. Knowledge of the relationships between the conditions of a person with a disability and use of the physical environment.
2. Knowledge of the concept of *Design for All* and accessible construction.
3. The ability to apply the required rules and regulations governing the topics of *Universal Accessibility* and *Design for All*.

Specific Competences

4. The ability to introduce *Universal Accessibility* and *Design for All* as transversal elements in the practice of urban and territorial planning.
5. The ability to introduce *Universal Accessibility* and *Design for All* as transversal elements in producing building projects.
6. The ability to introduce *Universal Accessibility* and *Design for All* as transversal elements in the execution of building works.
7. The ability to perform the management of urban and territorial planning and that of building from the perspective of *Universal Accessibility* and *Design for All*.
8. The ability to perform the management and substitution of *Universal Accessibility*.

The relationships to be established between the competences and learning goals are those indicated below in Tables 5 and 6.

Table 5. Relationships between basic competences and learning goals

Competences/ modules	Results of learning	Conte-nts*
1. Knowledge of the relationships between the conditions of a person with a disability and use of the physical environment	- Knowledge about people and carrying out their activities	1.1
	- Knowledge about the environment in which those activities are performed	1.2
	- Knowledge about the relationships between people and	1.3
2. Knowledge of the concept of *Design for All* and accessible construction	- Knowledge about the concept of equal opportunities	2.1
	- Knowledge about the principles of *Design for All*	2.2
	- Using the principles of *Design for All* in a project on the physical environment for later building	2.3
3. The ability to apply the required rules and regulations governing the topics of *Universal Accessibility* and *Design for All*	- Knowledge about the rules and regulations of required compliance	3.1
	- Configuration of accessibility levels	3.2
	- Producing the minimum parameters for accessibility in accordance with regulations	3.3
	- Introduction of the minimum parameters for accessibility in the remaining parameters	3.4

* 1.1: *Module Number. Number of the Content of that Module.*

Table 6. Relationships between specific competences of the degree in Architecture and learning goals

Competences/ modules	Results of learning	Conte-nts
4. The ability to introduce *Universal Accessibility* and *Design for All* as transversal elements in the practice of urban and territorial planning	- Knowledge about the basic concepts of Urban Planning and Territorial Organization	4.1
	- Knowledge of the methodology for carrying out urban and territorial planning: required rules and regulations	4.2
	- Knowledge of the methodology for analyzing accessibility in the physical environment: Municipal Accessibility Plan	4.3
	- Knowledge of the parameters of accessibility to be used in urban design and design for the natural environment	4.4
	- Knowledge of the methodology for production an action plan to solve accessibility problems: Municipal Accessibility Plan	4.5
5. The ability to introduce *Universal Accessibility* and *Design for All* as transversal elements in producing building projects	- Knowledge about the basic concepts of constructed ergonomic architecture	5.1
	- Knowledge of the differences buildings for public gathering and residential buildings as homes	5.2
	- Knowledge of the required rules and regulations affecting them	5.3
	- Knowledge of the differences between new construction works and intervention in previously existing spaces	5.4
	- Drafting an accessible building project	5.5

6. The ability to introduce *Universal Accessibility* and *Design for All* as transversal elements in the execution of building works	- Knowledge of the concept of accessible construction	6.1
	- Knowledge of the tools for achieving accessible construction	6.2
	- Knowledge of the tools for accessible maintenance	6.3
	- Drafting a project for the Technical Direction of a Work Site being built	6.4
	- Drafting a Maintenance Plan for a building under construction	6.5
7. Ability to perform management of the urban and territorial planning of building from the perspective of *Universal Accessibility* and *Design for All*	- Knowledge about the basic elements in managing urban and territorial planning	7.1
	- Drafting a protocol for urban planning management	7.2
	- Drafting a protocol for territorial planning management	7.3
8. Capacidad para desarrollar la gestión y la suplencia de la *Accesibilidad Universal*	- Knowledge about the areas involved in the management of *Universal Accessibility*	8.1
	- Knowledge about the contents of projects and programs for action in the city and in territory	8.2
	- Drafting a *Universal Accessibility* management protocol	8.3

3.

MEMBERS OF THE DRAFTING COMMITTEE

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The people who have cooperated to help draft this document by taking part in the Seminar and forming part of the Drafting Committee, with the objective of carrying out the combined task of producing this document titled *Creating a Design for All Curriculum in Architecture,* were as follows:

- **Francesc Aragall.** President of the Coordinadora del Diseño para Todas las Personas en España and Managing Director of ProAsolutions, SL
- **Imma Bonet.** Executive Patron of the Design for All Foundation
- **Marta Bordas.** Professor and representative of the Advanced Technical School of Architecture (ETSA) of the Vallés Region
- **Juan Calatrava.** Director of the ETSA of Granada
- **Luís Delgado.** Profesor of the ETSA of Granada
- **Ángel Fernández.** Representative of the ETSA of Granada
- **Luís Izquierdo.** Director of the Library at the ETSA of Granada
- **Juan Monjo.** Professor and representative of the ETSA of Madrid
- **Consuelo del Moral.** PhD from Universidad de Granada, architect, Professor of the Department of Architectural Constructions at the ETSA of Valencia and coordinator of the seminar on Architecture degree programs
- **Juan María Moreno.** Professor and representative of the ETSA of Valencia

- **Nieves Navarro.** Vice-Rector of the Campus of Universidad Politécnica de Madrid
- **Josep Roca.** Professor and representative of the ETSA of Barcelona
- **Enrique Solana.** Professor and representative of the ETSA of Las Palmas de Gran Canaria
- **Ignacio Valverde.** Director of the Department of Architectural Constructions, of Universidad de Granada

4.

MEMBERS OF THE SCIENTIFIC COMMITTEE

4. MEMBERS OF THE SCIENTIFIC COMMITTEE

In order to ensure the consolidation of the project's objectives, it was essential to ensure the involvement of those role-players most directly involved in the university degree programs chosen for the project, as well as experts in *Design for All* at the national and European levels.

As a result, the Scientific Committee was made up of the following members:

- **Francesc Aragall.** President of the Coordinadora del Diseño para Todas las Personas en España y Managing Director of ProAsolutions, SL
- **Jesús Hernández.** Vice-President of the Coordinadora del Diseño para Todas las Persona en España and Director of Universal Accessibility of the Fundación ONCE
- **Avril Accolla.** Vice-President of the EIDD-Design for All Europe
- **Julio Abascal.** Tenured Professor of Architecture and Computer Technology, Universidad del País Vasco
- **Francisco Alcantud.** Professor and Deputy Rector for the integration of people with disabilities, Universidad de Valencia
- **Nestor Garay.** Professor of the Department of Architecture and Computer Technology, Universidad del País Vasco
- **Daniel Guash.** Academic Director of the Accessibility Professorship, Universidad Politécnica de Cataluña
- **José Antonio Juncà.** Doctor of Road, Channel and Port Engineering

- **Consuelo del Moral.** Professor of the Advanced Technical School of Architecture, Universidad de Granada
- **Delfina Morán.** Professor of the Advanced School of Art and Architecture, Universidad Europea de Madrid. Department of Graphic Expression and Design
- **Nieves Navarro.** Director of Management and Campus Coordinator, Universidad Politécnica de Madrid
- **Fernando Rodríguez.** Professor and End-of-Degree Project Coordinator at the Advanced Technical School of Road, Channel and Port Engineering, Universidad Politécnica de Madrid
- **Juan Santamera.** Director of the Advanced Technical School of Road, Channel and Port Engineering, Universidad Politécnica de Madrid
- **Javier Suárez.** Sub-Director of the University School of Technical and Industrial Engineering, in Gijónn
- **Miguel Ángel Valero.** Professor of the University School of Technical Engineering of Telecommunications, Universidad Politécnica de Madrid
- **Fefa Álvarez.** Head of the Department of Accessibility to the Physical Environment at the Fundación ONCE
- **Imma Bonet.** Secretary of the Coordinadora del Diseño para Todas las Personas en España and project coordinator

5.

MEMBERS OF THE COORDINADORA DEL DISEÑO PARA TODAS LAS PERSONAS EN ESPAÑA

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Coordinadora del Diseño para Todas las Personas en España

Founded in the year of 1996, the Coordinadora attempts to bring together all those entities, administrations, companies and professional firms which are interested in *Design for All*.

The Coordinadora is a member of *EIDD-Design for All Europe* and represents Spain in this European association of a federal nature which has promoted and increased awareness about *Design for All* in Europe since 1993.

Members of the Coordinadora:

- ADIR-BIZGORRE, Bilbao
- ADP - Asociación de Diseñadores Profesionales, Barcelona
- ALTRO DESIGN, Barcelona
- BCD - Barcelona Centro de Diseño, Barcelona
- DESIGN FOR THE WORLD, Barcelona
- ELISAVA - Escola de Disseny, Barcelona
- ESCOLA MASSANA - Centre d'Art i Disseny, Barcelona
- ESDi - Escola Superior de Disseny, Barcelona

- FUNDACIÓ INSTITUT GUTTMANN, Barcelona
- FUNDACIÓN ONCE, Madrid
- IMSERSO (Instituto de Mayores y Servicios Sociales) - CEAPAT (Centro Estatal de Autonomía Personal y Ayudas Técnicas), Madrid
- ISTITUTO EUROPEO DI DESIGN, Barcelona / Madrid
- LAI - Escola de Disseny, Barcelona
- PROASOLUTIONS SL, Barcelona

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Todas las Personas en España