

School of Design, Politecnico di Milano

October 2012

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THE SCHOOL OF DESIGN

October 2012

1. Principles and objectives

The School of Design is part of a university education and research system in the field of design that, in addition to the Department of Design, also includes the following departments:

- The “Giulio Natta” Department of Chemistry, Materials and Chemical Engineering (CMIC);
- The Department of Management, Economics and Industrial Engineering (DIG);
- The Department of Mathematics (MAT);
- The Department of Civil and Environmental Engineering (DICA);
- The Department of Mechanical Engineering (MEC);
- The Department of Architecture, Built Environment and Construction Engineering (AICAC);
- The Department of Electronics, Information and Bioengineering (DEIB);
- The Department of Architecture and Urban Studies.

The Polidesign Consortium, a consortium of the Politecnico di Milano, is also part of the system.

Milan has a long-standing tradition in the field of design, as well as the critical and theoretical studies related to it. This tradition came about at the start of the century from the material culture of Lombardy's craftsmanship and industry, later exploding with originality and prestige from the post-war period onwards. Industrial Design has, for many years, been the professional practice that oversaw the design and enhancement of industrial products, both aesthetically and in terms of quality of use.

Nowadays, this definition seems limited, as the landscape of Design includes a whole host of artefacts that are not limited to material objects but which, on the one hand, embody the dematerialisation that is characterising the digital age, and on the other, take on new connotations linked to strategic thinking and promoting new contexts of use for products and services, as well as the material and immaterial interactions with the new digital artefacts that characterise the contemporary world.

The School of Design at the Politecnico di Milano is the natural evolution of the Faculty of Design established in 2000, the first in Italy, and represents a place of excellence for the education of designers that fits in with the many and varied educational offerings of the Politecnico di Milano. It is a meeting point for different cultures that combine architectural, artistic and humanistic studies with technical, scientific and engineering disciplines. The School of Design's polytechnic quality represents one of its strong points, as it is a place where knowledge from different sources is conveyed in a synthetic process which is functional to contemporary design, i.e. to the generation of processes capable of creating innovation. This it does without ever losing sight of the new frontiers of knowledge, in a continuous process of opening up to the world of ideas, but also to the critical issues and challenges that the world poses to contemporary society.

This is complemented by this university's institutional ability to establish a dialogue with the great entrepreneurial tradition of small, medium and large companies both within Italy and internationally.

The School of Design at the Politecnico di Milano aims to educate and train designers capable of working within a context characterised by a desire and need to experiment with innovative lines of development that respond to the very real and ever-changing needs of the market and contemporary society, in the presence of issues linked to improving quality of life for people, society, the environment and the systems that develop within it, with a view to championing social and environmental sustainability. In order to tackle this challenge consciously, the School of Design has established itself as a place for constant education and innovation by developing the knowledge and skills that can now make a crucial contribution to reaching this goal.

As such, the School of Design is the expression of a variety of cultures: on the one hand, the technical, scientific and artistic culture of the Politecnico's Schools of Architecture and Engineering, and on the other, the professional world and the companies that have always provided a key contribution to the culture of Italian design, in a continuous dialogue to experiment with new solutions, to bring about a permanent research process, and to establish new ground for the action of design.

Studying design at the Politecnico means interacting with a city long celebrated as the world capital of design, including through projects intimately linked to the area of Milan itself and its deeply rooted culture. Milan, a city that has long been lived in and driven by figures who have made design history by developing truly original ideas and languages, is the ideal setting for training up-and-coming young designers. The city serves as a stage on which designers and producers, from Italy and the entire world, exchange ideas and showcase their projects and products during the major events that bring the city to life throughout the year: the Salone del Mobile and Milan's various Fashion Weeks, exhibitions and cultural events. In this context, Expo 2015 represents an opportunity to define new approaches to planning and suggest strategic and land-use scenarios that can only be developed as the result of a long-standing propensity for carefully observing and listening to the processes in place.

In this sense, the School of Design of the Politecnico di Milano has the opportunity to take on a leading role in support of "Milan, Design Capital" and to become a point of reference for all those who, both nationally and internationally, aim to contribute to the evolution and spread of excellence in design.

The value of the training offered by the School of Design is twofold: on the one hand, it aims to provide professional training for its students in order to guide them into global markets which are rapidly and continuously evolving and changing, whilst on the other, it fosters a structure of thought and action that is useful when dealing with the complexity of design, of the market and of skills, so that students can develop a level of independence that aims to build a well-educated mind - "une tête bien faite", as Edgar Morin would put it. This means asking ourselves the question of what it means to design nowadays, reflecting upon which (promising, yet-unexplored) areas might serve as new placement opportunities for the designers of the future. In light of this, there are subject areas active in the School of Design that are the result of intersection between design areas that were, historically, separate and fragmented, and that are now constantly recombined into a "polytechnic" unit that enhances their significance. Furthermore, within the School, there is an ongoing and active debate regarding the new professional profiles connected to the evolution of the culture of design in its many and varied forms. This will lead to the establishment of new disciplines, with the consequent development of new teaching proposals in order to keep in step with the rapid evolution of the relevant economic, cultural and social systems.

The educational model

As we all know, teaching design requires specific logics and processes, empirical testing, and the use of tools and workshops in a delicate balance between traditional learning (in a one-way dimension) and learning achieved through processes of *learning to learn*.

Learning to learn means equipping students with the skills, abilities and expertise of a researcher; in other words, knowing how to research, because design involves a learning process that combines technical know-how, expressive skills and research tools. This assumes that the dimension of *research for design* is placed at the centre of the educational model. Thus the action of teaching, in addition to being a space for transferring cultural and professional skills, becomes a place for experimentation and investigation which is capable of generating models of action and intervention in the day-to-day reality and in the innovative and operational practices of companies and institutions, giving rise to a fully-fledged process of design thinking.

A unique feature of the educational model at the School of Design is its **design workshops**, structures in which the theoretical contribution is intertwined with the design contribution, thanks to the presence of multiple teachers who integrate parts of different yet complementary disciplines into a single process. In this structure, the work is carried out by the students through a continuous dialogue with the teachers, based on a *learning by doing* model which produces the design as the final result. This approach to teaching therefore involves a one-on-one relationship between the students and the teachers.

In addition to these **design workshops**, the educational model of the School of Design makes use of other methods, such as:

- **Single-Discipline Courses**, characterised by theoretical content that is communicated by way of *ex-cathedra* lectures and checked over the year with tests and discussions;
- **Integrated Courses**, namely courses with interdisciplinary content;
- **Workshops**, namely didactic structures that aim to simulate (in terms of timescales and methods) what happens in professional practice during the project concept definition phase, stimulating design synthesis skills. These are week-long courses during which students develop a design under the guidance of either a well-known professional or a company. They also represent an opportunity for the students to get to grips with the professional world and consider different ways of interpreting the project.
- **Erasmus** and other international mobility programmes, which allow students to spend a term studying abroad at qualified European and non-European design universities. In addition to the specific study (and linguistic) experience, this also offers a crucial opportunity for students to develop their interpersonal skills and fosters intercultural exchange between student communities.
- **Internships** at companies and professional firms which allow students to gain real-world work experience at the end of the training course.

In support of the School of Design's teaching and research activities, there are also workshop facilities, provided by the Departments, which offer technological support for the students' design activities. These workshop facilities are a truly unique part of the school's training programme because they offer students the opportunity to experiment hands-on with aspects of design that have practical and professional implications. The workshop facilities are as follows:

- Photography Workshop,
- Movie Design Workshop,
- Models and Prototypes Workshop,
- Models for Fashion and Knitwear Workshop,
- Installations Workshop,
- Light Workshop,
- Colour Workshop,
- POLiteca (Design Knowledge Centre)

The training courses on offer are available at two degree levels: the **Laurea (equivalent to Bachelor of Science)** (three years) and the **Laurea Magistrale (equivalent to Master of Science)**, which lasts a further two years.

The Laurea trains professionals capable of performing support functions for all the technical and design activities that lead from the conception stage to the stage of production and distribution of the product on the market, with different connotations for each of the degree courses.

The Laurea Magistrale trains graduates with the skills to manage and strategically finalise design activities. These individuals are capable of coordinating complex design activities aimed at the conception of complex, differentiated products and services in line with brand identities and market distribution strategies.

On the whole, the Laurea Magistrale courses express the growing complexity of the cultural and professional paths that characterise the discipline of design and that are the result of the evolution of the specific expertise upon which design itself is based. As such, it is the School's objective to provide teaching that adequately reflects the most significant facets of the discipline, also by starting to offer new courses in the Laurea Magistrale.

There are currently four degree courses (3 years) on offer:

- **Industrial Product Design** (Milan and Como Campuses) - Pathways: Product, Furniture
- **Communication Design** (Milan Campus);
- **Fashion Design** (Milan Campus);
- **Interior Design** (Milan Campus);

There are also seven Laurea Magistrale courses (2 years) on offer:

- **Product Design for Innovation**
- **Communication Design**
- **Design for the Fashion System**
- **Interior Design**
- **Design & Engineering**
- **Naval and Nautical Design** (La Spezia, Genoa and Milan Campuses)
- **Product Service System Design** Italian member of the MEDes (Master of European Design) Network (Milan Campus)

In addition, there are also double degrees:

- **POLITONG**, a double degree between the Laurea Magistrale course in **Product Service System Design** and **Tongji University in Shanghai**;
- Double degree between the Laurea Magistrale course in **Interior Design** and **Tsinghua University in Beijing**

In addition to these two courses, there is also a wide range of 1st Level Specialising Masters, which are open to students who have completed their three-year Laurea, and 2nd Level Specialising Masters, which are open to students who have completed their Laurea Magistrale. Finally, after having completed the 2nd Level Specialising Masters, students may access PhD Programmes, an extremely high qualification in the training of design researchers.

The idea of offering "internal mobility" between different study programmes and schools for certain study programmes is currently under consideration.

The School of Design at the Politecnico di Milano will, as of the next Academic Year, be offering the First-Level Training Project in Fashion, Product, Communication and Interior Design in collaboration with the **GD Goenka Institute based in Gurgaon, New Delhi, India**. Given the unprecedented nature of the project, which is the first of its kind in Italy due to the unusual partnership between the institution of the Politecnico di Milano and the organisation GD Goenka, and related roles, at the ministerial level there are certain procedures in place to verify, research and identify the rules and directives that will regulate the agreement in the future, mainly concerning:

- requirements, training courses and the awarding of degrees to students enrolled at the newly-founded facility;
- characteristics, conditions and dynamics related to the teaching staff.

2. Content and subject areas

Since the initial training projects were conceived, the aim of the degree courses at the School of Design has been to create interdisciplinary profiles, producing graduates capable of operating within complex settings and organisations, as well as understanding the needs and constraints imposed by other functions.

As such, the subject areas covered by the courses are many and varied and are often integrated within teaching types such as Integrated Courses or Workshops. The main subject areas that characterise the courses are:

Design disciplines

These are all the disciplines that oversee the practice of design, from design and metadesign research to concept development, design planning, design management, design development, design engineering and prototyping, right up to design communication and promotion. These disciplines are at the heart of the training project of the degree courses and are learnt in Workshops where the exercise of design becomes a pretext to learn the practice of it. As the Workshops take place over the years, they integrate new content and offer students a range of ever new design experiences.

Design tools

These are all the disciplines that provide the tools and support for the practice of design, such as drawing, photography, video, modelling, use of basic computer software (Computer Driving Licence), use of static and dynamic image manipulation software, 2D and 3D design software and interactive services. The knowledge and skills required for the use of these design tools are generally learnt in Workshops, where the exercise of design becomes a pretext to learn the tools necessary for its development.

Historical and critical disciplines

These are the disciplines that offer historical and critical analysis and discussion of design and all the artistic and technical disciplines associated with it such as History of Art, History of Design, History of Graphic Design, History of Contemporary Art, History of Modern Art and Museology, History of Cinema and History of Photography. This content is usually taught through Single-Discipline Courses, but it can sometimes also offer critical contributions as part of Workshops.

Humanities and social sciences

These are all the disciplines that study man and human communities from an anthropometric and physical point of view, but also from a perceptual, cognitive, psychological, social and cultural behavioural one, such as Ergonomics, Cognitive Ergonomics, Cognitive Psychology, Cultural Anthropology, Sociology, Semiotics, Theory of Language, etc. These disciplines are sometimes covered in Single-Discipline Courses, but also in Integrated Courses and in Workshops, providing important elements for assessing design in relation to the ways in which individuals and industrial products or communication artefacts interact.

Managerial and legal disciplines

This area includes all the disciplines that provide tools for the economic and strategic evaluation of innovation, along with the ability to manage design processes and the necessary resources, as well as the legal instruments for the protection and promotion of products. This area includes Business Management, Marketing, Innovation Management, Design Management, Legal Protection of Design, Design Regulations, etc. This content is usually taught through Single-Discipline Courses, but it can sometimes also offer critical contributions as part of Workshops.

Physical and mathematical disciplines

Physical and mathematical disciplines such as Curves and Surfaces, Geometric and Differential Analysis, etc. have, over time, taken on the aim of providing the mathematical and physical tools required for the development and virtualisation of design at every stage of the process. This content is usually taught through Single-Discipline Courses.

Scientific and technological disciplines

These are all the disciplines that provide tools for evaluating and designing the technical aspects of products, spaces or communication artefacts. They include Materials, Information Technologies, Production Technologies, Information Systems, and Hypermedia Languages and Structures. These disciplines are sometimes covered in Single-Discipline Courses, but they are also part of Integrated Courses and Workshops, providing important elements for evaluating design in relation to technical feasibility aspects.

The School of Design is, however, open to disciplinary innovation, should it become necessary in order to address the growing complexity of markets and skills.

3. Training courses (Laurea and Laurea Magistrale programmes)

For each Laurea (equivalent to Bachelor of Science) course available, there is a Laurea Magistrale (equivalent to Master of Science) course in place that continues on from it. In addition to these, there are three other interschool, interuniversity and international Laurea Magistrale courses. These courses aim to provide a more in-depth cultural knowledge of the discipline of design, integrating content from other scientific disciplines and producing “cultured” designers who are capable of holding project leadership and direction roles, or becoming involved in research activities in the field of design at both corporate and academic levels.

The courses offered within the Laurea Magistrale programmes offer an approach to the intricacies of design and its various disciplines. Through the transition from designing components to designing a product, to finally designing a product system, the student is encouraged to gradually expand the action of design to incorporate the topics of communication, distribution and corporate strategies.

The content and significance of the disciplines covered in the Laurea Magistrale courses, therefore, aim to foster greater interdisciplinary openness and a higher level of in-depth cultural and scientific knowledge.

3.1 – Study Programme in Industrial Product Design

The design of objects, products and goods can be interpreted as the nerve centre, where many emerging elements in contemporary society converge: product design, viewed from this perspective, is entrusted with the ability to trigger large-scale processes of change which bear a different social, cultural and environmental quality.

Designing a product (a consumer good, a tool, a durable good, a car or a piece of furniture) involves conceiving and articulating the entire collection of functional, physical, technical, aesthetic, formal and communicative characteristics that determine its qualitative aspects in relation to its use and its technological and productive capabilities. Product design underpins the combined learning of skills and techniques that allow for the creative conception and development of innovative products which are designed for people and which meet the needs of the companies which produce them.

As such, product designers are called upon to interpret and meet both the user’s expectations and those of the economic and productive system in which they operate. They will therefore have a multitude of skills because their work is not limited to merely organising the configuration of an object to be produced according to the logic of

industrial reproducibility, but rather involves action dictated by the socio-economic context, by the social use of the products, by their knowledge of both traditional and innovative technologies, by the development of production techniques, as well as by the rules of the market, distribution and communication. Their intellectual role is to intelligently interpret the demand for design; their creative role is to put together a design response capable of producing cultural, social and technical improvement.

3.1 a – Laurea (equivalent to Bachelor of Science) in Industrial Product Design

The degree course in Industrial Product Design is divided into two curricula:

- Product - available at the Milan Campus
- Furniture - available at the Como Campus

The two curricula maintain the same educational layout, though the teaching is adapted to address specific areas of design.

The Product curriculum, based at the Milan Campus, orients the education in design towards a vast landscape of product types, in the countless product variants of the various production and industrial sectors (consumer goods, durable goods, objects, utensils, devices, object systems, means of transport, vehicles).

The Furniture curriculum, based at the Como Campus, makes use of the typical skills of industrial design in order to design items of furniture, both in domestic environments and in public and collective spaces, such as workplaces, learning spaces, healthcare facilities, accommodation facilities, sales premises and outdoor spaces.

Educational objectives

One of the fundamental objectives in the training of students on the Industrial Product Design degree course is the acquisition of the cultural, scientific, methodological, technical and instrumental elements that form the foundations of the culture of industrial product design. As such, key skills include the ability to read the behaviour of users, the world of needs and the social, material, technical, cultural, relational, symbolic, ergonomic and economic aspects that have a profound effect on the choice and use of the product. In training designers, it is equally crucial for them to acquire the ability to visualise the design idea at the different stages of the process: from the research and definition of the design problem to the development of the concept, all the way up to the executive technical drawing. In light of this, equally important are the acquisition of both the tools and techniques related to the representation of products (from manual drawing to digital representation and modelling) and the skills related to artistic and visual languages and cultures, which allow for the development of methods of expression suited to conveying the design idea.

Career opportunities

The professional profile of a graduate of the three-year Laurea in Industrial Product Design is defined as “Design Technician”, a figure capable of developing aspects of integration between product design and technological and production processes. In the job market, this figure is best placed in companies’ technical and R&D departments, or in professional design and consultancy firms. Graduates of the Laurea in Industrial Product Design will join the professional system with executive skills, showing the ability to work as part of a team and to interpret and implement design instructions, translating them into criteria related to the morphological, ergonomic, productive, material, economic, representation and modelling aspects required to start production.

3.1 b – Laurea Magistrale (equivalent to Master of Science) in Product Design for Innovation

Educational objectives

The Laurea Magistrale in Product Design for Innovation places more emphasis on the processes and ways in which design can generate innovation within social and technical systems, anticipating sustainable development scenarios. Some of the fundamental specific objectives in the training of students on the Product Design for Innovation Laurea Magistrale course include the development and consolidation of cultural references, conceptual and methodological tools, and the technical skills that are crucial to the design culture, with a strong orientation towards exploring innovative opportunities. In particular, the Laurea Magistrale in Product Design for Innovation aims to operate in the areas in which the demand for design is, by its very nature, ill-defined, because it poses problems with a high level of uncertainty, both with regard to the object of the design (*what* to design) and to the resolution strategies to be adopted in cultural, behavioural and productive terms (*how* to design), thus requiring the ability to structure the design problem ('problem finding' and 'problem setting', in the specialist terminology) and to construct visions and scenarios. A graduate of the Laurea Magistrale is able to develop complex design strategies, where the strategic dimension of product design enters into dialogue with the ability to grasp and manage the social, economic and environmental implications - as well as those of significance - that the design will produce in combination with the dynamics of the context that it will go on to change. The technical nature of the skills developed over the course of the Laurea is, at this next level - the Laurea Magistrale - complemented by a strategic, contextualised and decision-making complexity, aimed at the exploration of opportunities through the lens of design, building on a presumed ability to define and manage the contextual constraints.

Career opportunities

Graduates of the Laurea Magistrale in Product Design for Innovation are experts in industrial products and innovation processes. They are capable of operating both in Italy's typical small and medium-sized companies, with the task of intervening across the board to overhaul the industrial culture, from product to market, and in highly-innovative industrial manufacturing and service organisations, taking on specialised roles in the areas of design and design research and development. These figures will join the professional system with strategic skills, showing the ability to coordinate design teams as well as to plan and organise complex design intervention strategies. Graduates in Product Design for Innovation will have a vast range of opportunities in all professional and corporate companies operating in the field of design and planning in the broadest sense, from consumer goods to transport, furnishings and product-service systems.

3.2 Study Programme in Communication Design

The School of Design at the Politecnico was one of the first in the university system to acknowledge communication's fundamental role as an integral part of the field of design. The rapid development of media systems, as well as the services that govern their production and management, makes communication a complex and continuously expanding professional sector and field of research. The communication and information system manifests itself in a pervasive way, having now reached widespread coverage thanks to mobile devices and diversified modes of use; it is taking a key place in society with a vast and powerful setup, often being involving in the mechanisms by which content is produced and shared.

The communication and information industry has positioned itself as the driving force of our

contemporary landscape. As such, communication design is omnipresent, appearing wherever culture takes on a published form, and wherever transport systems become computerised. Communication design is in action wherever industrial products and services enter into a relationship with the user: in large-scale retailing, where the consumer meets the goods; in the many forms of entertainment; in televisions becoming digital and connected; in the interaction systems that cross into public space; in the various levels of the Internet; in the communication devices that generate new methods of use; in the interfaces and applications of social media; in the image of major events and in how they are broadcasted in the mass media; in the multidimensional spaces of new databases.

3.2 a - Laurea (equivalent to Bachelor of Science) in Communication Design

Educational objectives

The degree course in Communication Design provides a solid basic education in the disciplines of design and a deeper insight into the methodological, technical and operational aspects necessary for interacting with the professional world. It provides students with instrumental, technical and technological skills for communication design: visual, graphic, photographic, typographic and video representation techniques, image and visual-audiovisual language manipulation techniques, and knowledge of perceptual mechanisms and colour systems. It provides the necessary skills to engage with the multiple areas involved in the practice of communication design: publishing, signage, corporate identity and packaging, for example, as well as the interactive and multimedia systems supported by digital technology.

The central focus is a comprehensive approach to all the languages and communication techniques aimed at the design of artefacts, artefact systems and formats: for media and integrated media, in paper and digital forms, for interactive media, for networked and mobile systems. Completion of this course requires students to acquire scientific, technological, theoretical and critical skills.

Career opportunities

The figure produced by this course is a designer who is capable of combining technical and methodological skills with a certain perceptiveness for the content, development and creation of communication artefacts, with a high level of effectiveness as well as formal control skills that go hand-in-hand with full shared responsibility in terms of cultural production. Companies and institutions with a strong inclination towards communication and an online presence, advertising and communication agencies, publishing companies (traditional, multimedia and for services), consultancy companies in the IT sector, cultural institutions, museums and organisations for the promotion of cultural heritage are just a few of the areas in which graduates of the Laurea in Communication Design will find numerous opportunities to use their skills.

3.2 b – Laurea Magistrale (equivalent to Master of Science) in Communication Design

Educational objectives

The Laurea Magistrale Course in Communication Design exists to meet the communication industry's demand for designers who can work with advanced design.

Specifically, the course curriculum aims to produce the figure of a designer who, having acquired design skills in the field of various media and artefacts, is capable of defining strategic concepts, tackling a research path and challenges that are either unfamiliar or already codified by the market, and coordinating the various figures necessary for developing complex communication projects. In the Laurea Magistrale, alongside design autonomy, students widen the scope of their theoretical and strategic abilities: skills related to coordinating and controlling complex communication systems, which integrate different artefacts and media according to forms of intermedia communication. This figure is capable of generating concepts that provide innovative communication responses, forging new connections between the different communication formats and linking together - using unprecedented solutions - the elements of a communication system, as well as organising work and coordinating it through the lens of an overarching vision.

They must also have a certain sensibility with regard to a critical culture of communication design. They must be critical and proactive, working - with awareness and social responsibility - very closely with the content of communication. The areas in which they work include the field of publishing as it undergoes its digital and multimedia mutation, the field of brand identity, which is seeing more and deeper interactions generated by social media, the field of products and services for new televisions, and the various ways of using the Internet and mobile devices. The innovation and testing of prototypes for communication integrates traditional communication systems with technologically-advanced systems, making for a highly complex terrain to be negotiated in terms of design.

To this end, the training course pays particular attention to the theoretical and critical area, the semiotic, sociological and mass media disciplines that form a fundamental core of the skills of a communication designer, along with the technological knowledge that lies at the foundation of the design of new forms of interaction. In parallel with these, students will develop complex design experiences for developing skills that are useful for creating and managing communication systems.

Career opportunities

Graduates of the Laurea Magistrale typically take up roles directing and managing design work, oriented towards the design of business communication and artistic direction strategies. They are capable of initiating new research paths and encouraging companies and organisations to be more open towards scenarios of innovation in the ways they communicate and interact.

Once students have completed the Laurea Magistrale in design, they can find a position not only in the traditional fields of business communication, publishing, and IT application development, but also within organisations or institutions with a strong inclination towards communication innovation and who want to experiment with the various models for connecting with potential stakeholders that develop through an online presence, e-commerce and the evolutionary paths of traditional media.

3.3 – Study Programme in Interior Design

In recent decades, the design of interior spaces has taken on a fundamental role in defining the functional and cultural quality of the contemporary city. Nowadays, interior design is an important cultural and professional industry which is destined to measure itself against entirely new phenomena in contemporary society. The emergence of a widespread demand for liveable, hospitable spaces which can respond to the changes in how urban spaces are being used means that interior design has been given the difficult yet strategic task of giving life to a new culture - a culture of living capable of enhancing the anthropological components of the habitat, whilst also proposing new ways of sharing spaces. An interior of any nature, be it private or public, permanent or temporary, is always a complex collection of elements that contribute to the quality of people's private lives and the relationships between them: the size of the spaces and furnishings, along with the technical and expressive control of their light, colours, sound and microclimate, make up the elements that an interior designer must be able to skilfully adjust and combine. As such, in this context designing means not only working with systems of fittings and furnishings, but also considering the entire range of components that make the space suitable for living in, from a cultural and functional point of view.

3.3 a - Laurea (equivalent to Bachelor of Science) in Interior Design

Educational objectives

Graduates of the degree course in Interior Design must have an adequate grasp of the tools and techniques used for design representation in the context of interior design, as well as its components (from manual drawing to technical drawing, and from photography to three-dimensional modelling of objects and space). They will also have to possess the basic skills required for design activity, with particular attention to the ability to prepare and decorate ready-made spaces with a view to making them hospitable and culturally suitable. In the training process, specific importance is given to knowledge related to the functional distribution of activities, the design and control of microenvironmental factors (light, colour, sound etc.), the definition of criteria for the selection of materials, the execution techniques specific to interior design work, the economic management of the works themselves, as well as the historical, cultural, semiological, sensory and communication aspects which can facilitate the interaction of individuals in an artificial space.

Career opportunities

Graduates of the Laurea in Interior Design carry out technical activities, specialising in the area of interior design and fitting systems. They often find positions in professional firms, companies and businesses which deal with fitting and staging in the commercial and exhibition fields, in visual merchandising (furniture, large-scale retail, fashion companies), and in all businesses geared towards the functional transformation of disused architectural volumes such as factories, offices, warehouses and industrial buildings to make them suitable for new functions.

3.3 b – Laurea Magistrale (equivalent to Master of Science) in Interior Design

Educational objectives

The Laurea Magistrale in Interior Design aims to produce individuals with a high cultural and professional profile who are able to interpret, in a critical and creative way, the new social and individual needs that are emerging in the vast universe of interior and exterior spaces in a contemporary city. These needs change rapidly over time and often require flexible and innovative environmental systems.

The course aims to train designers who are capable of working creatively, taking a directing role within multidisciplinary design facilities, in the functional, aesthetic, formal, technical and technological definition of space, and in forging relationships between the space and the user as well as between the space and its context. They must also be able to work to enhance the interior spaces of an existing architectural heritage and urban interiors with a staging approach, i.e. to make changes to the quality and image of the space, with interventions that are often reversible and, in any case, always marked by an innovative reading of the nature of the spaces and the client's needs. Essentially, an interior designer must know not only how to design spaces, furnishings and equipment, but also how to build relationships between these elements, striving to offer a general vision of the art of living in the present day. Specifically, they must know how to work towards revising the traditional types of environments - both interior and exterior - with a view to establishing new types of spaces intended for contemporary living.

Finally, students who are enrolled in the Laurea Magistrale in Interior Design have the opportunity to participate in the Double Degree programme in partnership with Tsinghua University in Beijing, allowing them to spend an entire academic year at this prestigious school, with the benefit of a double degree qualification at the end.

Career opportunities

Graduates of the Laurea Magistrale go on to perform complex design work, coordinating all the skills involved in interior design and directing them in order to achieve specific objectives.

An interior designer can find their natural home in design firms or companies, taking a directing role and managing the business with regard to various areas, such as: the home environment, in the era of widespread work and the relationship economy; commercial networks and places where culture is produced and enjoyed (such as auditoriums, museums, galleries, exhibitions); public spaces intended for more advanced social functions (such as offices, hospitals, schools and universities); hospitality in the era of mass tourism and widespread nomadism; disused industrial and tertiary areas; the open spaces of the contemporary city.

3.4 a – Study Programme in Fashion Design

Fashion design refers to a product design practice typical of Italian-made goods, far-removed from the stereotype of the free-thinking "stylist" as an ingenious creator, isolated in their talent. It has its roots in the tradition of the great Italian masters who found their constant relationship with the fashion industry to be fertile ground for them to express their craft. In the study programme offered by the Politecnico, it is paramount to offer students the opportunity to discuss and learn about the social and economic contexts that characterise the various companies present internationally. As such, recent times have seen the launch of

many initiatives aimed at the internationalisation of the training of fashion designers, one of the most high-profile of which is a partnership with the Fashion Institute of Technology in New York (FIT). The exchange project involves around 60 students enrolled in their third or fourth year at the FIT in New York. Around 50 Italian students participate in the activities held at the Politecnico, all of whom are in their 2nd and 3rd year of the Laurea or in the 1st year of the Laurea Magistrale in Fashion Design. In addition, five Italian students enrolled in the first year of the Laurea Magistrale spend six months studying in New York. Meanwhile, the American students spend an entire academic year in Italy.

Educational objectives

A designer does not approach design from a merely stylistic point of view, but rather considers the fashion product as a “space” of the body, an object characterised by capabilities and functions of use, as well as a bearer of symbolic and cultural values. The degree course includes disciplines that offer the students tools for understanding trends and the ways in which the relevant behavioural habits and cultural values change, accompanied by disciplines that explore in greater depth the characteristics of the processes, materials, technologies and operations typical of the sector, as well as, finally, the logic of competition and distribution and sales processes.

Career opportunities

The figure of design technician holds executive functions, working under the artistic direction or project coordination of senior figures. They can carry out support and development work for design projects, from the stages involving researching and developing the definition tables for the collection lines, through to developing the collection, to the technical development of the product, and all the way to product management. They can also provide support for designing the visual communication of the fashion product, using both traditional and digital graphic design techniques. They can work as design technicians in professional firms, business structures in the fashion sector (clothing and accessories) and related ancillary sectors (textiles, metal hardware, fashion details), as well as in furniture textile companies, with particular reference to the sector of textile accessories for furnishings (household linens and homeware).

3.4 b – Laurea Magistrale (equivalent to Master of Science) in Design for the Fashion System

Educational objectives

The Laurea Magistrale course in Design for the Fashion System aims to train highly-qualified designers who are capable of withstanding today’s intensely competitive international fashion system. Building upon a solid base of theoretical and cultural knowledge, the profiles produced by the course possess design skills that are capable of supporting the strategic achievement of a company’s objectives. In this vein, the training course collects the results of an experiment started in conjunction with Bocconi University, exploring in greater depth the aspects of the relationship between design and managerial skills. In the Fashion System, especially in the form it takes in Milanese firms and in especially advanced companies, there is great demand for profiles with interdisciplinary skills who are capable of managing the products, services, events and communication strategies of a fashion company in a creative, integrated way.

Career opportunities

Graduates of the Laurea Magistrale are capable of taking project direction positions in fashion companies, tasked with the integrated design of product-service systems, coordinating the project groups and departments involved in the development process.

3.5 Laurea Magistrale (equivalent to Master of Science) in Product Service System Design

The Laurea Magistrale in Product Service System Design, taught in English, is a programme intended for both Italian and international students who are interested in following a multidisciplinary and multicultural design path.

The study programme forms part of the wider internationalisation process started by the university in 2005 with a view to attracting international students enrolled in the institution's educational courses.

Educational objectives

Product Service System Design (PSSD) is a second-level degree course which does not follow on from any degree course (or, rather, which can follow on from any of the three-year degree courses in design) launched in response to interest from students of different geographical and educational backgrounds (product design, interior design, communication design, fashion design, furniture design, etc.) in continuing their studies within the disciplines of the design project, expanding their horizons and bolstering their working skills in systemic terms.

The specific educational objectives of the Laurea Magistrale in PSSD are to help students develop the following skills and abilities:

- an understanding of the systemic dimension of contemporary artefacts, understood as collections of products, services, spaces and communication artefacts which are strongly interrelated;
- the ability to design the product-service system from a strategic perspective, i.e. the ability to guide and direct change and innovation in an evolutionary way and in relation to a changing context;
- the acquisition of a growing interdisciplinarity, in the sense of the ability to hybridise various disciplinary domains at the problem setting and problem solving stages;
- an inclination for multiculturalism, understood as a sensitivity in dealing with and framing design questions, starting from the specific details and differentiations of the final contexts of the design project;
- the skills of design thinking, analysis and intervention on entire supply systems, understood as the ability to see the design question in systemic terms, in the relationship between the various components, and in the ability to modify not only the individual components of the product systems, but more importantly the relationships that exist between them, referring to contexts that have not yet been consolidated rather than certain, well-defined frames of reference;
- the skill of storytelling, understood as the ability to represent phenomena in visual terms in a way that initiates and facilitates a strategic conversation, as well as the exchange of knowledge between the various production actors, in both proactive and listening terms;
- an inclination for entrepreneurship, understood as the ability to articulate, around the product system, a business system which is intended to last over time;
- the ability to work and interact within multidisciplinary and multicultural groups, taking and identifying in the role of a designer with a great deal of leadership;
- the ability to lead and bring together a group around a vision, a desired future, or the idea of a change.

As such, the training course offered follows a T-shaped model in which the vertical axis, rooted in the training background of the first level focused on a specific area of design (be it product, communication, interior, furniture or fashion design), is integrated with a horizontal axis which relates to the acquisition and use of cultural tools and backgrounds from other disciplinary and cultural domains.

Career opportunities

Graduates of the Laurea Magistrale in Product Service System Design are experts in innovation of the so-called product system, understood as the combination of products, services, communication artefacts and spaces through which innovative and sustainable design solutions, experiences and brand identities take shape.

They can therefore find a position in all professional and corporate organisations operating in the field of design (both in companies operating in international and multidisciplinary contexts and in SMEs, which are typical of the Italian tradition). They can also find employment in public administration and within research institutions and bodies (Trend Institute, Research Agencies, etc.).

Training in Product Service System Design also entails the acquisition of business skills which can stimulate the foundation of new design companies. Students may also enter the third level of university education by commencing a PhD Programme. Graduates of the Laurea Magistrale in Product Service System Design can join the workforce with strategic skills, aimed at product development, as well as communication, spatial and relational systems, including through integrated design processes.

In particular, some of the roles that these figures are able to take on include:

- product system designer
- service designer
- retail designer
- visual merchandiser
- brand designer
- corporate coordinator
- art director
- trend analyst.

International partners: The degree course avails of a rich collaborative network involving many international partners. In particular, the study programme offers a Double Degree option in conjunction with Tongji University in Shanghai.

Finally, the possibility is currently underway of establishing internal mobility and double degree courses in collaboration with certain degree programmes offered by the university; one such course would be Design & Management, which is already one of the training options offered by many international universities (such as the Aalto University in Helsinki and the IIT in Chicago).

Interschool and international Laurea Magistrale (equivalent to Master of Science) courses

In addition to the Laurea Magistrale programmes which follow on from first-level courses, the School of Design has also launched a range of second-level training courses with the aim of enhancing the wealth of disciplines both inside and outside the Politecnico. This educational strategy was born out of a desire to push new frontiers in developing the discipline of design and to facilitate the training of figures with a strong inclination towards multidisciplinary who wish to play a strategic role in the development of the sectors most responsible for driving the national economy.

3.6 Laurea Magistrale (equivalent to Master of Science) in Design & Engineering

School of Design – Politecnico di Milano

School of Industrial Process Engineering – Politecnico di Milano

School of Industrial Engineering – Politecnico di Milano

General presentation of the Study Programme

European industry - and, in particular, Italian industry - is facing a highly critical moment in its evolution: indeed, it is forced to remain competitive, even when challenged by countries characterised by low social protection, such as low workforce costs and low legal, environmental and labour protections. Many share the idea that the reasons for this competitive landscape are essentially rooted in the ability of advanced industrial systems to generate innovation; innovation that is largely technical and scientific, yes, but also cultural, social, aesthetic and organisational. The importance of the role of design in this cannot be overstated.

The globalisation of markets, rapid technological advancements, the climate emergency and the urgent need to find adequate solutions for a sustainable development model all pose new challenges to educational institutions. The Italian system of small and medium-sized enterprises, which has always been capable of

proposing innovative solutions and promoting the heritage of the local production culture, now requires professionals who are capable of carrying on the legacy of the past whilst, at the same time, drawing on some of the most advanced sources of scientific culture and research. And it is specifically in terms of design and innovation - in their functional and material qualities, as well as in their production processes - that Italian products have long been a cut above the rest. In this scenario, the Politecnico has taken on the role of privileged interpreter of the complexity of the contemporary landscape, one which is capable of giving radically new answers.

The Laurea Magistrale course in Design & Engineering, born out of a collaboration between three key Schools at the Politecnico - Design, Industrial Engineering and Materials Engineering - aims to create leading profiles on the European professional landscape.

Educational objectives

The Laurea Magistrale course in Design & Engineering aims to train designers who can integrate the culture of design with that of the technical and engineering aspect, i.e. someone who is able to manage the design and development of a product in its expressive and material dimensions, but also in its technical and economic implications; one who is able to control a design process from the generation of the product idea, through the stages of defining and executing the design, up to the drafting of the necessary documents for starting production; one who has particular skills in terms of choosing materials, using design methodologies in a virtual environment, controlling the effects of the technological aspects of the production systems on the project, and managing costs.

The aim of the collaboration, within this training project, between the subject areas of Design (School of Design), Mechanical Engineering (School of Industrial Engineering) and Materials Engineering (School of Industrial Process Engineering) is to provide specialised training in three fundamental areas: Design, Process and Industrial Production.

Career opportunities

As professional figures, graduates of this course fall into one of the following distinct fields:

- a. Designer capable of interfacing with process engineers: typical areas of expertise are those of an industrial designer in the manufacturing and marketing field within the framework of predefined production cycles, an executive designer of industrial products, and a creator of technology and the industrial cycle.
- b. Prototyping designer: typical applications include digital and/or physical prototyping for the automotive, consumer and component sectors. Experiences range from computer-aided three-dimensional modelling (CAD) - by way of the essential geometric, mechanical and technological knowledge for tackling the problem of moving from a CAD model to engineered designs and processes executable by a machine to automatically generate the surfaces and volumes of the model (CAM) - up to defining the material processing and transformation technologies to be used for the industrial manufacturing of the objects that have been designed and modelled.
- c. Simulation designer: typical applications include the simulation of production cycles and the simulation of the technological, formal and constructive characteristics of manufactured products with a particular requirement for a high level of ergonomic performance.
- d. Project leader, i.e. a designer who has an overarching vision of the product's lifecycle and is capable of interfacing both with Concept Managers and with Process Development Managers; someone who is able to successfully complete the industrial feasibility of the product designed, ensuring its conceptual continuity;
- e. Designer specialising in materials, placed in those fields leading Italy's manufacturing sector (e.g. furniture, automobiles and motorcycles, textiles, packaging), for which an in-depth knowledge of the relationships between design requirements and the characteristics of the materials, finishes and technologies involved is a unique and fundamental tool of the design path. In creating conscious selection paths, a designer specialising in materials will also find certain other aspects to be of particular interest, such as mechanical properties, functional characteristics (e.g. thermal, optical, durability, etc.), sensory characteristics (tactile, visual, etc.) and environmental sustainability characteristics (energy content, greenhouse gas emissions, suitability for recycling, etc.).

3.7 Laurea Magistrale (equivalent to Master of Science) in Naval and Nautical Design

*Joint Laurea Magistrale (equivalent to Master of Science) between the Politecnico di Milano and the University of Genoa School of Design – Politecnico di Milano
School of Industrial Engineering – Politecnico di Milano
School of Architecture – University of Genoa
School of Engineering - University of Genoa*

The course is based in La Spezia; some activities will take place at the University of Genoa and some at the Politecnico di Milano

The Laurea Magistrale course in Naval and Nautical Design - the only one of its kind in Italy - meets the demand for training from all over the country and the specific requirements of the naval and nautical sector. The course takes place at the La Spezia University Campus, in close contact with the Course in Nautical Engineering, within a local productive fabric boasting a large number of shipyards and a deep-rooted tradition. The innovation that is the hallmark of the Politecnico di Milano and the University of Genoa's years of experience in naval studies guarantee the excellent quality of the teaching.

The training provided to students concerns both the design of new vessels and the refitting of various crafts and objects: mega-yachts, regatta boats, ship interiors, and nautical accessories and setups. The course is situated within the cultural field of product design, and as such, graduates of the course are capable of managing projects in their entirety, from the development of the concept all the way to the production phases, both for various vessels and for their related components and accessories.

A key objective of the course is to provide its students with a skill for systemic design, allowing them to interpret the sector, anticipate trends, operate in the design phase, follow the execution phase, and assess the impact of the choices they make, including from the point of view of environmental compatibility.

Educational objectives

The training course involves the contribution of theoretical and practical disciplines with the aim of providing students with a solid methodological foundation and advanced scientific knowledge, as well as helping them to develop skills relating to individual research, continuous learning, planning and strategic finalisation of a project. The Laurea Magistrale course makes synergistic use of the skills and knowledge of the faculties involved in training the graduate: the scientific and technical notions specific to the sector (naval architecture, construction and installations, fluid dynamics, etc.) are combined with skills in the area of representation, communication and history. The design workshops provide a place for students to experiment with the knowledge acquired in the various courses.

The skills expected of graduates of the course include:

Integrated design abilities pertaining to the aesthetic, formal and functional qualities of nautical products;

Abilities related to the design control of mass and one-off production processes;

The ability to strategically manage a project due to anticipation of the evolution of market scenarios, combined with the ability to communicate project and product content;

The ability to work on a wide range of projects, from nautical accessories to the fitting and design of interiors according to the intended use of the various products.

Career opportunities

The professional figure produced by this course is similar to that produced by the first-level university education they have already completed - however, they are, in any case, able to manage and coordinate projects in the context of the design and production of recreational craft and the interior design of cruise ships. They may find employment at shipyards and their contractors (for example, component manufacturers), as well as at design companies.

The roles that graduates of the Laurea Magistrale can fill, after the training of the Laurea Magistrale and an appropriate period of internship and specific training, include:

Designer in the technical offices of shipyards (connection between design and product);

Designer in design firms or companies for the development of accessories for the sector;

Freelance interior or exterior designer for ships and recreational craft;

Production coordinator in shipyards;

Designer dealing with the recovery, redevelopment and maintenance of existing craft;

Contract designer for cruise ships.

In addition to the above, graduates working in the field can increasingly aspire to run their own business.

3.8 PhD Programme in Design

In 1990, the first PhD Programme in Industrial Design was launched at the Politecnico di Milano; it was given its current name of “PhD Programme in Design” in 2009.

The PhD Programme in Design operates within the PhD School of the Politecnico di Milano and is coordinated by the INDACO Department (Industrial Design, Arts, Communication and Fashion) in conjunction with the Department of Mechanical Engineering and the Department of Chemistry, Materials and Chemical Engineering.

The aim of the PhD programme is to train professionals and researchers, providing them with the necessary skills to successfully perform their highly-qualified roles at industrial and service companies, design agencies, public research institutions and universities, with special attention paid to processes of social and technological innovation.

The designer-researcher that the PhD Programme in Design aims to train is a designer capable of performing research and a researcher capable of using design tools, as well as an expert in knowledge management, constructive interaction between different actors, and communication.

The scientific disciplinary sector which the course falls under is Industrial Design.

Other scientific sectors that are partially covered include Philosophy and Theory of Language, Sociology of Cultural and Communication Processes, History of Art, Design, Science and Technology of Materials, Industrial Engineering, Operational Research and Information Technology.