

REGULATIONS
Internal Double Degree (intake 2021/2022)
in
Management Engineering and Product-Service
SystemDesign

Professional profile

- *Why is this course important for society and business? Scenario*

In an ever-changing world, design and innovation are among the major renewal and prosperity tools. They are necessary for society to meet the challenge of sustainability in a connected and complex world and for organisations and businesses to create valuable solutions and ensure long-term continuity. They are needed for those who seek usefulness, values and meaning from their solutions.

Where does innovation come from in today's world? Technology is one of the main factors. But it is no longer enough, because technologies are increasingly accessible globally and because of their increasing sophistication the focus has shifted from how technologies are developed to how they are chosen, integrated and used.

Innovation comes from an ability to capture the situation's development, grasp the sense of a complex environment, and combine the countless opportunities available, in an unprecedented vision. This vision comprises ecosystems of products, services, organisational processes, communication strategies, spaces, which are integrated into a winning strategy and business model. Today's scenario requires the ability to conceive, develop and implement new meaningful visions which have an economic value for business.

These multi-faceted skills, are based on two areas of competence:

- Design, as a set of capabilities that allow new and more meaningful possibilities for people. Ecosystem design of products, services, digital and communicative artefact spaces, which is dubbed "Product- Service-Systems Design";
- Management, as a set of capabilities to transform a new ecosystem idea into a source of economic value and growth, planning and implementing new business models.

The Double Degree in Management and Design provides these skills in a single integrated course.

- *What makes this programme unique? A pioneering approach to Management and Design*

Management and Design closely interact.

There is Design Management, i.e. the effective management of Design as a process and business function. This was a focus, especially in the 1980s and 1990s, when major international players needed to effectively manage their design units. It is still relevant today as the management of creative processes and resources require special constantly evolving skills.

In the early 2000s there was a move in the opposite direction. Design was seen as a tool to manage companies in a new and more creative way. This involved the use of Design Thinking in Business Schools, as a tool to help managers better understand user needs and improve creativity. This is a relevant topic that Politecnico di Milano, as the university of design, has put into practice in all its programmes, including Engineering, Design, Architecture and Management.

The uniqueness of this Double Degree in Management and Design is that it includes and surpasses previous perspectives, to face the challenges and opportunities of future scenarios. This Laurea is not the application of management to design, nor an application of design to management, but a combination of these perspectives which use designer and manager skills to develop sophisticated solutions. There is no other similar approach or school that internationally integrates Product-Service-System design and business models with this approach.

- *Why is this programme crucial for those interested in a design in-depth study? What do they get in addition to design studies?*

Designers are no longer required to simply design products. They must design sophisticated and sustainable systems, based on the combination of products, services, communication, spaces and digital components, all combined into innovative business models. This requires design and advanced management skills. Product-service systems are based on organisational processes and the design of business models requires a thorough understanding of strategy, economics, organisational networks, i.e. a comprehensive understanding of management.

- *Why is this programme crucial for those interested in in-depth management? What do they get in addition to management studies?*

Today leaders are no longer required to simply manage processes and organisations. They need to innovate and change processes and organisations, to capture and develop the meaning of complex market scenarios, to be empathetic to people's experiences and create new and sustainable solutions. This ability to identify new directions for people and society requires advanced design skills. Design provides the ability to have a sense of society and what people seek in life and the skills to imagine new things.

- *What are the professional profiles? The programme's skills*

By participating in this programme, students develop advanced skills to design and manage innovative ecosystems (products+services+communication+spaces+digital artefacts) and business models. Specifically, the following skills:

- Designing innovative and sustainable business models that create value for people and society
- Describe these business models so that they can be effectively shared and communicated to other people in the organisation, partners, stakeholders and customers.
- Create value for business, so that the vision is positive for the organisation and its users (its stakeholders, management and all those who contribute).
- Lead the development and implementation process, involving third parties, so that your vision becomes a reality and has an impact on business and society.

The typical career opportunities of this Double Degree may include the following areas: strategy, innovation, marketing, branding, design, business development, project management with a strategic perspective.

All profit, non-profit, large or small organisations with a strategy based on innovation, including startups and the public sector are interested in this profile.

- *Why a Double Degree? The advantage of combined training*

These skills cannot be achieved by a programme that simply combines a little design with a little management. To think and implement sophisticated ecosystems and business models dual-specialisation is needed.

For this reason, instead of creating a programme that draws something from both schools, we provided selected, talented and motivated students an opportunity to develop each of them intelligently and effectively.

Students will attend design and management courses, and find themselves immersed in both worlds. They will come into contact with "design" and "management" students and professors. They will acquire both ways of thinking instead of a separate approach.

Since this is a programme (and not an individual course), students will experience it with as many selected participants, sharing, discussing, and creating a new culture of management and design together with other pioneers with similar interests: professors, managers and designers involved in this programme.

- **Study plan**
- **General structure of the Double Degree**

The Double Degree is based on two Laurea Magistrale (equivalent to Master of Science) programmes at Politecnico di Milano: the Management Engineering programme (from the School of Management) and the Product-Service Systems Design programme (from the School of Design) to which students will be enrolled. It is possible to access the Double Degree from Management or Design programmes. This allows students to go deeper into one of the areas first, then focus on the other, and finally integrate them. The programme is organised as shown in the diagram below:

Starting the programme from Management, the student will:

- develop management skills and approaches using basic courses from the School of Management, including Strategy & Marketing, Leadership & Innovation, Business and Industrial Economics of

Innovation, Strategic Innovation, Operations Management, Logistics Management, Accounting, Finance and Control, Supply Chain Innovation.

- integrate design into management, using dedicated courses: Design Thinking for Business, Vision Change, Agile Innovation, Branding & Communication, Digital Business, Design and Corporate Economics.
- acquire Product-Service-System Design skills, with courses from the School of Design, including Design Methods, Product Service System Studio, Product Service System Design for Sustainability, Service Design and Innovation, Visualization and Prototyping e Design Seminar.
- Conclude the course with activities where the concepts learned during the programme are integrated: Business Design and Transformation Lab, Professional Workshop, Internship e Tesi.

Starting the programme from Design, the student will:

- develop design skills and approach, using basic courses from the School of Design, including Teambuilding, Innovation Studio, Product Service System Design Studio, Design Methods, Ux-Design, Services Design and Innovation, Visualisation and Prototyping, Business Innovation and DesignSeminar.
- Integrate management into design, with dedicated courses: Design Thinking for Business, Vision and Change, Agile Innovation, Branding & Communication, Digital Business;
- acquire management skills, using courses from the School of Management, including Strategy & Marketing, Leadership and Innovation, Strategic Innovation, Operations Management, Logistics Management, Accounting Finance and Control, Business & Industrial economics, Supply Chain Innovation;
- Conclude the course with activities where the concepts learned during the programme are integrated: Business Design and Transformation Lab, Internship and Thesis.

MOOC

For students enrolled in the CdLM Product Service System:

Before taking the exam for the courses of the Laurea Magistrale (equivalent to Master of Science) in Management Engineering, you must pass the following **three** MOOCs by the February 2021 session

- Fundamentals of Financial and Management Accounting (only if the study plan includes the Accounting, Finance and Control course)
- Fundamentals of Organisation
- Fundamentals of Economics

Students who do not have the Accounting, Finance and Control course in their plan may choose one of these two MOOCs instead of Fundamentals of Financial and Management Accounting.

- Fundamentals of Operation
- Fundamentals of Strategy

For students enrolled in CdLM Management Engineering:

Applicants must refer to the Educational Rules - Regulations of the Laurea Magistrale (equivalent to Master of Science) in Management Engineering.

For students of both courses, MOOCs from the "Introduction to Management Engineering Series" library are provided free of charge via the Polimi Open Knowledge (POLIMI POK) platform: <https://www.pok.polimi.it/>

Detailed description of the Study Plan for admission from Management Engineering (PSPA)

First year courses

SSD	Course name	Sem	ECTS	ECTS group
ING-IND/35	Strategy & Marketing	1	10	10
ING-IND/35	Accounting, Finance and Control	1	10	10
ING-IND/17	Operations Management	1	10	10
ING- IND/35	Leadership & Innovation	2	10	10
ING- IND/35	Business & Industrial Economics	2	10	10
ICAR/13 L-ART/06	Visualisation and Prototyping	2	6	6
M-PSI/01 ICAR/13	Service Design and Innovation	2	6	6
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Second year courses (PSPA PS3 – link PS2)

SSD	Course name	Sem	ECTS	ECTS group
ING- IND/17	Logistics Management	1	10	10
ING- IND/35	Design Thinking for Business	1	5	5
ING- IND/35	Strategic Innovation	1	5	5
ING- IND/35	Vision and Change	1	5	5
ICAR/13 M-DEA/01	Design Methods	1	6	6
ING- IND/35	Agile Innovation	2	5	5
ING- IND/17 ING- IND/35	Digital Business	2	5	5

ICAR/13	Design Seminar	2	6	6
ICAR/12 ICAR/13	Product Service System Design Studio	2	12	12
ING- IND/35	Design and Corporate Economics	2	6	6
ICAR/13	System Design for Sustainability (from 2022/23 change title and semester)	2	6	6
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Third year courses

SSD	Course name	Sem	ECTS	ECTS group
ICAR/13	Branding and Communication	1	6	6
ICAR/12	Professional Workshop	1	6	6
--	Internship	1	10	10
--	Thesis	1	5	15 linked
--	Thesis	2	10	
ING- IND/35 ICAR/13	Business Design and Transformation Lab	2	15	10
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- **Study Plan detailed description for students admitted from Product Service System Design**

First year courses (PSPA PS1 or PS2)

SSD	Course name	Sem	ECTS	ECTS group
internship activity	Teambuilding	1	3	3
ING-IND 35	Business Innovation	1	6	6
ICAR/13 M-DEA/01	Design Methods	1	6	6
ICAR/16 ICAR/13 ICAR/12	Innovation Studio	1	12	12
ICAR/13 INF/01	UX-Design	1	6	6
ING-IND/35	Leadership and Innovation	2	6+5	11
M-PSI/01 ICAR13	Service Design and Innovation	2	6	6
L-ART/06 ICAR/13	Visualisation and Prototyping	2	6	6

ICAR/12ICAR/13	Product service system design studio	2	12	12
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Second year courses (PSPA PS3)

SSD	Course name	Sem	ECTS	ECTS group
ING-IND/35	Business & Industrial Economics	2	20 (two out of three choice)	20
ING-IND/35	Strategy & Marketing	1		
ING-IND/35	Accounting, Finance and Control	1	10 (one of choice)	10
ING-IND/17	Logistics Management	1-2	10	10
ING-IND/17	Operations Management	1-2		
ING-IND/35	Design Thinking for Business	1	5	5
ING-IND/35	Strategic Innovation	1	5	5
ING-IND/17	Vision and Change	2	5	5
ING-IND/35	Supply Chain Innovation	2	5	5
ING-IND/35	Agile Innovation	2	5	5
ING-IND/17	Digital Business	2	5	5
ICAR/13	Design Seminar	2	6	6
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Third year courses (PSPA PS3)

SSD	Course name	Sem	ECTS	ECTS group
ICAR/13	Branding and Communication	1	6	6
--	Internship	1	15	15
--	Thesis	1	5	15 Linked
--	Thesis	2	10	
ING- IND/35 ICAR/13	Business Design and Transformation Lab	2	10	10
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