



SCUOLA DI  
ARCHITETTURA  
URBANISTICA  
INGEGNERIA DELLE  
COSTRUZIONI

SCUOLA DI  
INGEGNERIA  
INDUSTRIALE E  
DELL'INFORMAZIONE

## **Internal Double Degree**

### **Management of Built Environment – Gestione del Costruito (LM-24) and Management Engineering (LM-31)**

#### **1. Aim of the programme**

The Internal Double Master's Degree in Management of Built Environment - Management Engineering aims at facing the new challenges emerging in the construction industry at national and international level, because of various technical social, cultural and economic factors, such as the reduction in the number of new buildings and the increased investment in existing assets; structural changes – both qualitative and quantitative - in the composition of demand; the adaptation of the technical components to the new rules and regulations in various fields (from energy and materials saving, noise isolation, disabled people, etc.); the increase in the quality standard required for buildings; the increase in awareness on the side of industrial companies and services of the importance of the quality of real estate property and its role in the creation of economic value; the growing interest of financial markets for the real estate sector.

In order to meet the challenges of the present economic environment, this industry requires new professional profiles, capable of integrating technical and managerial skills. The aim of the Double Master's Degree in Management of Built Environment - Management Engineering is to train professionals who can strengthen the skills of a management engineer for what concerns this particular sector, while also providing experts of the built environment in-depth management skills. Thus, students become more aware of the difficulties of building design, resource management, interaction between management issues and techniques at all stages of the construction cycle. In this sense, particular attention will be paid to the problems of globalizing markets, and the management of innovation and logistics.

#### **2. Study plan**

##### **2.1 General structure of the double degree programme**

The Double Degree programme is based on two Master's Degree Programs of Politecnico di Milano: the Master Degree in Management of Built Environment and the Master Degree in Management Engineering.

Students can enter the double degree from either program, depending on their particular propensity and background; in other words, students can be admitted from either the Management of Built Environment or the Management Engineering intake. This allows students to first deepen one of the two fields, then focus on the other one, to lastly integrate the two.



The program is organized as shown in the following diagram:

	<b>Intake Management of Built Environment</b>	<b>Intake Management Engineering</b>
3 <sup>rd</sup> year		
	Thesis and Internship (17 ECTS)	Thesis and Internship (18 ECTS)
	Management Engineering (35 ECTS)	Management of Built Environment (33 ECTS)
2 <sup>nd</sup> year		
	Management Engineering (10 ECTS)	Management of Built Environment (24 ECTS)
	Management of Built Environment (51 ECTS)	Management Engineering (45 ECTS)
1 <sup>st</sup> year		
	Management Engineering (10 ECTS)	
	Management of Built Environment (57 ECTS)	Management Engineering (60 ECTS)

## 2.2 Detailed description of the study plan for students enrolling from the Management of Built Environment intake (PSPA)

Students with the First Degree in Architecture, Planning, Civil Engineering, Built and Management Engineering access the program with no debt.

### First year courses:

Code	SSD	Course title	Type	Sem	ECTS	ECTS group
096307	ING-IND/35	BUSINESS ECONOMICS	M	1	9	9
097610	ING-IND/17	PRODUCTION MANAGEMENT	M	1	9	9
096315	ICAR/12	EVALUATION AND MANAGEMENT OF REAL ESTATE	M	1	9	9
096312	ICAR/21	METHODS AND TOOLS FOR ANALYSIS OF URBAN AND TERRITORIAL SYSTEMS	M	2	6	6
053109	SECS-P/06	REGIONAL ECONOMICS + LAND RENT THEORY	M	2	12	12
099823	ICAR/10 ICAR/19	VALORISATION OF HISTORICAL BUILDINGS + VALORISATION OF CULTURAL HERITAGE	I	2	12	12

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Code	SSD	Course title	Type	Sem	ECTS	ECTS group
052796	ING-IND/35	LEADERSHIP & INNOVATION	M	2	10	10
096088	ING-IND/17	OPERATIONS MANAGEMENT	M	1/2	10	
096090	ING-IND/17	INDUSTRIAL TECHNOLOGIES	M	1/2	10	

### Second year courses:



Code	SSD	Course title	Type	Sem	ECTS	ECTS group
055729	ICAR/11	BUILDING MAINTENANCE PROCEEDINGS AND METHODS	M	1	6	6
057060	ICAR/12 ING-IND/35	FINANCIAL MANAGEMENT OF REAL ESTATE + PROJECT MANAGEMENT	I	1	12	12
053116	ICAR/12	INFORMATION SYSTEMS FOR THE MAINTENANCE AND MANAGEMENT	M	1	9	9
057057	ING-IND/17	GLOBAL SUPPLY CHAIN PLANNING	M	1	6	6
051335	IUS/10	ADMINISTRATIVE AND PUBLIC PROCUREMENT LAW	M	2	6	6
053117	SECS-P/06	ECONOMIC ASSESSMENT OF URBAN TRASFORMATIONS	M	2	9	9

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Code	SSD	Course title	Type	Sem	ECTS	ECTS group
096078	ING-IND/35	ACCOUNTING, FINANCE & CONTROL (1)	M	1	10	10
052795	ING-IND/35	STRATEGY & MARKETING	M	1	10	
096088	ING-IND/17	OPERATIONS MANAGEMENT	M	1/2	10	
096090	ING-IND/17	INDUSTRIAL TECHNOLOGIES	M	1/2	10	
052796	ING-IND/35	LEADERSHIP & INNOVATION	M	2	10	

(1) This course is compulsory. It can be included in the Study Plan for the second or third year.

### Third year courses:

Code	SSD	Course title	Type	Sem	ECTS	ECTS group
		SYNTHESIS CLASS - MBE_EC		1/2	12+3	15
		INTERSHIP - MBE		1/2	3	3

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Code	SSD	Course title	Type	Sem	ECTS	ECTS group
		INTERSHIP - ME		1/2	2	2

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Code	SSD	Course title	Type	Sem	ECTS	ECTS group
096078	ING-IND/35	ACCOUNTING, FINANCE & CONTROL (1)	M	1	10	10
052795	ING-IND/35	STRATEGY & MARKETING	M	1	10	
096088	ING-IND/17	OPERATIONS MANAGEMENT	M	1/2	10	
096090	ING-IND/17	INDUSTRIAL TECHNOLOGIES	M	1/2	10	
052796	ING-IND/35	LEADERSHIP & INNOVATION	M	2	10	

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Code	SSD	Course title	Type	Sem	ECTS	ECTS group
052905	ING-IND/17	INDUSTRIAL MANAGEMENT LAB AND TOOLBOX		1	15	15
052908	ING-IND/17	INDUSTRIAL MANAGEMENT LAB AND TOOLBOX		2	15	
097319	ING-IND/17	ASSET LIFE CYCLE MANAGEMENT		1	10	10
097320	ING-IND/17	INDUSTRIAL PROJECT MANAGEMENT A		1	10	

(1) This course is compulsory. It can be included in the Study Plan for the second or third year.

## 2.3 Detailed description of the study plan for students enrolling from the Management Engineering (PSPA)

### First year courses:

Code	SSD	Course title	Type	Sem	ECTS	ECTS group
096078	ING-IND/35	ACCOUNTING FINANCE & CONTROL	M	1	10	10
052795	ING-IND/35	STRATEGY & MARKETING	M	1	10	10
052796	ING-IND/35	LEADERSHIP & INNOVATION	M	2	10	10



096090	ING-IND/17	INDUSTRIAL TECHNOLOGIES	M	1/2	10	30
054697	ING-IND/16	QUALITY DATA ANALISYS	M	2	10	
096089	ING-IND/17	LOGISTICS MANAGEMENT	M	1/2	10	
096088	ING-IND/17	OPERATIONS MANAGEMENT	M	1/2	10	

### Second year courses:

Code	SSD	Course title	Type	Sem	ECTS	ECTS group	
097403	ING-IND/17	INDUSTRIAL MANAGEMENT LAB AND TOOLBOX		1	15	15	
097403	ING-IND/17	INDUSTRIAL MANAGEMENT LAB AND TOOLBOX		2	15		
097319	ING-IND/17	ASSET LIFE CYCLE MANAGEMENT	M	1	10	10	
097320	ING-IND/17	INDUSTRIAL PROJECT MANAGEMENT A	M	1	10		
097321	ING-IND/17	OPERATIONS RISK MANAGEMENT AND RESILIENCE	M	1	5	5	
097323	ING-IND/17	QUALITY MANAGEMENT	M	1	5		
097313	ING-IND/16	ADDITIVE MANUFACTURING	M	1	5	5	
097314	ING-IND/16	DE-MANUFACTURING	M	1	5		
097325	ING-IND/17 ING-IND/35	DIGITAL BUSINESS INNOVATION	M	2	5		
097316	ING-IND/17	INTERNATIONAL DISTRIBUTION	M	2	5		
097327	ING-IND/17	PRODUCT LIFE CYCLE MANAGEMENT	M	2	5		
097315	ING-IND/17	SAFETY ENGINEERING AND MANAGEMENT	M	1	5		
053729	ING-IND/17 ING-IND/35	PURCHASING AND SUPPLY MANAGEMENT	M	1	5		
		STUDENTI'S FREE CHOICE OF COURSES - GROUP GESLM		1/2			10

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Code	SSD	Course title	Type	Sem	ECTS	ECTS group
054436	ICAR/10	BUILDING TYPES AND CONSTRUCTION METHODS	M	1	9	9
053105	ICAR/11	BUILDING AND CONSTRUCTION TECHNOLOGIES	M	1	9	9
051335	IUS/10	ADMINISTRATIVE AND PUBLIC PROCUREMENT LAW	M	2	6	6

### Third year courses:

Code	SSD	Course title	Type	Sem	ECTS	ECTS group
		MASTER THESIS CLASS - ME_IM		1/2	13	13
		INTERSHIP - ME		1/2	2	2

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Code	SSD	Course title	Type	Sem	ECTS	ECTS group
		INTERSHIP - ME		1/2	3	3

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Code	SSD	Course title	Type	Sem	ECTS	ECTS group
053119	ICAR/11	DURABILITY AND MAINTENANCE	M	2	12	12
053109	SECS-P/06	REGIONAL ECONOMICS + LAND RENT THEORY	M	2	12	12
055729	ICAR/11	BUILDING MAINTENANCE PROCEEDINGS AND METHODS	M	1	9	9

### 3. Final thesis

The final thesis is to be drafted by each candidate. Because of the peculiar nature of the Double Degree programme, double-authors theses are not allowed.

The final thesis can be assigned a final mark of -1/5 points (thesis without external reviewer/controrelatore) or -1/7 points (thesis with external reviewer/controrelatore).