

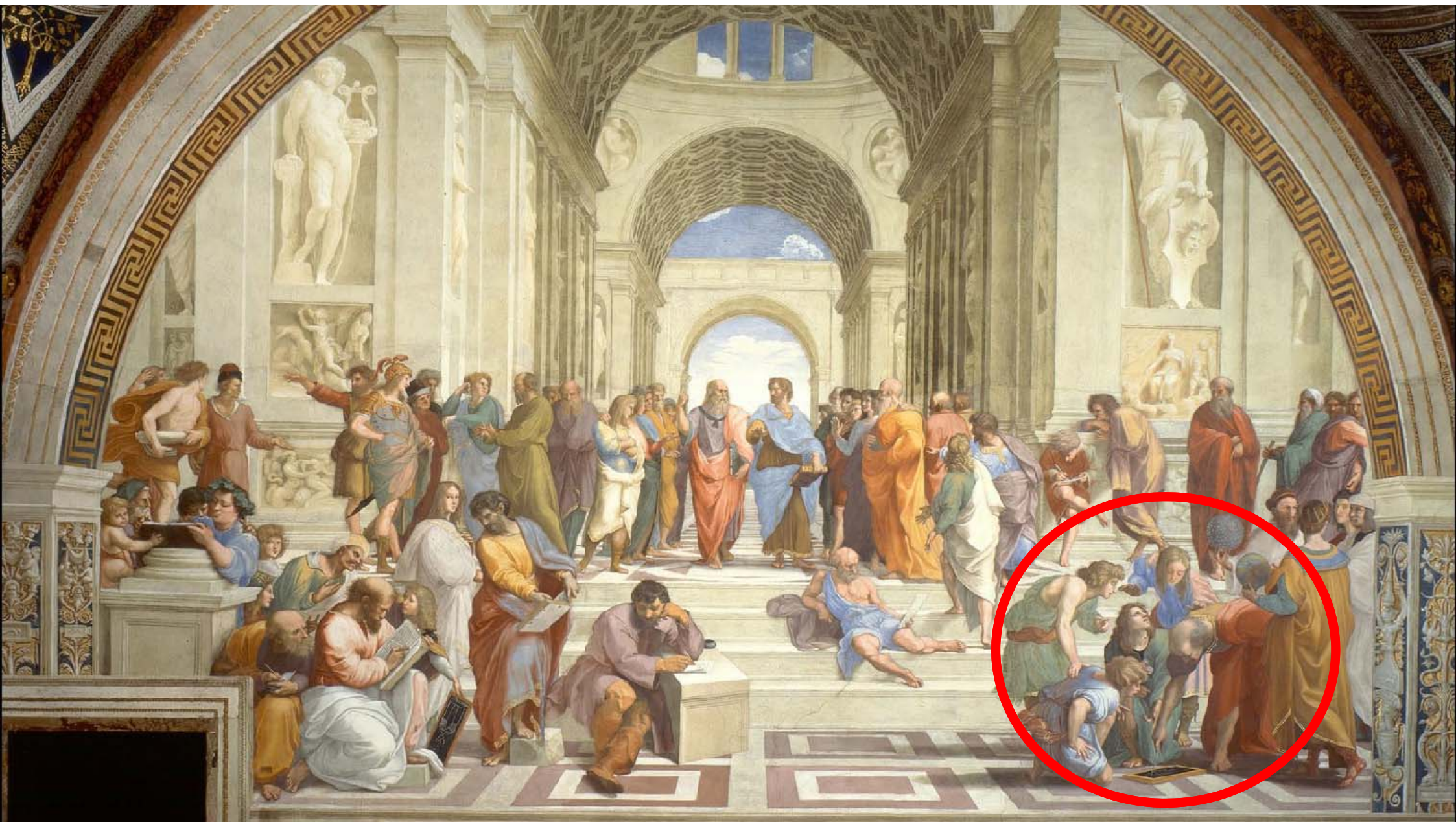


POLITECNICO
MILANO 1863

Welcome MSc in Management Engineering

Prof. Stefano Ronchi
Prof. Marika Arena

Sept 17th 2018



Politecnico di Milano:

Mission: «*To be an international university with strong Italian roots*»



Over **40.000**
students

12
Departments

Over **1.300** professors and
1.200 professional staff



Schools of
**Architecture,
Design,
Engineering**

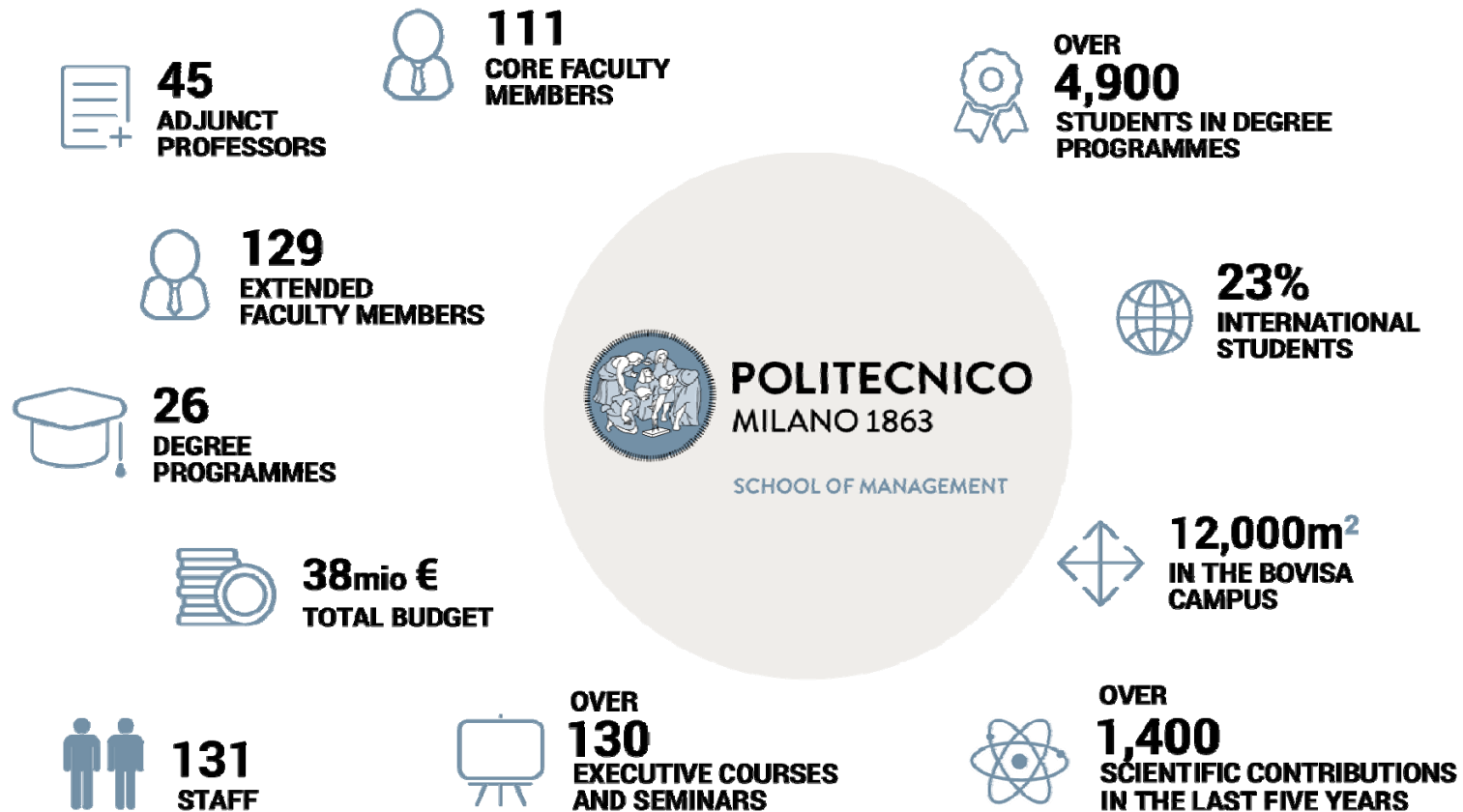
Ranked **no.1 in Italy,**
no. 6 in Europe, no. 17 worldwide
QS World University Ranking 2018,
Engineering & Technology



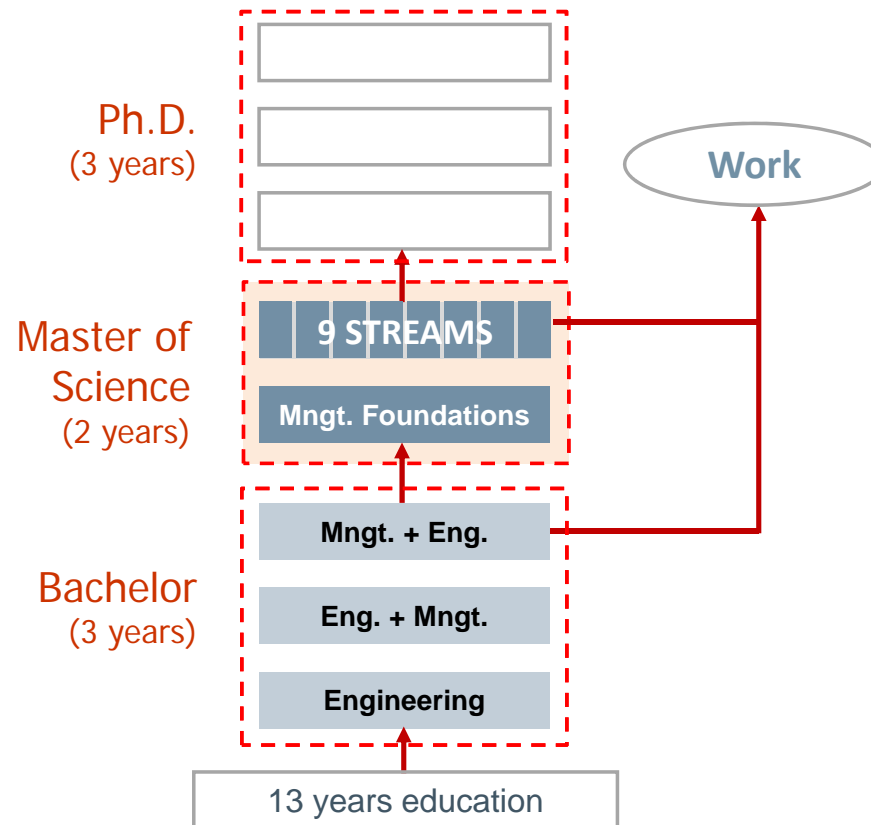
POLITECNICO MILANO 1863

School of Management:

Mission: «*To impact on society by creating and sharing knowledge at the intersection between engineering, management and economics*»



Our current Programs – over 4.200 students in total (>2.600 BSc, >1.600 MSc)



Duration	2 years
Calendar	Sept/Dic – Feb/Jun
Course size	5-15 ECTS
Workload	120 ECTS
Enrolments (≈)	700

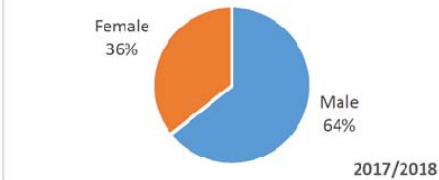
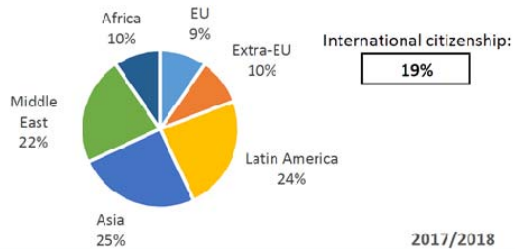
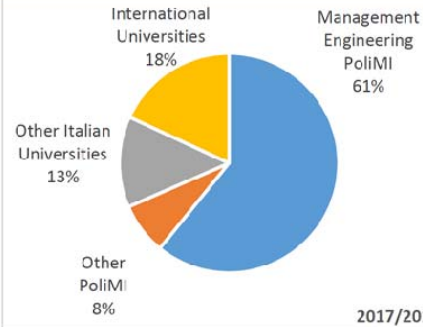
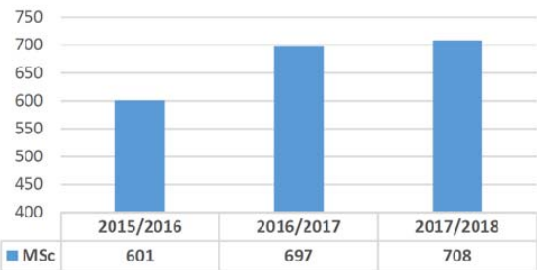
Notes:

- Specific managerial competences based on a solid scientific and engineering background
- 14.000 graduates since the constitution in 1982
- Taught in English
- Over 40% of International students and exchange students
- Huge opportunities for experiences abroad through exchanges and double degree programs: 25% of our students have experiences abroad
- Double degrees with other departments and other international universities

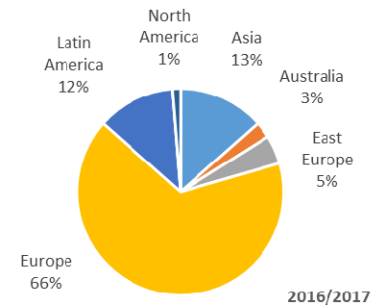
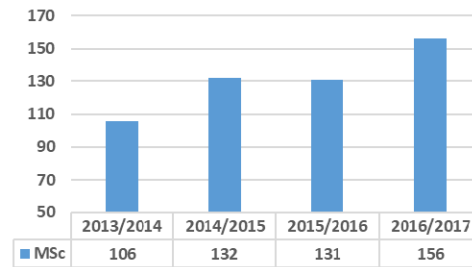
MSc in Management Engineering: some figures



1st year regular enrolments - MSc

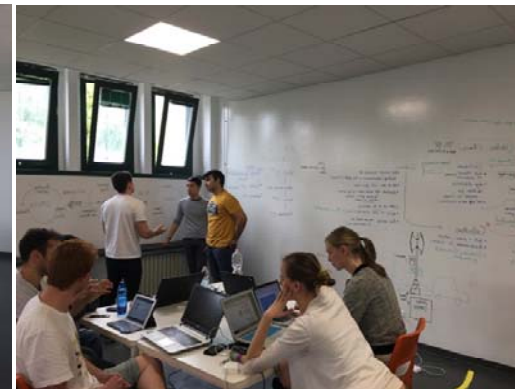


Outgoing international exchanges - MSc



A number of different opportunities

- Access to one of the top universities worldwide
- A real international environment
- Campus and sport life (e.g. Poli4you)
- Deep-dive into concrete business problems (Labs): close interaction with industry
- Double Degrees with other departments



A number of different opportunities

- **Erasmus** and **extra-UE** agreements (Europe, USA, China, Australia, etc.)
- **Double Degree** programs (T.I.M.E.)
- **UNITECH:**
 - Politecnico di Milano (Italia)
 - Chalmers University of Technology (Svezia)
 - CentraleSupelec (Francia)
 - ETH Zurich (Svizzera)
 - Loughborough University (Inghilterra)
 - RWTH Aachen University (Germania)
 - Trinity College (Irlanda)
 - TU Delft (Olanda)
 - Universitat Politecnica de Catalunya (Spagna)



IDEA League

- **IDEA League:**
 - Politecnico di Milano (Italia)
 - ETH Zurich (Svizzera)
 - TU Delft (Olanda)
 - Chalmers University of Technology (Svezia)
 - RWTH Aachen University (Germania)

- **Alliance4Tech:**
 - Politecnico di Milano (Milano)
 - Technische Universität Berlin (Berlino)
 - CentraleSupelec (Parigi)
 - University College London (Londra)

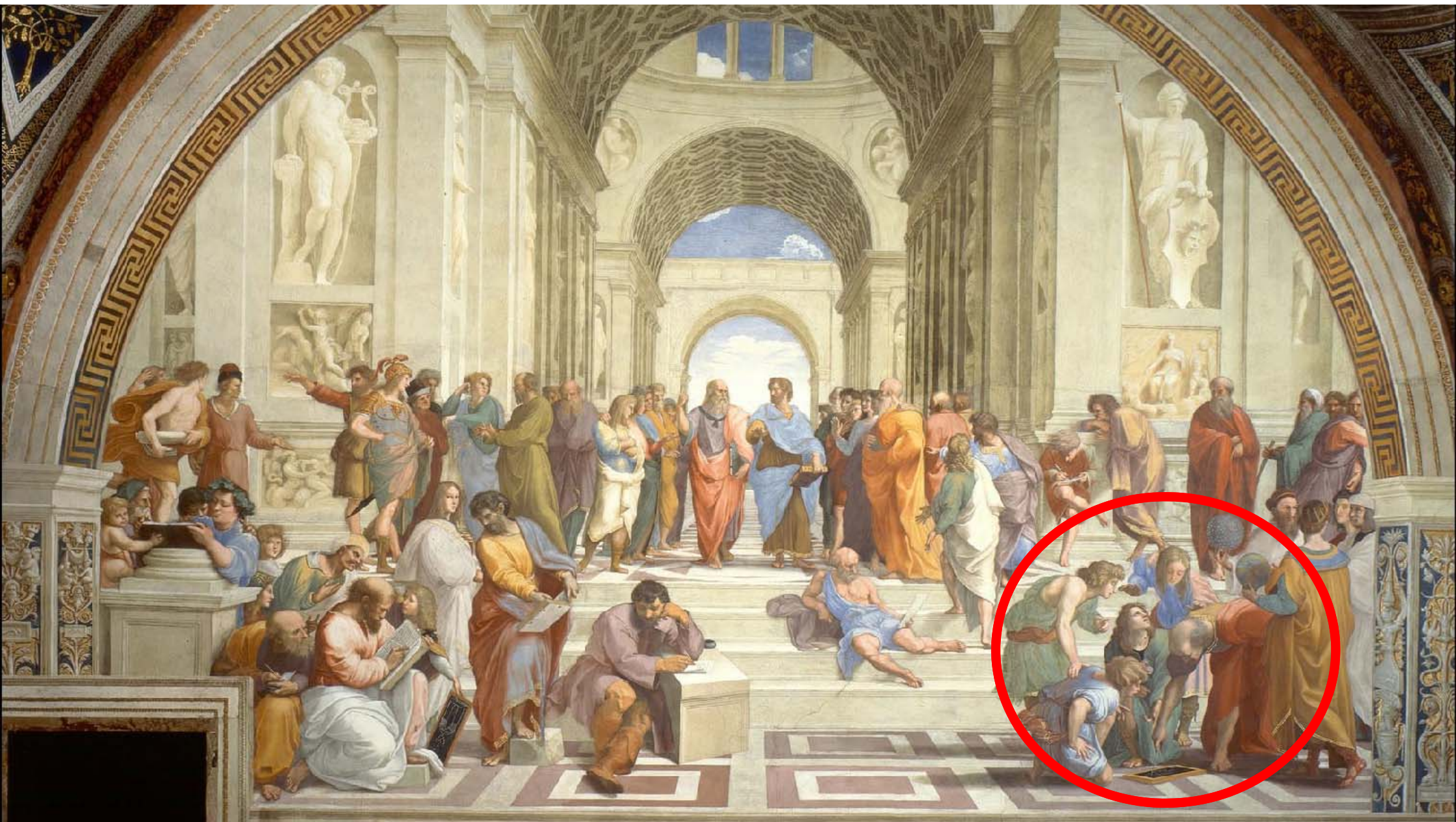
ALLIANCE 4 TECH



Learning Goals

MASTER OF SCIENCE IN MANAGEMENT ENGINEERING

1. **Understand** context, functions, processes in a business and industrial environment and the impact of those factors on business performance
2. **Identify** trends, technologies and key methodologies in a specific domain (specialization streams)
3. **Design** solutions applying a scientific and engineering approach (Analysis, Learning, Reasoning, and Modeling capability deriving from a solid and rigorous multidisciplinary background) to face problems and opportunities in a business and industrial environment
4. **Develop** new ideas and solutions in business and industrial scenarios evolving over time
5. **Interact** in a professional, responsible, effective and constructive way with colleagues in a working environment, also motivating group members

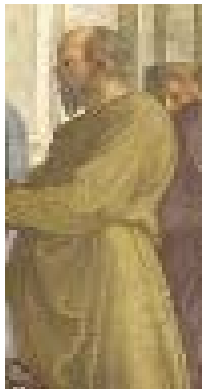


Deploy some of our values...



Integrity and rules compliance

*«Ideas» and civil commitment
(Platone)*



Critical and deep analysis

*«Know to Not Know»
(Socrate)*

Autonomy in problem solving

*Your «Reason for Existence»
to create value
(Aristotele)*



Logic and clear reasoning

*Rigor and clarity in the
«Elements»
(Euclide)*



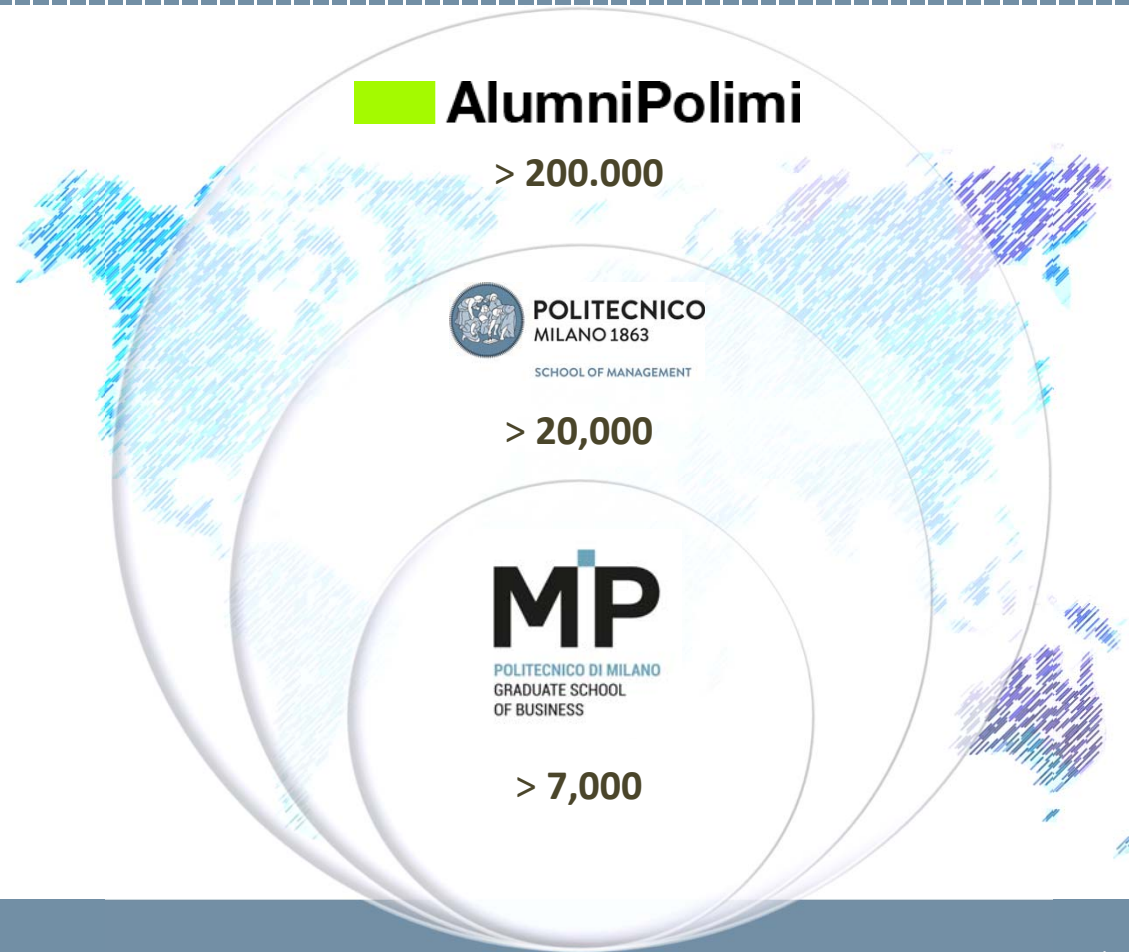
Participate and be part of our community

- Provide us **constructive feed-backs** about our courses / initiatives (e.g. fill in the quality questionnaire at the end of the course, which is anonymous; provide comments and suggestions about how we can improve; be professional and not arrogant)
- Provide us **suggestions about initiatives** that can be implemented or share initiatives that could be of your interest you are aware about (e.g. conferences, summer schools)
- **Participate in the campus life** through the channels that are already available ...



ALUMNI School of Management Community

Who we are



After your Graduation you can also join the Alumni Polimi Association with more than 40.000 active members!

IL NETWORK PROFESSIONALE DEGLI ALUMNI POLIMI

EUROPA

Berlino **51**
Istanbul **83**
Lisbona **14**
Londra **396**
Madrid **51**
Bruxelles **75**
Parigi **214**
Stoccolma **34**
Vienna **29**
Zurigo **63**

MONDO

Boston **27**
Buenos Aires **20**
El Cairo **16**
Mosca **15**
New York **77**
Pechino **26**
San Paolo **4**
Sydney **34**
Singapore **47**
Shanghai **63**

43962

ISCRITTI

1 OGGI

12 SETTIMANA

12 MESE

SEGUICI SU:



DONA
DIVENTA SOSTENITORE



CERCA TUTTE LE CITTÀ →

POLITECNICO MILANO 1863

Keep in touch!

<http://www.mip.polimi.it/it/alumni>

Alumni Relations Office contacts
alumnirelations@mip.polimi.it



Facebook:

<https://it-it.facebook.com/GestionaleRisponde/>

#BeCurious

#BeProtagonist

#KeepinTouch



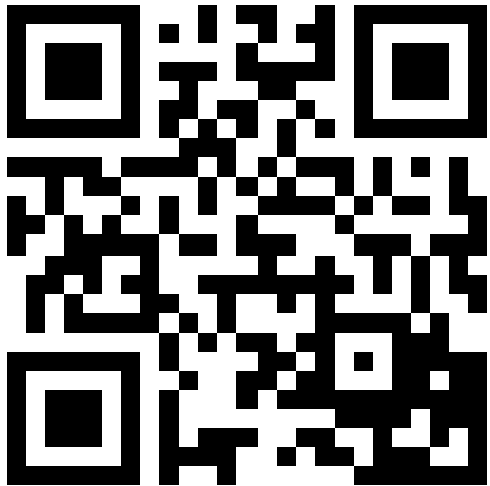


HSA

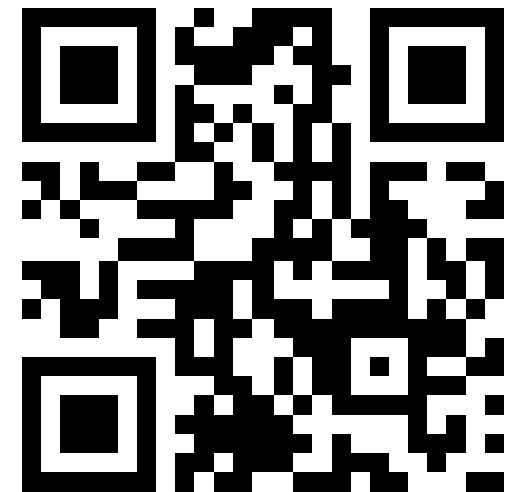
Hub of Student Activities

Aimed at creating a dynamic university life in Management Engineering, the HSA works as a hub for all the extracurricular activities in which the students can take part. The hub works in three ways: (1) it organizes and proposes local events under four groups of interests: social, cultural, didactic, recreational; (2) it serves as a platform to let each student propose its own club; (3) it promotes and communicates initiatives organized by other institutions of the university.

School of Management Industrial Club



**SCHOOL OF MANAGEMENT
INDUSTRIAL CLUB**
POLITECNICO DI MILANO



Join the team!

School of Management Industrial Club

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On Nov. 13th, we will discuss negotiation techniques with:



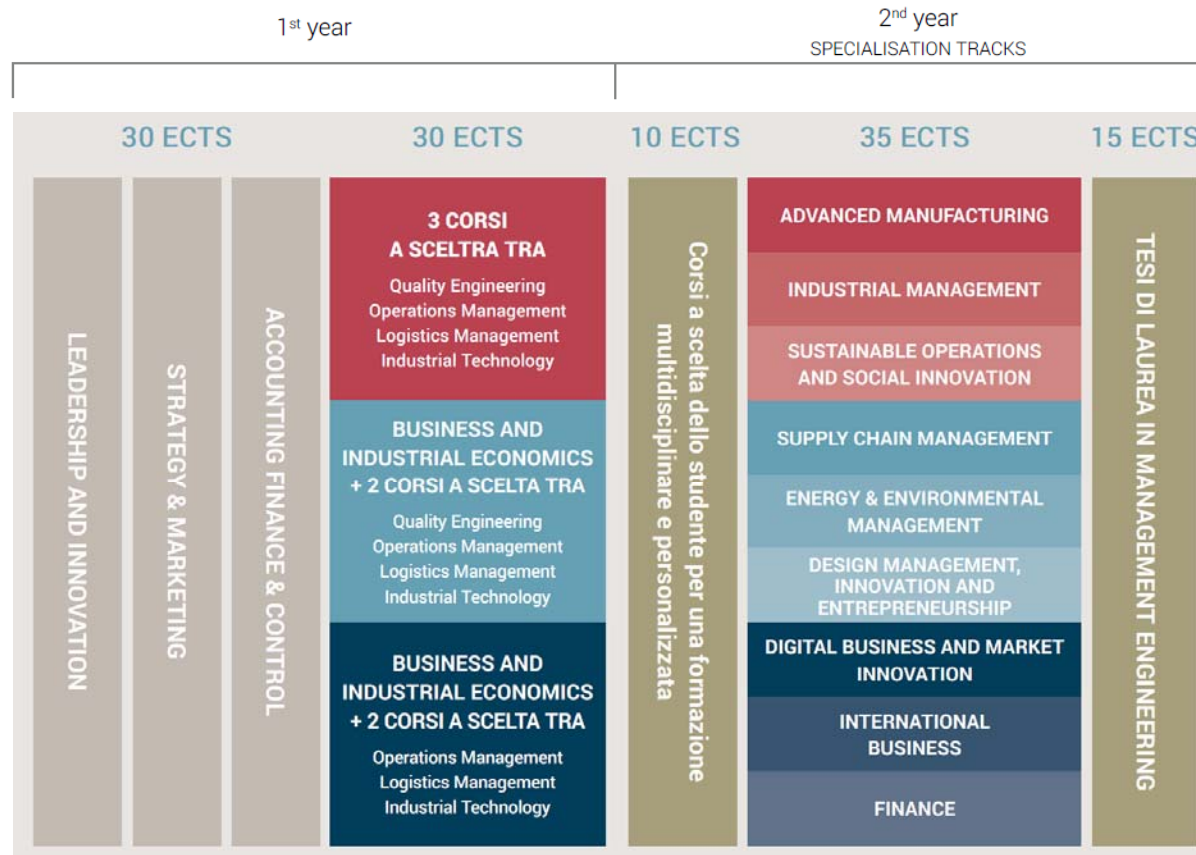
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Drop us a line via industrialclub.polimi@outlook.it or Fb / LinkedIn pages

MSc in Management Engineering overall structure

First year focuses on building a common body of knowledge that characterizes the management engineer

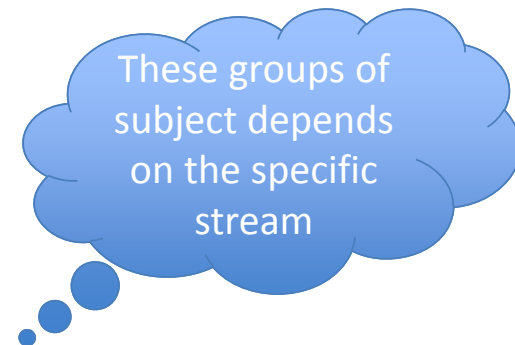


Second year is dedicated to developing vertical competencies within specific streams

Every stream ends with a practice-based lab

MSc in Management Engineering stream structure

Pos	ECTS	ECTS	Courses
7		Min 10	Laboratory (at least 33% methods and tools)
8			Set of Characterising courses
9			
10	5-10	5	Pool of 5 credits courses to choose from
		5	
		5	
		5	
		5	
10	10	5	FREE LM
11		5	GES LM
	15	15	Master Thesis



Next meetings: Streams presentations

Date and Stream	Directors	Room
September 25th, 2018		
18.00 Digital Business and Market Innovation	Prof. Noci	LM1
18.30 International Business	Prof.ssa Piscitello	LM1
19.00 Finance	Prof. Giorgino, Prof. Giudici	LM1
19.30 Internal Double Degrees	Prof. Marika Arena	LM1
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18.00 Advanced manufacturing	Prof. Macchi, Prof. Tolio	LM1
18.30 Industrial Management	Prof. Portioli	LM1
19.00 Design Management, Innovation and Entrepreneurship	Prof. Colombo, Prof. Verganti	LM1

Submission of the Study Plan

- The selection of the stream should **not be a worry**: the study plan can be changed every 6 months (in most cases at no cost) in two dedicated time-window
 - Sept/Oct (1st October 2018)
 - Feb/Mar
- However, some **caution is needed**: the first year is almost the same for all our students however you should be aware that one subject (Business & Industrial Economics) is mandatory for six streams and it is not included in the other three streams (ADV, OSI, SCM)
- In any case, the study plan and the stream can be changed in February/March and in September/October

How teaching activities are organized?

Lectures

Exam Session		1 SEMESTER				Exam Session		2 SEMESTER				Exam Session	
august	september	october	november	december	january	february	march	april	may	june	July		
1 wed	1 sat	1 mon	1 thu	1 sat	1 tue	1 fri	1 fri	1 mon	1 wed	1 sat	1 mon		
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31 fri		31 wed	31 sat	31 mon	31 thu		31 sun		31 fri		31 wed		

- Courses run in **semesters** (approx 30 credits per semester)
- For some courses (AFC, S&M, L&I, BIE), students are allocated to **three or four classes**, based on alphabetical order. For this semester, students' allocation to classes will be consolidated over the next two weeks

How teaching activities are organized?

Assessment

Exam Session	1 SEMESTER					Exam Session	2 SEMESTER					Exam Session
august	september	october	november	december	january	february	march	april	may	june	july	
1 wed	1 sat	1 mon	1 thu	1 sat	1 tue	1 fri	1 fri	1 mon	1 wed	1 sat	1 mon	
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30 thu	30 sun	30 tue	30 fri	30 sun	30 wed		30 sat	30 tue	30 thu	30 sun	30 tue	
31 fri		31 wed		31 mon	31 thu		31 sun		31 fri		31 wed	

- Subjects are **assessed** based on different activities (projects, presentations, oral/written exams)
- Exams must be taken in regular exam-days (“**Appello**”)
- Students must be registered (on-line system)
- There are 5 exam calls in one year
- The evaluation is based on “30” ECTS points (min 18)

References

Study Rules and the courses list and timetable

- www.polimi.it → Corsi (Programmes) → Laurea Magistrale (MSc)

General rules

- <http://www.polinternational.polimi.it/>

Make your Study Plan

- www.polimi.it → Students → Study Plan



Contacts

Most of your answers are already in the website:

- <http://www.polimi.it>
- <http://www.dig.polimi.it> → teaching section

Direct contact with the Program Office:

- management-engineering@polimi.it

VISIT FREQUENTLY THE WEBSITE AND READ YOUR EMAILS!

Next meetings: Streams presentations

Date and Stream	Directors	Room
September 25th, 2018		
18.00 Digital Business and Market Innovation	Prof. Noci	LM1
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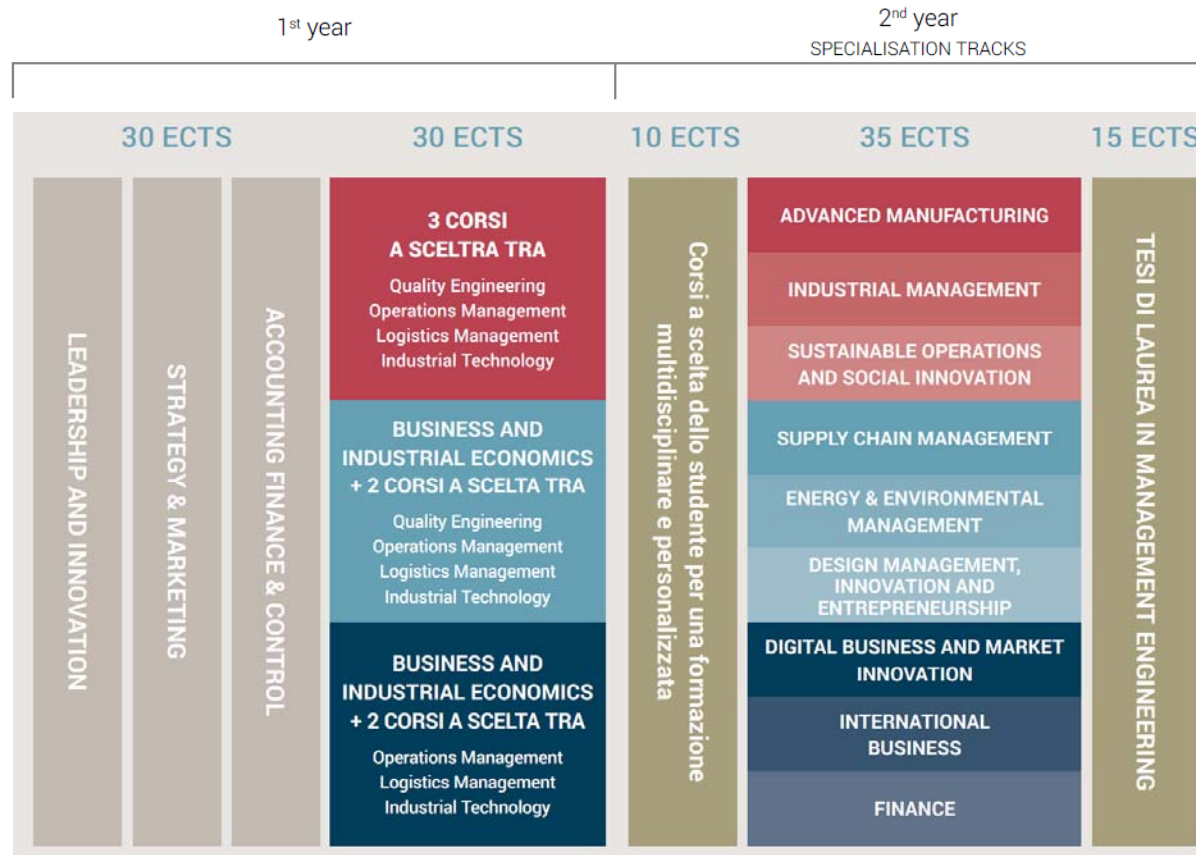


POLITECNICO
MILANO 1863

Annex
MS in Management Engineering:
Detail of the streams

MSc in Management Engineering overall structure

First year focuses on building a common body of knowledge that characterizes the management engineer



Second year is dedicated to developing vertical competencies within specific streams

Every stream ends with a practice-based lab

Advanced Manufacturing

Scenario and Market Needs

- **Europe and Italy are leaders** in different industrial and consumer sectors
- Manufacturing is in the **agendas of most countries** around the planet (investments in the next few years to boost manufacturing activities: 200M\$ in USA, 140M£ in UK, 1.200M€ in Europe)
- Europe must keep most strategic, advanced and **value added manufacturing processes**

Jobs

- Employed mostly in manufacturing companies: new product and process design, manufacturing strategies, manufacturing system designer, quality manager, consultant in industrial engineering ...

Intended Learning Outcomes

- Be able to **rethink products, processes and production systems** to remain competitive
- Understand **new technologies**, new materials and man-plant synergies
- Generate **new solutions** combining technological and organizational aspects

Contact Details

- Prof. Marco Macchi: marco.macchi@polimi.it
- Prof. Tullio Tolio: tullio.tolio@polimi.it

Advanced Manufacturing: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Production for Made in Italy Lab	2	10	10	16
Manufacturing Systems Engineering	1	10	10	16
Asset Life Cycle Management	1	10	10	17
Additive Manufacturing	1	5	5	16
De-Manufacturing	1	5		16
Safety Engineering and Management	1	5		17
International Distribution	2	5		17
Management of Design and Innovation Projects	2	5		35

Free FREELM	1-2	10-14	14	-
Final Project (Thesis)	1-2	15	15	-

Industrial Management

Scenario and Market Needs

- Designing and running manufacturing and service businesses is more complex than in the past:
 - **Globalisation** of markets and production
 - **Customisation** of products and services
 - Faster **Technology** development
 - Competition for **critical resources**
 - Higher **competence level** for all workers

Jobs

- Employed mostly in consulting and manufacturing companies: investments decisions, large industrial projects, manufacturing process design and management, operations improvement, asset life cycle management, plant management ...

Intended Learning Outcomes

- Be able to build sustainable competitive advantage through **innovative production and service operations models** through a systems-thinking approach
- Run **company sites** in an effective and efficient way
- **Set up new sites and new initiatives** for the company's competitive advantage in the long run
- **Define operating processes**, direct investment in new technologies, develop competences and assets

Contact Details

- Prof. Alberto Portioli: alberto.portioli@polimi.it

Industrial Management: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Industrial Management Lab and toolbox	1-2	15	15	17
Asset Lifecycle Management	1	10	10	17
Industrial Project Management A	1	10		17
Operations Risk Management and Resilience	1	5	5	17
Quality Management	1	5		17
Additive Manufacturing	1	5	5	16
De-Manufacturing	1	5		16
Safety Engineering and Management	1	5		17
International Distribution	2	5		17
Digital Business Innovation	2	5		17+35
Product Lifecycle Management	2	5		17
Purchasing and Supply Chain Management	1	5		17+35
Free FREELM	1-2	10-14	14	-
Final Project (Thesis)	1-2	15	15	-

Sustainable Operations Management and Social Innovation

Scenario and Market Needs

- **Sustainability** is a key challenge for the future
- Social and Environment sustainability is in the **agendas of most countries** around the planet (investments by 2020: 1 trillion\$ in the world)
- All organizations around the world will face more and more the need to **redesign their process to pursue sustainability**

Jobs

- Employed mostly in multinationals, consulting and financial companies, NGOs and international institutions: sustainability department, strategy, manufacturing process design and management, product life cycle management, innovation and development ...

Intended Learning Outcomes

- Understand how **“societal challenges”** are changing the way companies operate
- Analyze **new business models**, partnerships and technologies required by these challenges
- Implement appropriate **product and service design**, manufacturing and logistics approaches
- Map the trade-off between **economic, social and environmental performances**

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Sustainable Operations Management and Social Innovation: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Business in Transformation: Social and Sustainability Challenges Lab	1	15	15	<i>17+35+SPS/04</i>
Advanced and Sustainable manufacturing	1	10	10	<i>17</i>
Social Innovation	1	5	5	<i>35</i>
Health Care Management	2	5	5	<i>35</i>
De-Manufacturing	1	5		<i>16</i>
Economics of Network Industries	2	5		<i>35</i>
International Distribution	2	5		<i>17</i>
Operations Risk Management and Resilience	1	5		<i>17</i>
Policy Analysis	2	5		<i>Policy</i>
Free GESLM	1-2	5		5
Free FREELM	1-2	5-8	8	-
Final Project (Thesis)	1-2	15	15	-

Supply Chain Management

Scenario and Market Needs

- Competition is not among companies anymore but among **supply networks**
- Companies are acting on a **global scale**
- Suppliers upstream participate in the **80% of the overall value** delivered to customers
- Customers and distribution networks are more and more **complex and demanding**

Jobs

- Employed mostly in manufacturing, service and consulting companies: supply chain management, demand and supply planning, procurement, global sourcing, logistics and distribution, operations planning and control ...

Intended Learning Outcomes

- Understand **typical trade-offs** within a complex supply chain
- Implement **methods and ICT approaches** to solve supply-chain critical issues
- Measure and control **supply chain processes**
- Analyze and manage supply chains for different types of **markets and products**

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Supply Chain Management: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Supplier Relationship Management Lab	2	10	10	35
Advanced Supply Chain Planning Lab	2	10	10	17
Supply Chain Management	1	10	10	17+35
Digital Business Innovation	2	5	5	17+35
Operations Risk Management and Resilience	1	5		17
Quality Management	1	5		17
International Distribution	2	5		17

Free FREELM	1-2	10-14	14	-
Final Project (Thesis)	1-2	15	15	-

Energy and Environmental Management + Energy

Scenario and Market Needs

- Energy Management is increasingly assuming a **pivotal role**
- “Big bang disruption” of **renewables and shale gas&oil technologies**
- Sustainability of critical resources, with **reduced impacts on the environment**, is increasingly becoming a must
- The European Commission estimates that the impact of the “Package 20-20-20” would create 2 more **million of “green employees”**

Jobs

- Employed mostly in energy companies, consulting, financial institutions and regulatory authorities: general management, business development, analysts, energy management, ...

Intended Learning Outcomes

- Understand **global energy and environment** scenarios
- Understand competition dynamics and **design new business models**, including Energy Service Companies (ESCOs), e-mobility, smart cities and eco-industrial parks
- Evaluate **incentive mechanisms and policies**
- Design solutions for **energy and resource efficiency**
- Implement **strategic and technical improvements**

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Energy and Environmental Management: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Energy Management Lab	2	10	10	17+35
Management of Energy and Sustainability	1	10	10	35
Economics of Network Industries	2	5	5	35
Industrial Eco-efficiency	1	5	5	17
Fundamentals of Energy Technologies	1	5	5	Energy
Diritto dell'Energia	2	5	5	Law
Financial Risk Management	2	5		35
Industrial Project Management B	2	5		17
Power Production from Renewable Energy C	1	5		Energy
Operations Risk Management and Resilience	1	5		17
Social Innovation	1	5		35
Free FREELM	1-2	5-8	8	-
Final Project (Thesis)	1-2	15	15	-

Design Management, Innovation and Entrepreneurship

Scenario and Market Needs

- **New products and services** are key engines of competitiveness, growth, and long-term sustainability
- Innovation comes from a variety of **different sources** within and outside the company
- Effective innovation requires people with **entrepreneurial orientation** and collaborative attitude
- **Development processes**, for rapidly testing and implementing ideas, reaching global markets

Jobs

- Employed mostly in manufacturing, service companies and start-ups: Innovation Manager, Entrepreneurs, Strategy, Marketing, R&D, New Business Development, Design, Product Management ...

Intended Learning Outcomes

- Search for new opportunities and find **creative solutions**
- **Engage others** (internal teams and external partners)
- Operate in creative contexts, **get creativity into business**
- Master the new product and service innovation through the entire **product life cycle**
- Adopt a **multi-disciplinary approach**: Design Management, Innovation Management, Entrepreneurship, Product service development

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Design Management, Innovation and Entrepreneurship: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Design Management Lab	1	15	15	<i>Icar13+35</i>
Design Strategy and Economics of Innovation	1	10	10	35
Additive Manufacturing	1	5	10	16
Management of Design and Innovation Projects	2	5		35
Digital Business Innovation	2	5		17 + 35
Entrepreneurship Economics and policy	2	5		35
Product Life Cycle Management	2	5		17
Branding and Communication	2	5		<i>Design</i>
Free GESLM	1-2	10-13		13
Final Project (Thesis)	1-2	15	15	-

Digital Business and Market Innovation

Scenario and Market Needs

- Information & Communication Technologies (**Digital Technologies - DTs**) are becoming more and more pervasive and disruptive
- DT are driving **significant changes** and innovations in many markets
- DT are changing the way to **manage data** from all sources, enhancing decision-making
- All organizations need **individuals** able to exploit DT-driven business innovation

Jobs

- Employed mostly in consulting, service companies and start-ups: Information Technology, Marketing, Innovation Manager, Data Scientist, Strategy, New Business Development, ...

Intended Learning Outcomes

- Effectively interpret all the **current trends and future scenarios** regarding DT
- Play an **active and driving role** in digital innovations
- Understand how to **take advantage of the infinite data** and information available in the digital realm
- Identify the **business opportunities** brought on by DTs to create innovative startups

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Digital Business and Market Innovation: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Designing Digital Business Innovation Lab	2	15	15	17+35
Multichannel Customer Strategy	1	10	10	35
Applied Statistics	1	5	5	<i>Statistics</i>
Machine Learning	1	5		<i>Informatics</i>
Digital Technology	2	5		<i>Informatics</i>
Additive Manufacturing	1	5	5	16
Branding and Communication	2	5		<i>Design</i>
Public Management	1	5		35
Social Innovation	1	5		35
Purchasing and Supply Chain Management	1	5		17+35
Free GESLM	1-2	5	5	-
Free FREELM	1-2	5-8	8	-
Final Project (Thesis)	1-2	15	15	-

Scenario and Market Needs

- After the **financial crisis** has hit many countries, reverting to a positive and constructive role is crucial for Finance today
- The Finance of the future needs to be **closer to the real economy** and to enterprises
- Financial markets have become **more and more complex** in terms of actors, tools, regulations and global interactions

Jobs

- Employed mostly in financial companies, consulting, service and manufacturing companies: Asset & Investment Management, Corporate Finance, Investment & Commercial Banking, Risk Management, Accounting & Finance...

Intended Learning Outcomes

- Knowledge of **financial markets** and their structure
- Knowledge of the main **financial intermediaries**
- Knowledge of the **finance unit** in large firms
- Knowledge of main **risk categories**, both financial and non-financial
- Knowledge of financing methods available to firms to **raise financial resources** during their life cycle
- Knowledge of the **main financial instruments** (e.g. derivatives, supports to internationalization)

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Finance: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Finance Lab + Corporate Finance	A	15	15	35
Financial Markets and Institutions + Macroeconomics of Finance	1	10	10	35+Economics
Financial Econometrics	2	5	5	Economics
Entrepreneurial Finance	1	5		35
Financial Risk Management	2	5		35
Investment Banking	1	5		35
Financial Econometrics	2	5	5	Economics
Entrepreneurial Finance	1	5		35
Entrepreneurship Economics and Policy	2	5		35
Financial Risk Management	2	5		35
Investment Banking	1	5		35
Operations Risk Management and Resilience	1	5		17
Free GESLM	1-2	5	5	-
Free FREELM	1-2	5-8	8	-
Final Project (Thesis)	1-2	15	15	-

International Business

Scenario and Market Needs

- The international fragmentation of production systems and the **geographical dispersion** of the value chain have opened up new scenarios and opportunities
- This requires a comprehensive understanding of the **international business environment** (policies, regulations ...)
- Appropriate frameworks and methodologies are needed to compete in this global economy and understand the **interaction between firms' strategies, institutions and policies**

Jobs

- Employed mostly in multinational companies, consulting and institutional organizations: foreign markets relationships, business development, export management, global sourcing ...

Intended Learning Outcomes

- Acquire a **holistic view of the international business environment**, and how policies and regulations affect industries and firms
- Develop **analytical and pragmatic business capabilities**
- Develop **cross-cultural** interpersonal skills
- Be able to **connect the 'micro' firm view with the 'macro' view** of countries and regions
- Understand the **interaction between firms' strategies, economic and development policies, and the changing global environment**

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International Business: 2nd year curriculum

Courses	Sem	ECTS	ECTS	SSD
Investments in Foreign Markets Lab	2	15	15	17+35
International Economics	1	10	10	<i>Economics</i>
Economics and Management of Multinational Enterprises	1	5	5	35
International Markets and European Institutions	1	5		<i>Economics</i>
Economics and Management of Multinational Enterprises	1	5	5	35
Global Supply Chains and Networks	1	5		17+35
International Distribution	2	5		17
International Markets and European Institutions	1	5		<i>Economics</i>
Free GESLM	1-2	10-13	13	-
Final Project (Thesis)	1-2	15	15	-



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