



Decree Index no. 10893 File no. 203917
Date 24/11/2021
Title III Class V
UOR SEMFC

HAVING REGARD TO Politecnico di Milano's Articles of Association;
HAVING REGARD TO Ministerial Decree 3.11.1999, no. 509;
HAVING REGARD TO Ministerial Decree 22.10.2004, no. 270;
HAVING REGARD TO the University's Educational Rules - Regulations;
HAVING REGARD TO the Regulations for Specialising Masters of Politecnico di Milano issued with Rector's Decree no. 2235 of 05.08.2013;
HAVING ACQUIRED the favourable opinion of the Academic Senate during the meeting on 22.11.2021, on the establishment and activation of proposals for Specialising Masters, including the "FUNDAMENTALS OF THE AIR TRANSPORT SYSTEM" first-level Specialising Master.

DECREES

That the first-level Specialising Master "FUNDAMENTALS OF THE AIR TRANSPORT SYSTEM" is established and activated for 2022/2023.

ART. 1 Master's features

The first-level Specialising Master "FUNDAMENTALS OF THE AIR TRANSPORT SYSTEM" is established and activated at the Aerospace Science and Technology Department.

The Specialising Master administrative headquarters is at POLI.design S.c.r.l., the reference school is the School of Industrial and Information Engineering.

The Coordinator of the Specialising Master is Prof. Giuseppe Sala, and the Vice Coordinator is Prof. Carlo Emanuele Dionigi Riboldi.

The Committee of the Specialising Master's programme comprises the following Politecnico di Milano Professors: Giuseppe Sala, Carlo Emanuele Dionigi Riboldi, Italo Oddone, Lorenzo Trainelli, Carmela Tripaldi, Alberto Luigi Michele Rolando, Alberto Terranova and Cesare Cardani.

ART. 2 Educational objective and employment opportunities

The air transport system is an intrinsically multi-disciplinary field, where technical and management skills deal with ordinary and emergency operations. It has experienced significant growth in the last few years. The Covid-19 pandemic has had a major impact on the situation, however the air transport system has shown resilience in many areas and recovery is in sight. The future will not repeat the past. New paths must be followed. The main system players, including airlines, handling and airport management companies, regulators and supervisors, must cope with this trend. They must rely on highly qualified professionals with an excellent technical qualification in aviation and a deep knowledge of the air transport system processes, from the global framework to internal components. The Master's will enable participants to develop a comprehensive knowledge of the air transport system in its multiple aspects, through a structured theoretical approach suitable for engineers, followed by a period of practical training of at least four months in a qualified organisation, taught by field experts. At the end of the programme, participants will have acquired a good insight with the air transport sector. This will be a crucial asset for a successful application in the field, and it facilitates a transition from the academic world to the labour market.

The Programme will be delivered in English.

ART. 3
Teaching content and organisation

The Specialising Master will start in **March 2022** and end in **March 2023**.

- From 29/11/21 to 25/3/22: Foundation Courses, i.e. teaching activities preparatory to the master's programme to fill any training gaps. No ECTS credits will be awarded.
- From 28/3/22 teaching will begin with the award of ECTS credits for the entire class, as follows:
 - Teaching activities (40 ECTS credits):
 - Module 1: Civil Aviation System;
 - Module 2: Cybersecurity;
 - Module 3: Quality Assurance and Compliance Monitoring;
 - Module 4: Safety Management System;
 - Module 5: Accident Investigation;
 - Module 6: Human Factors and Psychological Aspects;
 - Module 7: Emergency Management;
 - Module 8: Airport Capacity;
 - Module 9: Airport Management System;
 - Module 10: Air Transport Company;
 - Module 11: Continued airworthiness, Maintenance and Engineering.
 - Four-month internship (10 ECTS credits);
 - Individual study activities (10 ECTS credits).

SSD	Teaching	Total hours	ECTS
Not assigned to SSD	General Abilities Use and Application of Office Programs - Statistical application - English Aviation Lexicon - History of Air Transportation	50	2
ING-IND/03 ING-IND/05	Civil Aviation System The aviation system structure as a complex system. Civil aviation system domains: ADR, OPS, CAW, Maintenance, Airspace. Rules evolution in the aeronautical sector: the Management System as a Risk Management System. International and national bodies. Purpose of the various regulations. Hierarchy of sources. Analysis of some international and national regulatory tools.	100	4
INF/01	Cybersecurity Legal framework for security issues. ICAO supranational legislation and its national implementation. Security programmes of managers, operators and other system's players. National Security Programme (PNS) and other regulations that impact security. Risk and crisis management.	63	2.5
Not assigned to SSD	Quality Assurance & Compliance Monitoring, Management System vs. Risk Management ISO Quality Management Systems. System and process audits. Audit check list. Management of findings. Root Cause Analysis. Corrective/preventive action implementation and follow-up. Compliance and quality regulatory framework. Role of QM CMM. Internal compliance verification programmes. External ENAC / EASA surveillance programmes. Quality management strategies and effects on safety.	75	3

ING IND/05	<p>Safety Management System Safety management in civil aviation field. Safety Management System fundamentals. Safety approach: reactive, proactive and predictive method. Function of the Safety Manager and the importance of reporting. Hazard Identification, Risk Assessment, and Risk Mitigation. Safety Audit and Safety Assurance. Identification of the Safety Performance Indicators.</p>	75	3
ING- IND/03	<p>Accident Investigation Introduction of taxonomies for risk classification. Methods for the qualitative and quantitative analysis of safety risks. Accident investigation. Legal relevance and regulatory framework. Investigation techniques. Data collection and tools. Laboratory tests. Details of accidents and analysis of possible causes. Introduction to aeronautical medicine and meteorology.</p>	113	4.5
M- PSI/01, M-PSI/06	<p>Human Factors & Psychological Aspects Relevance of the human factor in the technical field. Classification of the types of human error, error modelling and theories. Effective factors in human performance. Human resource management, leadership and selection. Relevance of psychology in the workplace, impact on quality, safety and security. Stress factors in the aeronautical environment. Addictions. Psychology in users - fear of flying, difficulty of adaptation. Psychological support structures.</p>	112	4.5
Not assigned to SSD	<p>Emergency Management ERP Emergency Recovery Plan. ERP SRA.</p>	50	2
ING- IND/03 ING- IND/05	<p>Airport Capacity Detail of the airport system, interacting systems. Analysis and management of the airport system. Space-temporal model of operation and definition of capacity. Effective factors on capacity. Harris model, modular approach and generation model. Airport infrastructure management schemes. Concessions. Airport operator tasks and functions - organisation and structure of the airport manager. Regulation of operational air traffic management. Air traffic services and control, classification and details of airspace. Service Providers' tasks and functions</p>	112	4.5
ING- IND/03 ING- IND/05	<p>Airport Management System Classification and details of use of the airport infrastructures for fixed and rotary wing aircraft. Type features Classification and details of airports. Identification and management of obstacles. Signage, systems and equipment for operations. Regulatory framework for public works. Structure of an infrastructure project - planning, implementation, testing. Professionals involved. Project accounting analysis. Details of the plant engineering needs of the airport infrastructures. Hierarchies, compartmentalisation and redundancies. Technological services and networks necessary for operations. Details of individual plants - water, electricity, telephony and data, thermal control, fire prevention, storage of fuels and special materials.</p>	62	2.5

Not assigned to SSD	Air Transport Company Financial and organisational aspects (TCO Third Country Operation). EU 965/2012. SPA operations requiring specific approvals - SPO specialised operations- NCC non-commercial operations with complex motor-powered aircraft.	74	3
ING-IND/04	Continuing Airworthiness, Maintenance & Engineering ATL system. Maintenance activities in air transport, maintenance project, CRS Certificate of Release to Service concept. Continuing Airworthiness Maintenance Organisation CAMO Part145: reference standards.	100	4
	Partial	986	39.5
	Internship	500	20
	Exams	14	0.5
	Total	1,500	60

ART. 4 **Admission requirements**

The Master's is open to applicants with a Laurea (equivalent to Bachelor of Science) or Specialising Master/Laurea Magistrale (equivalent to Master of Science) in Aerospace Engineering or Engineering with a good knowledge of English. Equivalent qualifications from the university systems of foreign applicants are valid.

The Committee is responsible for the selection.

ART. 5 **Formal requirements**

The **admission application** must be submitted starting from the day after the date of this Decree and **by 28 February 2022**.

*** Italian/foreign citizens who graduated in Italy**

- Self-certification of personal identity (surname and name, place and date of birth, nationality, and residence)
- copy of the identity document
- copy of the Diploma Supplement or photocopy of the degree diploma and certificate with a list of exams taken for Old Educational System graduates
- Curriculum Vitae

*** Italian/EU citizens with qualification gained abroad**

- Self-certification of personal identity (surname and name, place and date of birth, nationality, and residence)
- copy of the identity document
- Photocopy of the academic qualification obtained, and a certificate showing the marks given in the individual exams or Diploma Supplement (**during enrolment, the certificate of equivalence issued by the relevant area's Italian Representative abroad or certificate issued by the Enic/Naric Centres must be submitted**)
- Curriculum Vitae

The admission application must state the following. "I authorise this University, under EU Regulation no. 2016/679 on data protection, to process personal data only for purposes related to the Master's admission, enrolment and management, and agree to the disclosure of my personal information to third parties, particularly:

- public and private entities interested in possible recruitment;
- to academic programme backers; Politecnico Treasurer for services related to tuition fees;
- entities managing unsecured loans, housing, flexible employment contracts, cultural, recreational or sports activities.
- I authorise the use of the data for statistical purposes in respect of the procedures and authorisations required by the cited regulation.

The extended information on data processing and on data subject rights is available on the website www.polimi.it/privacy

The documentation must be sent to:

POLI.design S.c.r.l.

Via Don Giovanni Verità, 25

20158 Milan (MI)

Tel: 02/2399.5911

Fax: 02/2399.5970

Email: selezioni@polidesign.net

Under Art. 75 of Italian Presidential Decree 445/2000, if the administration, after carrying out suitable checks, finds that the content of the declarations made by the applicant is untrue, the declarant forfeits any benefits obtained by the measure issued based on untrue declaration.

*** Non-EU citizens who graduated abroad**

Non-EU foreign citizens must submit the following to the Managing Authority:

- **copy of the degree** in the original language and its translation into Italian/English/French or Spanish
- **copy of the transcripts** with the list of exams in the original language and their translation into Italian/English/French or Spanish **or Diploma Supplement**
- **copy of a valid passport**
- Curriculum Vitae

At least 30 days before the enrolment closing date as set out in this article.

The Managing Authority shall send the documentation listed above for the evaluation of qualifications, to participate in the Politecnico di Milano's Specialising Masters, **Masters and Lifelong Learning Service by the closing date of this call for applications**, under the MIUR/MAE note "Procedures for entry, stay and enrolment of students applying for visas in higher education programmes in Italy for the 2021/22" academic year.

Following acceptance by the University, and only after confirming to the Managing Authority their participation on the Programme by the set methods, students must register on the Ministerial portal <https://www.universitaly.it> informing the Managing Authority that the registration has been completed in order for the application to be sent to the Representative responsible for issuing the entry visa.

ENROLMENT METHOD:

Students admitted to the Master's Programme must create access credentials to Politecnico di Milano's online services on the website www.polimi.it. They must then enter their details and create a **person code**, attaching a valid identity document (passport for non-EU citizens), and communicate their person code to the Master's Managing Authority. Students already registered must update their personal details, if they are obsolete.

Portal access credentials must be retained as they will be required to access all of Politecnico di Milano's services. Lost access credentials may be autonomously restored or obtained through an OTRS ticket.

Politecnico creates a temporary student identification number to allow the student to pay the enrolment fee via online services.

The achievement of an Italian degree can be self-certified by completing the appropriate form provided by the Managing Authority. A degree obtained abroad must be documented by presenting a **declaration of value (DOV)** issued by the Italian Representative abroad (Italian Embassy or Consulate) on letterhead complete with its original stamp; **or a certificate issued by the Enic/Naric Centres.**

In addition to the above documentation, **non-EU citizens must upload a copy of a valid residence permit on their online services personal data record.**

ART. 6

Degree and award recognitions

ISSUED CERTIFICATION

At the end of the programme, after passing the final exam, the "Fundamentals of the Air Transport System" first-level Specialising Master's Diploma will be awarded in English.

Students admitted to the Master's final examination will pay the fee via the online services of Politecnico di Milano to take the exam.

STUDENT OBLIGATIONS

Attendance is compulsory for at least 75 per cent of the programme activities.

Cancellation from the Programme must be made in writing. The training period may not be suspended for any reason. The simultaneous enrolment on a Specialising Master and on another Italian University academic programme is not allowed.

TESTING METHODS

The final exam consists of the presentation and discussion of a paper.

ART. 7

Tuition fees and contributions

The cost of the Specialising Master's is **€7,500** broken down as follows:

- **€500** – Politecnico di Milano enrolment fee
- **€7,000** – attendance fee

The Politecnico di Milano enrolment fee will not be refunded under any circumstances

10075X08 – CIN H – ABI 05696 – CAB 01620 – Banca Popolare di Sondrio, Agenzia 21, Via Bonardi, 4 – 20133 Milan – account holder: POLI.design S.c.r.l. – IBAN: IT19 H056 9601 6200 0001 0075 X08

Specifying the payment reason as **ID 2195 MU1 Trasporto aereo** (air transport).

ART. 8
Personal data processing

Under EU Regulation no. 2016/679 on data protection, the University processes personal data only for purposes related to the master's admission, enrolment and management, and you agree to the disclosure of your personal information to third parties, particularly:

- public and private entities interested in possible recruitment;
- to academic programme backers; Politecnico Treasurer for services related to tuition fees;
- entities managing unsecured loans, housing, flexible employment contracts, cultural, recreational or sports activities.
- I authorise the use of the data for statistical purposes in respect of the procedures and authorisations required by the cited regulation.

The extended information on data processing and data subject rights is available on the website www.polimi.it/privacy

ART. 9
Publication

This Decree is made public on Politecnico di Milano's website at <https://www.polimi.it/corsi/master-universitari-e-corsi-post-laurea/>

FOR INFORMATION ON THE SPECIALISING MASTER'S:

Dr. Elisa Piccini

POLI.design S.c.r.l.

Via Don Giovanni Verità, 25 - 20158 Milan (MI)

Tel: 02/2399.5911

Fax: 02/2399. 5970

Email: selezioni@polidesign.net

<http://polidesign.net>

The Rector
(Prof. Ferruccio Resta)
Signed Ferruccio Resta