

INDUSTRIAL PLANT MANAGER SPECIALIST

HIGHER TECHNICIAN FOR THE MAINTENANCE AND OPTIMISATION OF COMPLEX INDUSTRIAL PLANT

<https://www.itsprime.it/corsi-itsprime/industrial-plant-manager-specialist/>

Il corso è gratuito per i partecipanti essendo totalmente finanziato dal PR Toscana FSE+ 2021/2027 Priorità 4 Attività 4.f.2 # ITS: assegnazione risorse ai progetti dell'offerta formativa ITS di cui al DD 14894 del 02/07/2026 per i percorsi realizzati dalle Fondazioni ITS Academy della Toscana in avvio nell'a.f. 2026/2027 ed è inserito nell'ambito di Giovani (www.giovanisi.it), il progetto della Regione Toscana per l'autonomia dei giovani.

Tipo di corso:

corso biennale di Istruzione Superiore

Teaching location: The course will take place at the ITS PRIME Tech Academy site in **Florence, Via Panciatichi 29**. Part of the activities may be held at the technological laboratories of universities, companies, and other organizations partnering with the ITS PRIME Tech Academy Foundation. Activities may also occasionally take place at facilities of particular educational or scientific interest located elsewhere. Internships (stages) may be carried out at companies located anywhere within the regional, national, and/or European territory.

Enrollment deadline: September 30, 2026.

Tipo di Diploma finale:

Final diploma type: Diploma of "Higher Technician for Advanced Mechatronic Design and Production" (Area 6.1 - Process and Product Development and Innovation - Profile 6.1.1 of Annex 1 – Ministerial Decree 203 of 20.10.2023), specifying the course specialization as **"HIGHER TECHNICIAN FOR THE MAINTENANCE AND OPTIMISATION OF COMPLEX INDUSTRIAL PLANT"** certifying competencies corresponding to Level V of the European Qualifications Framework for lifelong learning (EQF), and constituting a qualification for access to public competitive examinations pursuant to Art. 5, paragraph 7, of the D.P.C.M. of January 25, 2008.

Admission requirements:

Possession of a **Secondary School Diploma or a four-year Vocational Education and Training (leFP) pathway supplemented by a one-year Higher Technical Education and Training (IFTS) pathway;**



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Age between **18 and 35** (not yet reached by the application deadline);
Basic knowledge of the English language and computer skills.

Female candidates and/or candidates belonging to disadvantaged categories who are found suitable during the selection process will be automatically admitted to the course as students, up to the reserved quota assigned to them (50% of places for women, 7% for disadvantaged categories in accordance with Law 68/1999). Admission requirements will be verified during the selection process.

Admission type: Classes may be formed with a **minimum of 20 students**, as required by current national regulations, and a **maximum of 25 students**.

Selection process

The selection process involves:

- curricular evaluation based on qualifications and prior experience: a) Secondary School Diploma b) Any third-party certifications (such as ECDL or Cambridge ESOL, PET, and FCE certificates);
- a written test with multiple-choice questions aimed at assessing: a) General and basic knowledge of the subject area to which the ITS course relates; b) Knowledge of the English language;
- a motivational interview to assess: a) Candidates' motivations, aptitudes, and technical knowledge.

Modalità di iscrizione:

please refer to the link: <https://www.itsprime.it/corsi-itsprime/industrial-plant-manager-specialist/>

Recognition of previous training pathways: Any requests for recognition of training credits must be submitted in writing, together with appropriate documentation, by the course start date at the latest. A committee will evaluate the knowledge and skills acquired in other formal and informal contexts and, if the outcome is positive, will award credits in terms of training hours. This will allow the student to be exempted from attending the relevant UFCs (Capitalizable Training Units).

Course objectives

The "INDUSTRIAL PLANT MANAGER SPECIALIST" course trains technicians in the maintenance and optimisation of complex industrial plants. The programme combines mechanical, electrical and electronic skills with organisational abilities and digital diagnostic tools.

Main job opportunities

Industrial maintenance technician.
Electromechanical maintenance engineer.
Preventative and predictive maintenance technician.



Diagnostics technician.
Junior maintenance planner.
Service technician for machinery, plant or turbomachinery.

Didactic plan

The course will begin by November 2026 and end by August 2028. The actual start date of the course will be announced on the ITS PRIME Tech Academy Foundation website (www.itsprime.it). The training pathway will be structured into 4 semesters for a total of **1,800 hours**:

- **Classroom lessons and laboratory activities: 1,000 hours**
- **Internships, in Italy and abroad: 800 hours**

Most of the subject areas will be delivered in technological laboratories specifically equipped with state-of-the-art technology. Part of the internship may be carried out, on a voluntary basis, at foreign companies, subject to obtaining specific scholarships under the Erasmus+ program. Access to the program will be through participation in a dedicated call, which must be successfully passed as a prerequisite for participation.

Class schedule: Monday to Friday, with a weekly commitment of 35-40 hours. Teaching activities will be suspended for holidays and summer/winter breaks. The entire training program is developed in close coordination with companies in the sector. Over 70% of the teaching staff will be composed of experts from the production, professional, and labor sectors with specific professional experience in the field, giving particular value to staff from companies that are members of the ITS PRIME Tech Academy Foundation. Teachers from universities, research centers, vocational training institutions, and schools will also be involved. The pathway will be complemented by seminar activities, testimonials from industry professionals, and visits to trade fairs, events, companies, and installations of particular interest. Throughout the course, learning assessments are scheduled to verify the actual achievement of the training objectives.

Access to further studies

The diploma may be combined with a subsequent university pathway, with recognition of university training credits (CFU) based on the academic regulations of individual universities. Current legislation should be consulted in this regard.

Attendance benefits

Participants residing more than 50 km from the course location will be granted a contribution toward reimbursement of expenses incurred for meals and accommodation. The contribution will be paid only if the participant successfully completes the ITS training pathway in which they are enrolled. The ITS PRIME Tech Academy Foundation has also arranged for the awarding of Scholarships. The methods and criteria for allocating reimbursements and Scholarships will be defined and communicated to attending students through specific notices and regulations. It is possible to submit a request for a contribution or a Scholar-



ship; however, the award is neither automatic nor guaranteed, but will be evaluated on a case-by-case basis according to the criteria established by current regulations.

Regulations for exams and other assessment methods

Each ITS PRIME Tech Academy course is two years long and consists of Capitalizable Training Units (UFC), each of which is divided into Teaching Modules. At the end of each teaching module, an assessment is scheduled, evaluated on a scale of 100. For modules with a high number of teaching hours, an interim assessment may also be scheduled. Students who have attended at least 80% of the total teaching hours and have obtained a positive evaluation in all teaching modules are admitted to take the final ministerial exam, consisting of technical-practical tests and an interview.

Course structure ***Training Units and Teaching Modules***

UFC 1 - EMPOWERMENT AND TEAM BUILDING

- 1.1 Outdoor Training (outdoor setting)
- 1.2 Self Empowerment and Team Building Lab
- 1.3 Problem setting and solving - decision making - time management

UFC 2 - ORIENTATION TO WORK AND BUSINESS

- 2.1 The company and the employment relationship (contracts)
- 2.2 Company organization and organizational charts
- 2.3 Supply Chain Management

UFC 3 - THINKING INNOVATION: PHILOSOPHY AND DESIGN THINKING

- 3.1 Philosophical foundations of Design Thinking
- 3.2 Philosophy lab: The Agoras
- 3.3 Design thinking and critical thinking
- 3.4 The value of innovation: hands-on labs

UFC 4 - LANGUAGE SKILLS

- 4.1 English theory
- 4.2 English lab
- 4.3 Technical English

UFC 5 - QUALITY, SAFETY AND ENVIRONMENT

- 5.1 Quality policies in process management (ISO 9000)
- 5.2 Safety and accident prevention in the workplace (high risk) ISO 18000
- 5.3 Total Quality Management



UFC 6 - FUNDAMENTALS OF MECHANICAL TECHNOLOGY

- 6.1 Materials technology
- 6.2 Mechanical technologies
- 6.3 Mechanical measurements
- 6.4 Mechanics lab - CNC programming

UFC 7 - FUNDAMENTALS OF CAD AND TECHNICAL DRAWING (2D and 3D)

- 7.1 Elements of industrial technical drawing
- 7.2 Regulations for industrial technical drawing
- 7.3 2D and 3D CAD
- 7.4 Reverse engineering techniques

UFC 8 - ELECTRONICS AND ELECTRICAL ENGINEERING

- 8.1 Basics of electrical engineering and electromagnetism
- 8.2 Analog and digital electronics
- 8.3 Control systems - PLC
- 8.4 Electrical measurements
- 8.5 Electrical systems
- 8.6 Electronics lab

UFC 9 - ORGANIZATION AND MANAGEMENT OF THE MAINTENANCE SERVICE

- 9.1 Technical/administrative management and control documentation
- 9.2 Maintenance contracts
- 9.3 Scheduling techniques - cost centers
- 9.4 Elements of Project Management

UFC 10 - PREVENTIVE AND PREDICTIVE MAINTENANCE MANAGEMENT

- 10.1 Maintenance types and strategies - KPIs
- 10.2 Types of faults and/or failures
- 10.3 Cost management in maintenance - fixed and variable costs
- 10.4 Elements of reliability theory
- 10.5 Failure mode prediction techniques
- 10.6 Preventive and predictive maintenance techniques
- 10.7 Testing and inspection techniques (NDT)

UFC 11 - MAINTENANCE OF SERVICE TECHNOLOGY SYSTEMS

- 11.1 Basic principles of hydraulics
- 11.2 Basic principles of thermodynamics
- 11.3 Types, components, maintenance and safety of water and fire-fighting systems
- 11.4 Types, components, maintenance and safety of heating and air-conditioning systems
- 11.5 Types, components, maintenance and safety of electrical systems
- 11.6 Types, components, maintenance and safety of pneumatic and hydraulic systems



UFC 12 - MAINTENANCE OF INDUSTRIAL PRODUCTION MACHINERY

- 12.1 Types of machinery
- 12.2 Types, components, maintenance and safety of production machinery
- 12.3 Hands-on machine exercises

UFC 13 - TURBOMACHINERY MAINTENANCE

- 13.1 The industrial energy sector
- 13.2 Production and maintenance of centrifugal compressors
- 13.3 Production and maintenance of gas and steam turbines
- 13.4 Production and maintenance of turbopumps

UFC 14 - IoT AND DIGITAL MAINTENANCE

- 14.1 Digitalization of industrial systems
- 14.2 Industrial IoT architecture
- 14.3 Smart sensor technology
- 14.4 Remote diagnostics

UFC15 - INTERNSHIP

- 15.1 Company internship

Timetable and credits for teaching modules

Acronym	Industrial Plant Management Specialist						
Title	Higher Technician for the maintenance and optimization of complex industrial plants						
Mod.	Course	Module hours	Learning unit	First year	Second year	Training credits First year	Training credits Second year
	UFC 1 - EMPOWERMENT AND TEAM BUILDING		32	First year			
1.1	Outdoor Training (outdoor setting)	8		8		2	
1.2	Self Empowerment and Team Building Lab	12		12			
1.3	Problem setting and solving - decision making - time management	12		12			
	UFC 2 - ORIENTATION TO WORK AND BUSINESS		32		Second year		
2.1	The company and the employment relationship (contracts)	8			8		1
2.2	Company organization and organizational charts	12			12		1
2.3	Supply Chain Management	12			12		2
	UFC 3 - THINKING INNOVATION: PHILOSOPHY AND DESIGN THINKING		48				
3.1	Philosophical foundations of Design Thinking	16		16		1	
3.2	Philosophy lab: The Agoras	8		8		1	
3.3	Design thinking and critical thinking	8		8		1	
3.4	The value of innovation: hands-on labs	16		16		1	
	UFC 4 - LANGUAGE SKILLS		64	First year			
4.1	English theory	32		32		2	
4.2	English lab	20		20		1	
4.3	Technical English	12		12		1	
	UFC 5 - QUALITY, SAFETY AND ENVIRONMENT		40	First year			
5.1	Quality policies in process management (ISO 9000)	8		8		1	
5.2	Safety and accident prevention in the workplace (high risk) ISO 18000	16		16		1	
5.3	Total Quality Management	16		16		1	
	UFC 6 - FUNDAMENTALS OF MECHANICAL TECHNOLOGY		80	First year			
6.1	Materials technology	20		20		1	
6.2	Mechanical technologies	20		20		1	
6.3	Mechanical measurements	16		16		1	
6.4	Mechanics lab - CNC programming	24		24		2	
	UFC 7 - FUNDAMENTALS OF CAD AND TECHNICAL DRAWING (2D and 3D)		72	First year			
7.1	Elements of industrial technical drawing	8		8		1	
7.2	Regulations for industrial technical drawing	8		8		1	
7.3	2D and 3D CAD	36		36		2	
7.4	Reverse engineering techniques	20		20		1	
	UFC 8 - ELECTRONICS AND ELECTRICAL ENGINEERING		132	First year			
8.1	Basics of electrical engineering and electromagnetism	16		16		1	
8.2	Analog and digital electronics	16		16		1	
8.3	Control systems - PLC	20		20		1	
8.4	Electrical measurements	20		20		1	
8.5	Electrical systems	20		20		1	
8.6	Electronics lab	40		40		2	
	UFC 9 - ORGANIZATION AND MANAGEMENT OF THE MAINTENANCE SERVICE		56	First year			
9.1	Technical/administrative management and control documentation	20		20		1	
9.2	Maintenance contracts	12		12		1	
9.3	Scheduling techniques - cost centers	12		12		1	
9.4	Elements of Project Management	12		12		1	
	UFC 10 - PREVENTIVE AND PREDICTIVE MAINTENANCE MANAGEMENT		100	First year			
10.1	Maintenance types and strategies - KPIs	12		12		1	
10.2	Types of faults and/or failures	16		16		1	
10.3	Cost management in maintenance - fixed and variable costs	8		8		1	
10.4	Elements of reliability theory	8		8		1	
10.5	Failure mode prediction techniques	16		16		1	
10.6	Preventive and predictive maintenance techniques	24		24		2	
10.7	Testing and inspection techniques (NDT)	16		16		1	
	UFC 11 - MAINTENANCE OF SERVICE TECHNOLOGY SYSTEMS		92	First year			
11.1	Basic principles of hydraulics	12		12		1	
11.2	Basic principles of thermodynamics	12		12		1	
11.3	Types, components, maintenance and safety of water and fire-fighting systems	16		16		1	
11.4	Types, components, maintenance and safety of heating and air-conditioning systems	24		24		2	
11.5	Types, components, maintenance and safety of electrical systems	16		16		1	
11.6	Types, components, maintenance and safety of pneumatic and hydraulic systems	12		12		1	
	UFC 12 - MAINTENANCE OF INDUSTRIAL PRODUCTION MACHINERY		48	First year			
12.1	Types of machinery	16		16		1	
12.2	Types, components, maintenance and safety of production machinery	24		24		2	
12.3	Hands-on machine exercises	8		8		1	
	UFC 13 - TURBOMACHINERY MAINTENANCE		140	First year			
13.1	The industrial energy sector	40		40		2	
13.2	Production and maintenance of centrifugal compressors	20		20		1	
13.3	Production and maintenance of gas and steam turbines	60		60		3	
13.4	Production and maintenance of turbopumps	20		20		1	
	UFC 14 - IoT AND DIGITAL MAINTENANCE		64				
14.1	Digitalization of industrial systems	12			12		1
14.2	Industrial IoT architecture	12			12		1
14.3	Smart sensor technology	20			20		2
14.4	Remote diagnostics	20			20		2
	UFC15 - INTERNSHIP		800		Second year		
15.1	Company internship	800			800		50
	TOTAL HOURS		1800	904	896	60	60



ECTS credit system

For each course, ITS PRIME Tech Academy has adopted the calculation of credits according to the credit system used in the European Higher Education space ECTS (European Credit Transfer System). For the credits of an annuity there are, as for most Higher Education annuities, 60 credits. Typically 1 credit is equivalent to 25 hours of work between classroom (or laboratory for practical activities) and individual study. For each Didactic Module, the workload necessary for students to achieve the intended learning outcomes was assessed by assessment experts and module teachers. Lecture hours were considered 30% or 50% of the total workload hours according to the theoretical or theoretical-practical nature of the different modules. Time spent on company internship and laboratory activities was considered 100% of the workload.

Language of lessons

Italian

