

INNOMECC24

HIGHER TECHNICIAN FOR BUSINESS PROCESS DESIGN AND INNOVATION

<https://www.itsprime.it/corsi-itsprime/innomec24/>

The course is fully funded by PR Tuscany ESF+ 2021 - 2027, with D.D 13362 of 11/06/24 and is included in the framework of Giovanisì (www.giovanisi.it), the project of the Tuscany Region for the autonomy of young people.

Free for participants.

Participants who live more than 50 km away from the course location will receive a **contribution** to reimburse the expenses incurred for **food and accommodation**. The contribution will be granted only on condition that the participant successfully completes the ITS training course in which he/she is enrolled.

The ITS Prime Foundation has also provided for the award of **Scholarships** on the basis of merit and income. The terms and criteria for allocation and disbursement will be defined and communicated to students attending with appropriate notices and regulations.

Type of course:

Two-year course in higher education.

Teaching location:

the course will take place mainly at the ITS PRIME locations in **Pistoia, Via Cellini snc**. Some of the activities may be held in the technological laboratories of the Universities, Companies and Entities that collaborate with the ITS Prime Foundation. They may also be held occasionally in structures of educational or scientific interest located elsewhere. The internships may take place in companies located in any part of the regional, national and/or European territory.

Registration deadline: 11th October 2024, 11pm.

Type of final Diploma:

Diploma in " HIGHER TECHNICIAN FOR DESIGN AND ADVANCED MECHATRONIC PRODUCTION" (Ambito 6.1 - Sviluppo e innovazione del processo e del prodotto - Figura 6.1.1 dell'allegato 1 – DM 203 del 20.10.2023) with indication of specialization of the course in "**HIGHER TECHNICIAN FOR BUSINESS PROCESS DESIGN AND INNOVATION**" with the certification of the competences corresponding to the **European Qualifications Framework for lifelong learning (EQF) level 5** and constitutes a qualification for



access to public competitions pursuant to Art. 5, paragraph 7, of the D.P.C.M 25 January 2008.

Entry requirements:

possession of secondary school diploma or after the 4-year Diploma of Vocational Education and Training (VET) integrated by a one-year Higher Technical Education and Training (IFTS) course;

age between 18 to 35 years old (not completed on the call deadline date);

basic skills in English and ICT.

Female candidates and/or candidates belonging to disadvantaged categories who have been successful in the selection process will be automatically admitted to participate in the course as trainees, up to the limit of the number of places allocated to them (50% of places to women, 7% to disadvantaged categories in accordance with the provisions of Law 68/1999).

Type of access:

classes can be made up of a **minimum number of 20 students** as required by current national regulations on the matter and a **maximum of 25 students**.

Selection mode

The selection of participants includes:

curricular evaluation by qualifications and experiences,

a written test,

a motivational interview.

Method of enrollment:

see link: <https://www.itsprime.it/corsi-itsprime/innomec24/>

Methods of recognition of previous training courses:

The student at the time of enrollment may request the recognition of training courses, formal or non-formal, producing the documentation that attests them. The request is submitted to the Scientific Technical Committee that evaluates the coherence of the previous training courses with the Training Units and the modules of the course that the student is going to attend. On this basis the Scientific Technical Committee indicates which modules can be recognized as already learned by the student. Requests for recognition of training credits received after the selection date will not be evaluated.



Course Objectives.

The course for "INNOMECC24 - Higher Technician for the Design and Innovation of Business Processes" trains professionals specialized in the implementation of advanced technological solutions for the optimization of production processes. It has skills in mechanical design, automation, Additive Manufacturing, IoT and production management with a sustainable perspective. Main career opportunities:

Main job opportunities

Expert in automation, design and production
3D printing specialist
Sustainability manager

Didactic plan

The two-year course, of 1800 hours in total, takes place in 4 semesters with a didactic articulation that provides:

classroom lessons and laboratory activities (1032 hours),
internship, in Italy and abroad (768 hours). Any foreign internships are carried out with the European Erasmus+ programme.

Lesson time: Monday to Friday with a weekly commitment of 35-40 hours. Interruptions in teaching activities will be planned for holidays, summer and winter vacations.

The entire training course is carried out in close connection with the mechanic sector companies. The teaching team is composed of at least 70% of experts from the world of production, professions and work with a specific professional experience in the field. In particular is involved the staff of the companies, partners of ITS Prime Foundation.

Teachers from the School, University, Research Centres and Vocational Training will also be involved. Seminars, testimonies of key protagonists in the sector and visits to fairs, events, companies and installations of particular interest will complete the path of studies.

Possibility of access to further studies

The diploma may be integrated into a subsequent university course, with recognition of university credits (CFU) on the basis of the didactic regulations of the individual universities. In this regard, please refer to the regulations in force.

Regulations for the conduct of exams and other forms of school profit assessment

Each ITS PRIME course is biennial and consists of Training Units, divided into Didactic Modules.

At the end of each Didactic module, a 100-scale assessment is planned. For the modules with many hours of lessons, intermediate verifications are foreseen. Students, after having attended the course for at least 80% of the total hours of lessons, and having obtained in all the Didactic modules at least 60/100, are admitted to the final exam. The exam consists of technical-practical tests and an interview.



Course structure

Training Units and Teaching Modules

UFC 1 - EMPOWERMENT E TEAM BUILDING

- 1.1 Outdoor Training (in ambiente esterno)
- 1.2 Laboratorio di Self Empowerment e Team Building
- 1.3 Problemsetting and solving - decision making - time management

UFC 2 - WORK AND BUSINESS ORIENTATION

- 2.1 The business and the employment relationship (contracts)
- 2.2 Company organization and organizational charts
- 2.3 Safety and prevention of accidents in the workplace (high risk)

UFC 3 - LANGUAGE SKILLS

- 3.1 English theory
- 3.2 English laboratory
- 3.3 Technical English

UFC 4 - MECHANICAL DESIGN TECHNIQUES

- 4.1 Basics of mechanical design
- 4.2 Design of machines and automatic machines
- 4.3 Product Lifecycle Management (PLM) Life Cycle Assessment (LCA)
- 4.4 Regulations and certifications for mechanics
- 4.5 Materials technology and metallurgy
- 4.6 Basic mechanical measurement laboratory
- 4.7 Basic mechanics laboratory (manual machines)

UFC 5 - MECHANICAL DESIGN TOOLS

- 5.1 Computer Aided Design
- 5.2 Basic Parametric Solid Modeling
- 5.3 3D scanning and reverse engineering

UFC 6 - PROTOTYPING AND DEVELOPMENT OF THE PRODUCT

- 6.1 Advanced welding techniques and process
- 6.2 Application techniques for robots and production processes
- 6.3 Techniques and applications for industrial automation boards
- 6.4 Additive manufacturing (Printers and processes)
- 6.5 3D modeling and Additive manufacturing (Cad Modeling Systems)
- 6.6 Additive manufacturing and topological optimization of structures
- 6.7 CAM (SolidCam Esprit) and ISO Programming



- 6.8 Static and dynamic structural analysis with FEM methodology
- 6.9 Advanced mechanical measurement laboratory (TAC, CMM, Optical Scanning, etc.)
- 6.10 Advanced mechanics laboratory (numerical control machines)

UFC 7 - INDUSTRIALIZATION OF THE PROCESS AND PRODUCT

- 7.1 Production processes and costs of company structures
- 7.2 Production technologies and mechanical processing
- 7.3 New Machinery Directive (2006/42/EC)
- 7.4 Design for production
- 7.5 Technical documentation and manuals
- 7.6 PFC Techniques Manufacturing and Control Plans
- 7.7 Implantation techniques on complex machines and systems

UFC 8 - SYSTEMS OPERATION AND MAINTENANCE

- 8.1 Organization of installation and maintenance service
- 8.2 Failure mode prediction techniques
- 8.3 Installation and maintenance of mechanical, pneumatic and electrical devices

UFC 9 - MANAGEMENT OF THE INDUSTRIAL PROCESS AND SUPPLY CHAIN WITH A GREEN VIEW

- 9.1 Quality policies in the use of processes (ISO 9001)
- 9.2 Lean Manufacturing (Six Sigma)
- 9.3 Sustainable production processes and costs of company structures
- 9.4 Order management techniques
- 9.5 Data management for green processes
- 9.6 Sustainability Supply Chain Management
- 9.7 Ecological company; ISO 14000 and eco-compatibility of industrial production

UF 10 - INTERNSHIP

- 11.1 Internship in the company



Timetable and credits for teaching modules

InnoMech24						
Acronym						
Title	Higher technician for business process design and innovation					
Modules Code	Teaching	Hours UFC	Hours First Year	Hours Second Year	Credits First Year	Credits Second Year
	UFC 1 - EMPOWERMENT E TEAM BUILDING	40	First year	Second year	First year	Second year
1.1	Outdoor Training (in ambiente esterno)		8		2	
1.2	Laboratorio di Self Empowerment e Team Building		16			
1.3	Problemsetting and solving - decision making - time management		16			
	UFC 2 - WORK AND BUSINESS ORIENTATION	36		Second year		Second year
2.1	The business and the employment relationship (contracts)			8	4	
2.2	Company organization and organizational charts			12		
2.3	Safety and prevention of accidents in the workplace (high risk)			16		
	UFC 3 - LANGUAGE SKILLS	68	First year		First year	
3.1	English theory		40		3	
3.2	English laboratory		20		2	
3.3	Technical English		8		1	
	UFC 4 - MECHANICAL DESIGN TECHNIQUES	156	First year		First year	
4.1	Basics of mechanical design		24		3	
4.2	Design of machines and automatic machines		24		3	
4.3	Product Lifecycle Management (PLM) Life Cycle Assessment (LCA)		20		2	
4.4	Regulations and certifications for mechanics		16		1	
4.5	Materials technology and metallurgy		24		2	
4.6	Basic mechanical measurement laboratory		24		2	
4.7	Basic mechanics laboratory (manual machines)		24		1	
	UFC 5 - MECHANICAL DESIGN TOOLS	124	First year		First year	
5.1	Computer Aided Design		40		2	
5.2	Basic Parametric Solid Modeling		64		5	
5.3	3D scanning and reverse engineering		20		2	
	UFC 6 - PROTOTYPING AND DEVELOPMENT OF THE PRODUCT	288		Second year		Second year
6.1	Advanced welding techniques and process			20		2
6.2	Application techniques for robots and production processes			16		1
6.3	Techniques and applications for industrial automation boards			20		2
6.4	Additive manufacturing (Printers and processes)			24		2
6.5	3D modeling and Additive manufacturing (Cad Modeling Systems)			24		3
6.6	Additive manufacturing and topological optimization of structures			32		2
6.7	CAM (SolidCam Esprit) and ISO Programming			48		2
6.8	Static and dynamic structural analysis with FEM methodology			24		3
6.9	Advanced mechanical measurement laboratory (TAC, CMM, Optical Scanning, etc.)			32		2
6.10	Advanced mechanics laboratory (numerical control machines)			48		2
	UFC 7 - INDUSTRIALIZATION OF THE PROCESS AND PRODUCT	120	First year		First year	
7.1	Production processes and costs of company structures		20		2	
7.2	Production technologies and mechanical processing		20		2	
7.3	New Machinery Directive (2006/42/EC)		12		1	
7.4	Design for production		20		2	
7.5	Technical documentation and manuals		8		1	
7.6	PFC Techniques Manufacturing and Control Plans		32		2	
7.7	Implantation techniques on complex machines and systems		8		2	
	UFC 8 - SYSTEMS OPERATION AND MAINTENANCE	44	First year		First year	
8.1	Organization of installation and maintenance service		12		2	
8.2	Failure mode prediction techniques		8			
8.3	Installation and maintenance of mechanical, pneumatic and electrical devices		24		2	
	UFC 9 - MANAGEMENT OF THE INDUSTRIAL PROCESS AND SUPPLY CHAIN WITH A GREEN VIEW	156	First year		First year	
9.1	Quality policies in the use of processes (ISO 9001)		12		2	
9.2	Lean Manufacturing (Six Sigma)		12		1	
9.3	Sustainable production processes and costs of company structures		36		3	
9.4	Order management techniques		32		2	
9.5	Data management for green processes		24		2	
9.6	Sustainability Supply Chain Management		24		2	
9.7	Ecological company; ISO 14000 and eco-compatibility of industrial production		16		1	
	UF 10 - INTERNSHIP	768		Second year		Second year
10.1	Internship in the company			768		35
TOTAL HOURS		1800	708	1092	60	60



ECTS credit system

For each course, ITS PRIME 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

Course calendar

The course will start by October 30, 2024 and will end by June 2026. The actual start date of the course will be communicated via the ITS Prime Foundation website (www.itsprime.it).

