SMARTECH24

HIGHER TECHNICIAN FOR THE DESIGN AND PRODUCTION MANAGEMENT OF MECHATRONIC SYSTEMS

https://www.itsprime.it/corsi-itsprime/smartech24/

The course is fully funded under Mission 4 - Component 1 Investment 1.5 of PNRR - Strengthening the training offer of the "ITS Academy".

Free for participants.

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 **Prato** and **Pistoia**. 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 **"COURSE FOR HIGHER TECHNICIAN FOR THE DESIGN AND PRODUCTION MANAGEMENT OF MECHATRONIC SYSTEMS"** 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/smartech24/

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 “SMARTECH24 - Higher Technician for Design and Production Management of Mechatronic Systems” trains professionals who specialize in the management of

automated and interconnected industrial pro-cesses, with a focus on the mechano-textile sector. Skills acquired include skills in mechanical design, prototyping, product industrialization, maintenance, automation, robotics, additive ma-nufacturing and IoT.

Main job opportunities
Mechanical designer.
Expert in rapid prototyping.
Integrator of IoT systems.

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 (1040 hours),
internship, in Italy and abroad (760 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.

ITS PRIME Tech Academy

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 - ORIENTATION TOWARDS WORK AND ENTERPRISE

2.1 The enterprise and the employment relationship (contracts)
2.2 Company organisation and organisation charts
2.3 Order management techniques
2.4 Supply Chain Management

UFC 3 - LANGUAGE SKILLS

3.1 English Theory
3.2 English Laboratory
3.3 Technical English

UFC 4 - THE TEXTILE SUPPLY CHAIN, TECHNICAL, ORGANIZATIONAL AND RELATIONAL CHARACTERISTICS

4.1 Technical aspects related to the production of yarn and fabric
4.2 Processing within the textile supply chain
4.3 Organizational aspects of the textile supply chain
4.4 Commercial aspects of the textile supply chain

UFC 5 - MECHANICAL DESIGN

5.1 Basics of mechanical design
5.2 Design of machines and machines for fashion
5.3 Materials technology
5.4 Product Lifecycle Management (PLM) Life Cycle Assessment (LCA)
5.5 Regulations and certifications for mechanics
5.6 Computer Aided Design (AutoCAD)
5.7 Basic parametric solid modeling (Cad Systems SolidWorks Modeling)
5.8 3D scanning and reverse engineering
5.9 3D modeling and Additive manufacturing
5.10 Techniques and applications of industrial automation boards
5.11 CAM (SolidCam Esprit) and ISO Programming
5.12 Mechanics laboratory (measurements, manual machines, welding, numerical control machines)

UFC 6 - PRODUCT INDUSTRIALIZATION

6.1 Production technologies and mechanical processes
6.2 New Machinery Directive (2006/42/EC)
6.3 Design for production
6.4 Technical documentation and manuals
6.5 PFC techniques Manufacturing and Control Plans
6.6 Fashion production plants
6.7 Machinery and mechanical technologies for fashion process and product

UFC 7 - TEXTILE - MAINTENANCE AND OPERATION OF TEXTILE MACHINERY

7.1 Organization of installation and maintenance service
7.2 Failure mode prediction techniques
7.3 Installation and maintenance of devices
7.4 Machine maintenance laboratory

UFC 8 - LEATHER - MAINTENANCE AND OPERATION OF TEXTILE MACHINERY

8.1 Organization of installation and maintenance service
8.2 Failure mode prediction techniques
8.3 Installation and maintenance of devices
8.4 Machine maintenance laboratory

UFC 9 - TEXTILE - SUPPLY CHAIN AND QUALITY

9.1 Quality policies in the use of processes (ISO 9001)
9.2 Quality control
9.3 Lean processes and Enterprise 4.0
9.4 Ecological enterprise; ISO 14000 and eco-compatibility of industrial production
9.5 Materials and products of the textile/fashion supply chain

UFC 10 - LEATHER - SUPPLY CHAIN AND QUALITY

10.1 Quality policies in the use of processes (ISO 9001)
10.2 Quality control
10.3 Lean processes and Enterprise 4.0
10.4 Ecological enterprise; ISO 14000 and eco-compatibility of industrial production
10.5 Materials and products of the textile/fashion supply chain

UF 11 - INTERNSHIP

11.1 Company internship

Timetable and credits for teaching modules

Acronym	SmarTech24					
Title	Higher Technician for the design and production management of mechatronic systems					
Modules Code	Teaching	Hours UFC	Hours First year	HoursSecond 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			
1.2	Laboratorio di Self Empowerment e Team Building		16		2	
1.3	Problemsetting and solving - decision making - time management		16			
	UFC 2 - ORIENTATION TOWARDS WORK AND ENTERPRISE	**40**		Second year		
2.1	The enterprise and the employment relationship (contracts)			8		1
2.2	Company organisation and organisation charts			12		2
2.3	Order management techniques			8		1
2.4	Supply Chain Management			12		2
	UFC 3 - LANGUAGE SKILLS	**52**	First year			
3.1	English Theory		24		2	
3.2	English Laboratory		20		1	
3.3	Technical English		8		1	
	UFC 4 - THE TEXTILE SUPPLY CHAIN, TECHNICAL, ORGANIZATIONAL AND RELATIONAL CHARACTERISTICS	**56**	First year			
4.1	Technical aspects related to the production of yarn and fabric		16		2	
4.2	Processing within the textile supply chain		16		1	
4.3	Organizational aspects of the textile supply chain		12		1	
4.4	Commercial aspects of the textile supply chain		12		1	
	UFC 5 - MECHANICAL DESIGN	**356**	First year			
5.1	Basics of mechanical design		24		2	
5.2	Design of machines and machines for fashion		40		2	
5.3	Materials technology		16		2	
5.4	Product Lifecycle Management (PLM) Life Cycle Assessment (LCA)		24		2	
5.5	Regulations and certifications for mechanics		16		1	
5.6	Computer Aided Design (AutoCAD)		40		2	
5.7	Basic parametric solid modeling (Cad Systems SolidWorks Modeling)		40		2	
5.8	3D scanning and reverse engineering		24		1	
5.9	3D modeling and Additive manufacturing		24		1	
5.10	Techniques and applications of industrial automation boards		24		1	
5.11	CAM (SolidCam Esprit) and ISO Programming		24		1	
5.12	Mechanics laboratory (measurements, manual machines, welding, numerical control machines)		60		2	
	UFC 6 - PRODUCT INDUSTRIALIZATION	**144**	First year			
6.1	Production technologies and mechanical processes		24		2	
6.2	New Machinery Directive (2006/42/EC)		8		1	
6.3	Design for production		24		2	
6.4	Technical documentation and manuals		12		1	
6.5	PFC techniques Manufacturing and Control Plans		20		1	
6.6	Fashion production plants		24		2	
6.7	Machinery and mechanical technologies for fashion process and product		32		2	
	UFC 7 - TEXTILE - MAINTENANCE AND OPERATION OF TEXTILE MACHINERY	**104**		Second year		
7.1	Organization of installation and maintenance service			16		1
7.2	Failure mode prediction techniques			32		3
7.3	Installation and maintenance of devices			24		3
7.4	Machine maintenance laboratory			32		2
	UFC 8 - LEATHER - MAINTENANCE AND OPERATION OF TEXTILE MACHINERY	**104**	First year			
8.1	Organization of installation and maintenance service		16		1	
8.2	Failure mode prediction techniques		32		3	
8.3	Installation and maintenance of devices		24		3	
8.4	Machine maintenance laboratory		32		2	
	UFC 9 - TEXTILE - SUPPLY CHAIN AND QUALITY	**72**	First year			
9.1	Quality policies in the use of processes (ISO 9001)		12		1	
9.2	Quality control		12		1	
9.3	Lean processes and Enterprise 4.0		16		1	
9.4	Ecological enterprise; ISO 14000 and eco-compatibility of industrial production		16		1	
9.5	Materials and products of the textile/fashion supply chain		16		1	
	UFC 10 - LEATHER - SUPPLY CHAIN AND QUALITY	**72**	First year			
10.1	Quality policies in the use of processes (ISO 9001)		12		1	
10.2	Quality control		12		1	
10.3	Lean processes and Enterprise 4.0		16		1	
10.4	Ecological enterprise; ISO 14000 and eco-compatibility of industrial production		16		1	
10.5	Materials and products of the textile/fashion supply chain		16		1	
	UF 11 - INTERNSHIP	**760**		Second year		
11.1	Company internship			760		45
	TOTAL HOURS	**1800**	**896**	**904**	**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 Tranfert Sy-stem). 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).