



WINTEX PARTNERS



ISSET CIT objective: to accelerate innovation by:

- rethinking the customer experience
- improving operational efficiency of existing products
- and testing new materials and processes.

ISSET CIT will work particularly on:

- technology transfer in close collaboration with industrial companies
- develop knowledge of the most contemporary new technologies in nonwoven fabrics and composite materials
- prototyping of technical textiles, especially in Medtech, Homotech, Indutech, Mobiltech, Buildtech and Sporttech
- design and develop new projects related to the circular and sustainable economy.

Equipment list:

- Electrospinning unit
- Embroidery machine
- 3D Printer
- Heat press
- Scorch tester
- Knitted fabric stretch recovery tester

Contact Us

Higher Institute of Technological Studies

ISSET of Ksar Hellal

Avenue Hadj Ali Soua, BP 68,
Ksar Hellal, 5070 Tunisia

+216 73 450 999 - 73 450 907

isetkh@isetkh.rnu.tn

Iset ksar hellal

<https://goo.gl/maps/eyPj9GBfyz5kxFMbA>

Website: www.isetkh.rnu.tn



WINTEX



Weaving innovation
among academia
and industry in the
Tunisian textile sector

From 15/01/2020 to 14/01/2023

ISSET KH
Innovation Textile Center (CIT)

*research,
innovation,
expertise*

Co-funded by the
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Services

The Higher Institute of Technological Studies of Ksar Hellal, actor of the development of the textile clothing sector in Tunisia and particularly in the Sahel region, is the only institution of the network of isets to offer training in textiles and clothing declined in education license / master; consolidated by the applied research activities carried out by the Textile Engineering Laboratory (LGTex).

New to ISET, the textile innovation center (**CIT ISET KH**) set up as part of the Wintex project aims to promote innovation and technology transfer and develop cooperative exchanges in this context with companies in the Tunisian textile sector and their EU counterparts.

The four main services that will be offered by ISET CIT are:

1. **Study and expertise of new R&D axes in industrial companies**
2. **Technical assistance from idea to prototyping**
3. **Development and testing of innovative textile products**
4. **Development and optimization of innovative textile processes.**

Equipment

1. Electrospinning unit

- Modular benchtop electrospinning instrument designed for lab scale fabrication of micro or nanostructured fibers for several applications such as functional textiles, reinforcement of composites, filtration, regenerative medicine and microencapsulation.
- Integrated high-voltage source (up to 30 kV), flat plate collector (20x20 cm), syringe feeding system (flow rates: 0.1 μ l/h – 6 l/h), 2 additional syringes for coaxial & triaxial spinning, Taylor cone imaging system.



2. Embroidery machine

15-Color single-head machine operating on finished garments, fabrics and accessories, with 36x50 cm embroidery field and some devices that open up great creative freedom, namely:

Sequin device, Cord/loop device, Needle punch device, Boring device and Cap frame.



3. 3D Printer



A professional 3D printing machine, designed to deliver large-scale parts with industrial-grade materials, thanks to features such as its passive heated chamber, full enclosure, and humidity-controlled environment.

- Internal temperature: up to 60°C
- Heated bed: up to 120°C
- Standard filaments that can be used: PLA, PETG, TPU98A, PVA, etc.
- Technical filaments: ABS, PA, PP, etc.
- Composites: PAHT CF15, PP GF30.

Equipment

4. Heat press

Machine with programmable and adjustable temperature (up to 300 °C) and force (up to 20 tons), used for classic apparel applications (transfer, sublimation printing, flocking) and complementing the ISET line of dry-laid nonwovens, which opens up great potential for innovation in several areas.



Nonwovens have specific properties such as absorption, bacterial barrier, softness, strength, padding, liquid repellency, stretchability, flame resistance, washability, sterility and filtering. With its nonwoven pilot line, ISET will be able to strengthen its potential for innovation in certain areas, in particular:

- Filtration: Indutech, Medtech
- Acoustic and thermal insulation: Mobiltech, Buildtech
- Baby diapers and incontinence structures: Medtech
- Sporttech and Hometech applications.

5. Textile testing devices

5.1 Scorch tester

- Suitable for checking the color fastness of textile products to hot pressing and dry heat and for performing sublimation tests.
- Built in accordance with: UNI EN ISO 105 X11, UNI EN ISO 105 P01, AATCC 117, AATCC 133.



5.2 Knitted fabric stretch recovery tester

- Determines the stretch properties of knitted fabrics under a specified tension and extension, including constant load test frame and constant extension test frame.
- Reference test method: ASTM D2594.

