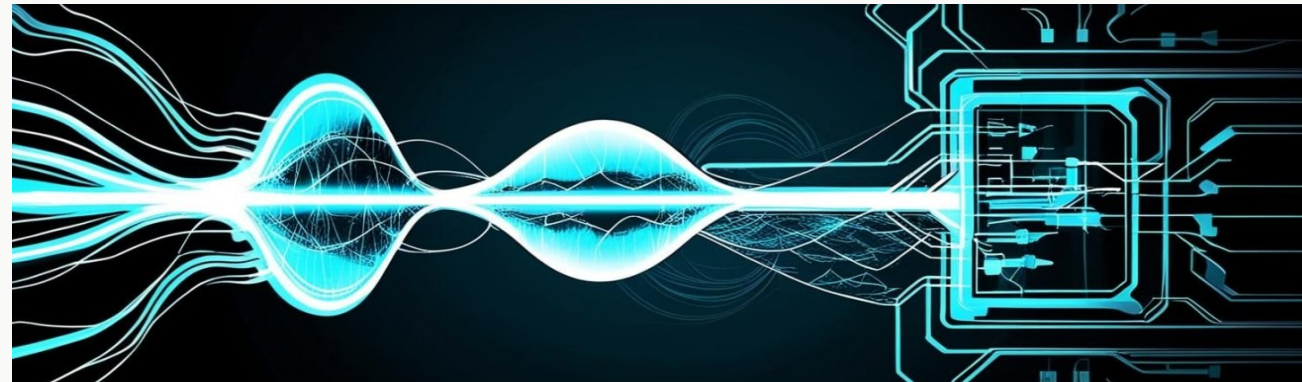


# Physical Sciences for Innovative Technologies



*A joint program by  
University of Milano-Bicocca and University of Pavia*



UNIVERSITÀ  
DI PAVIA

*Physical Sciences for Innovative Technologies (PSIT)* is an English-taught Bachelor's degree for students who want to study physics with a strong focus on innovation, energy, quantum science, electronics and data analysis.

# Innovative technologies

Innovative technologies addressing crucial challenges of the present world with cutting-edge solutions

- **Energy and green technologies**

Physics for sustainable energy, storage, and ecological transition.

- **Quantum phenomena and systems**

From quantum principles to sensing, communication, and future devices.

- **Electronics and data management**

Electronics, measurement systems, modelling, and smart data analysis.

# Learning objectives

The Bachelor's Degree in *Physical Sciences for Innovative Technologies (PSIT)* is in **English** and delivered in a **blended format**.

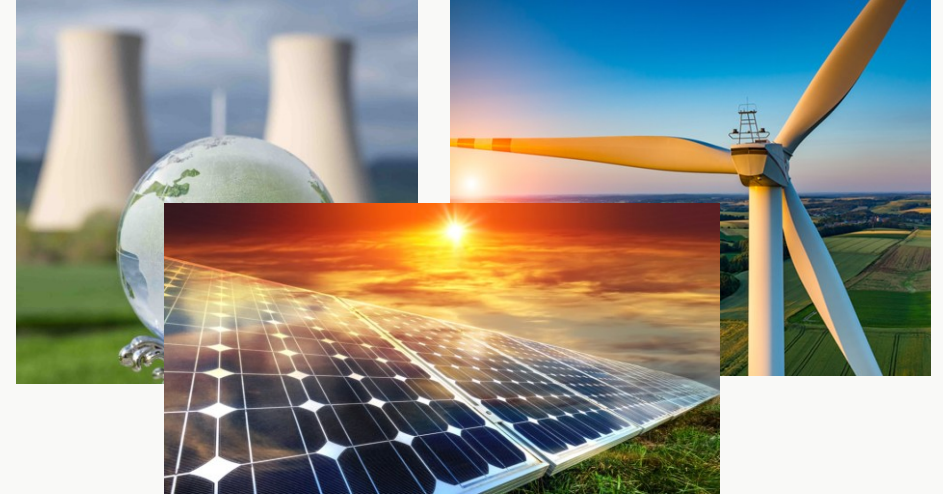
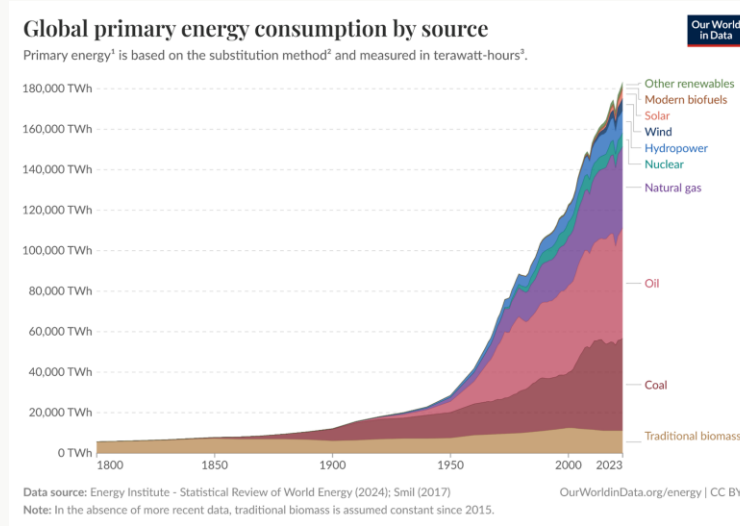
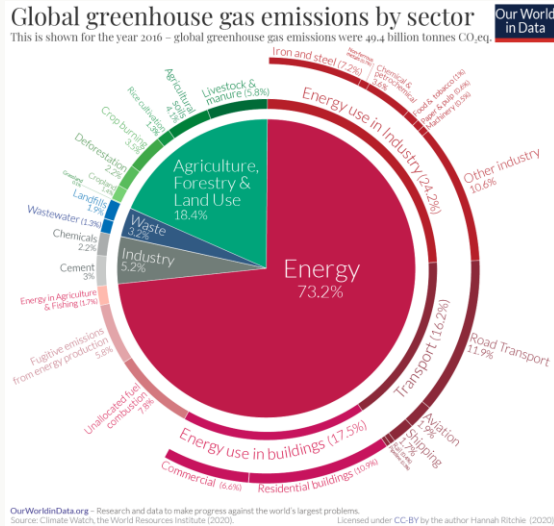
## What will you gain with the PSIT degree?

- A strong foundation in physics, mathematics, chemistry, and computational methods
- Practical skills for research in laboratory, modelling, and data analysis
- A clear and direct connection between science knowledge and its technological applications

# Three specialization tracks (from 3<sup>rd</sup> year)

- **Expert in industrial research and innovation in green technologies:**  
For students interested in sustainable energy, energy storage, and green transition
- **Expert in complex systems and quantum technologies:**  
For students interest in quantum science, sensing, quantum computers, communication, and emerging technologies
- **Expert in electronics and data management for physics:**  
For students interested in electronics, data acquisition, modelling, machine learning, and data analysis

# Energy and green technologies



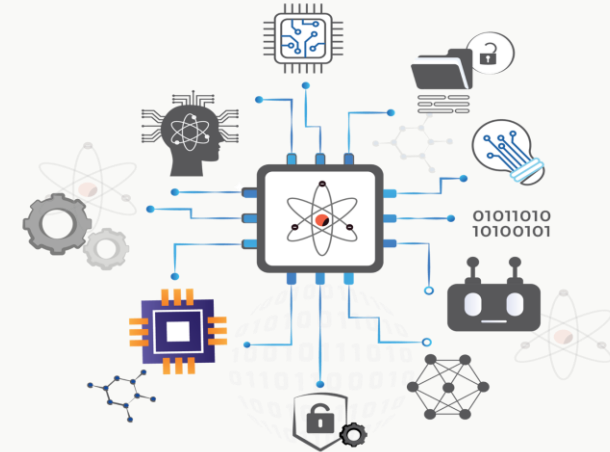
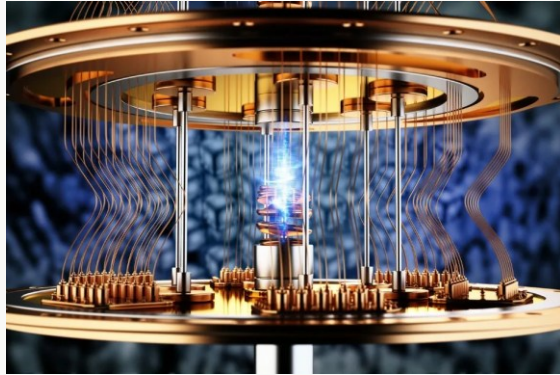
**The energy challenge is closely linked to the fight against climate change**

In the coming decades, it will be essential to find solutions capable of reducing our dependence on fossil fuels, while at the same time ensuring access for all to **affordable, reliable, and modern energy services**.



**“Energy and Green Technologies”** provides the skills needed to develop tools suited to addressing the challenge of **sustainability**.

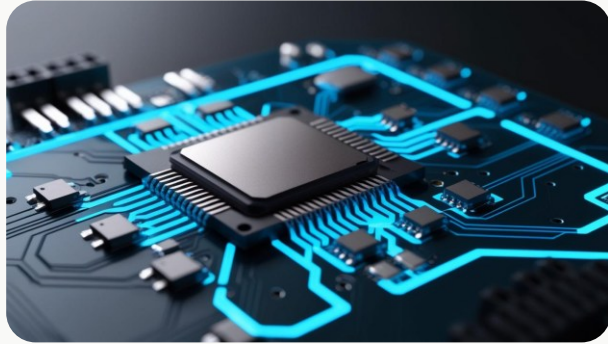
# Quantum phenomena and systems



Quantum phenomena and systems are at the core of many frontiers of modern physics, with applications ranging from quantum computing to precision sensing.



“Quantum phenomena and systems” provides the skills to understand, model, and harness fundamental quantum effects, paving the way for emerging technologies in the fields of **computing**, **sensing**, and **quantum communication**



**Electronics and Data Analysis** are key tools in many fields of applied physics



***“Electronics and Data Management in Physics”*** provides skills needed to understand, design, and innovate keytechnologies that are transforming industry, research, and society.



### Laboratory Activities:

- Electronic instrumentation for measurements and data acquisition
- CAD tools for the design of integrated circuits and electronic systems
- Tools for data analysis applied to real-world contexts

# PSIT course admission

- **Limited enrollment:** 120 places available per academic-year
- **Initial Assessment Test (self-assessment)**
  - Mandatory test, taken by all Italian schools of science, organized by Con.Scienze and CISIA
- **Objective:**
  - Verify the knowledge acquired in high school with respect to basic disciplinary prerequisites. In particular, logic and mathematics.
- **Format:**
  - **Test required:** CISIA English CEnT-S or TOLC-S
  - Consisting of 4 sections: logic, reading comprehension, mathematics, sciences.
  - The minimum score required to be considered eligible and to be included in the ranking is reported in the course website (see relevant links at the end of this presentation)

# How does the programme work?

PSIT adopts **innovative teaching methodologies** in content and in the mode of delivery, combining in-person and remote lectures with laboratory activities.

- **1<sup>st</sup> semester:** in-person lectures in Pavia
- **2<sup>d</sup> semester:** in-person lectures in Milano-Bicocca
- **Laboratories:** in-person in Milano-Bicocca
- **Non-laboratory courses:** teaching hours approximately 50% in person and 50% remote

# What do you study in PSIT?

Here only a condensed summary is provided

A complete picture of all the courses provided in the PSIT Bachelor's degree is available at the Syllabus page [\[Link\]](#)

- **1<sup>st</sup> year:**

Foundations in physics, mathematics, chemistry, modelling, statistics, and laboratory work

- **2<sup>nd</sup> year:**

Core physics, computational methods, laboratories, and first technological applications

- **3<sup>rd</sup> year:**

Specialization track, advanced courses, internship, and final thesis

# References, links, contacts

## Are you interested in PS4IT?

1. Read the official admission call
1. Visit the PSIT course programme at:
  - **Course Website:** <https://www.unimib.it/triennale/physical-sciences>
  - **Syllabus:** <https://elearning.unimib.it/course/index.php?categoryid=11559>
1. Contact us for guidance:
  - **Course email address:** [didattica.ps4it@unimib.it](mailto:didattica.ps4it@unimib.it)
1. Join the next orientation events, open days, webinar
  - **Milano-Bicocca orientation website:** <https://www.unimib.it/bicoccaorienta>

