



## Course Objectives

- Provide basic knowledge of Measurement Theory
- Provide specific knowledge of using sensors, transducers, and measuring instruments
- Understanding how to design measurement chains for industry and the environment

## Course Outline

- Part I - Measurement Theory
  - Part II - Instruments and Signal Manipulation
    - Part III - Sensors and Transducers

Experimental demonstrations are a fundamental part of the course

## Rules for the EXAM

The exam will be divided in two stages:

- Written class assignment (0 to 32 grade):
  - 32 cross test with small exercises and theory  
mark: 1 correct answer, 0 no answer, -0.25 wrong answer
- Oral exam  $\pm 3$  point:
  - mandatory for a mark between 15 and 17, hopefully, improve the written grade
  - no mandatory for a mark higher than 18



## e-learning platform

- All the documentation about course lectures (slides, pdf, lab session texts, etc.) will be available on the specific course page on e-learning (Moodle Sapienza).
- Look for the course name (MEASUREMENTS FOR INDUSTRIAL SUSTAINABILITY AND ENVIRONMENTAL SAFETY – MISES) and register to the course with the password.

## Bibliography

- “Principles of Measurement Systems” by J. P. Bentley and W. G. Duff (Online)
- “Environmental Instrumentation and Analysis Handbook” by J. H. Lehr and R. D. Down (Online)
- “Mechanical Measurements” by S. P. Venkateshan (Online)
- “Instrumentation Reference Book” by W. Boyes (Online)
- “Measurement and Sensor Systems: A Comprehensive Guide to Principles, Practical Issues and Applications” by A. W. Koch (Online)
- The instructor will consolidate these resources, producing comprehensive study materials encompassing notes and multimedia resources to aid students’ learning

## Why do Measurements?

- Accurate measurements are essential for evaluating environmental impact and sustainability in industrial processes and ecosystems
- Measurements are crucial for ensuring compliance with environmental regulations and enhancing safety in industrial operations
- The result of a measurement also has legal implications!

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