

PhD in Experimental Research Through Design, Art and Technologies

Course title	Introduction to advanced materials and sensors
Course code	95208
Academic Year	2024/25 (the course will be offered in Nov. and Dec. 2024)
Credits	2
Total lecturing hours	10
Course description	This course provides an introduction to classes of materials and devices that permeate our daily life, even if sometime we are not even aware of them. A basic know-how of how semiconducting and metallic materials work will be provided, together with specific examples of their properties and applications. In addition, various types of sensors will be introduced, outlining their operational concept, fabrication techniques and application fields. The objective is to shine some light on materials and devices that are important for the education of artists and designers.
List of topics covered	<ul style="list-style-type: none"> • Highlights of solid materials: insulators, metals, semiconductors • (electrical, structural, thermal properties; preparation and synthesis; sustainability issues) • Review of chemical, physical, biological sensors (operational concepts; fabrication techniques; examples of applications)
Lecturer	Prof. Paolo Lugli
Scientific sector	ING-INF/01
Teaching language	English
Assessment	The students will prepare a ppt presentation on a topic of choice related to the course.
Evaluation criteria	The course is Pass or Fail. The presentation of around 10 minutes will be evaluated based on its clarity, the understanding of the topics, and the depth of analysis.
Required readings	Readings will be provided during the lecture
Supplementary readings	Readings will be provided during the lecture