

Teaching plan - PhD programme in Materials Science and Nanotechnology

41th Cycle a.y. 2025/2026

Codice Insegnamento	Denominazione dell'insegnamento	Docente	SSD insegnamento	N.ore totali	CFU
MAT.1	Theory and modeling of epitaxy	ROBERTO BERGAMASCHINI	FIS03	16	2
MAT.2	Thermal transport down to the nanoscale	CARLO ANTONINI	CHIM02	16	2
MAT.3	Scientific Entrepreneurship in Materials Science and Nanotechnology	LEONIDA MIGLIO	ING/IND22	8	1
MAT.4	Neuromorphic computing: Materials and devices	SABINA SPIGA (CNR)	FIS03	8	1
MAT.5	Smart Materials, from molecular switches to motors	ANGIOLINA COMOTTI	CHIM04	8	1
MAT.6	Principles of Electron Microscopy and Applications to Nanomaterials Research	GIOVANNI MARIA VANACORE	FIS03	8	1
MAT.7	Technologies for production and conversion of green hydrogen	CARLO SANTORO	CHIM02	8	1
MAT.8	Light-to-Electricity devices, from silicon integration to biological frontiers	OTTAVIA BETTUCCI	CHIM06	8	1
MAT.9	The role of inorganic systems in formulations: chemistry insights and applications	MASSIMILIANO D'ARIENZO	CHIM03	8	1
MAT.10	From polymeric materials to augmented reality	MICHELE MAURI	CHIM04	8	1
MAT.11	Introduction to Gas Sorption and Diffusion in Porous Material	JACOPO PEREGO	CHIM04	8	1
MAT.12	Nanomaterials for biomedical applications	DANIELE PERILLI	CHIM03	8	1

MAT.13	Self assembled epitaxial quantum dots Advanced Light-absorbing Materials and their Applications Materials Science for Energy Conversion and Storage Scintillating materials and their applications	STEFANO VICHI	FIS03	8	1
MAT.14		VANIRA TRIFILETTI	CHIM02	8	1
MAT.15		GIOVANNI DI LIBERTO	CHIM03	8	1
MAT.16		MAURO FASOLI	FIS01	8	1
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codice	modulo	denominazione modulo	SSD modulo	cognome docente	nome docente	ore	cfu
MAT.1	A	General introduction to epitaxy and continuum methods	FIS03	Bergamaschini	Roberto	8	1
MAT.1	B	Atomic-scale modeling and machine learning approaches	FIS03	Montalenti	Francesco	8	1
MAT.4	A	Introduction to Neuromorphic Computing and Role of Resistive Switching Memories	FIS03	Spiga	Sabina	4	0,5
MAT.4	B	Resistive Switching Memories: Device physics and Applications for Neuromorphic Computing	FIS03	Brivio	Stefano	4	0,5
MAT.5	A	Porous Materials as a valid platform to promote ultrafast dynamics and functional properties in the solid state	CHIM04	Comotti	Angiolina	4	0,5
MAT.5	B	From molecular switches to motors	CHIM04	Feringa	Bernard	4	0,5
MAT.8	A	Organic materials for advanced Light-Harvesting technologies	CHIM06	Bettucci	Ottavia	4	0,5
MAT.8	B	Challenges and perspectives for integrated light sources	FIS03	Pedrini	Jacopo	4	0,5
MAT.9	A	Nanoparticles and formulation chemistry	CHIM03	Scotti	Roberto	4	0,5
MAT.9	B	Control of the vulcanization process	CHIM03	D'Arienzo	Massimilia	4	0,5
MAT.10	A	Polymeric materials for contact lens	CHIM04	Mauri	Michele	4	0,5
MAT.10	B	The evolution of contact lenses from fundamental requirements to the latest advances	FIS07	Ponzini	Erika	4	0,5
MAT.11	A	Physics of sorption in porous materials. Experimental techniques and data analysis	CHIM04	Perego	Jacopo	4	0,5
MAT.11	B	Computational modelling and simulation of gas sorption processes	CHIM04	Bezuidenhout	Charl	4	0,5
MAT.12	A	Nanomaterials and nanomedicine	CHIM03	Siani	Paulo	4	0,5
MAT.12	B	Nanomaterials for Bio and Gas Sensing in Medical Screening	CHIM03	Perilli	Daniele	4	0,5
MAT.13	A	Growth of epitaxial quantum dots by droplet epitaxy techniques	FIS03	Tuktamyshev	Artur	4	0,5
MAT.13	B	Quantum engineering of droplet epitaxy quantum dots and applications	FIS03	Vichi	Stefano	4	0,5
MAT.14	A	Materials for photovoltaics	CHIM02	Trifiletti	Vanira	4	0,5
MAT.14	B	Materials for photocatalysis	CHIM02	Tseberlidis	Giorgio	4	0,5
MAT.15	A	Fundamentals of Electrochemical Energy Conversion and Storage	CHIM02	Pianta	Nicolò	4	0,5

MAT.15	B	Modeling materials for Energy Conversion and Storage	CHIM03	Di Liberto	Giovanni	4	0,5
MAT.16	A	Scintillation Physical Processes	FIS01	Fasoli	Mauro	4	0,5
MAT.16	B	Applications of scintillating materials	FIS01	Cova	Francesca	4	0,5