MATERIALS ENGINEERING AND NANOTECHNOLOGY (LM56)

(Lecce - Università degli Studi)

Insegnamento PHYSICS OF MATTER MOD. I C.I.

GenCod A003097

Docente titolare ELEONORA ALFINITO

Insegnamento PHYSICS OF MATTER MOD. I C.I.

Insegnamento in inglese PHYSICS OF MATTER MOD. I (Int)

Settore disciplinare FIS/03

Corso di studi di riferimento MATERIALS ENGINEERING AND

Tipo corso di studi Laurea Magistrale

Crediti 6.0

Ripartizione oraria Ore Attività frontale: 54.0

Per immatricolati nel 2016/2017

Erogato nel 2016/2017

Anno di corso 1

Lingua

Percorso PERCORSO COMUNE

Sede Lecce

Periodo Primo Semestre

Tipo esame Orale

Valutazione

Orario dell'insegnamento https://easyroom.unisalento.it/Orario

BREVE DESCRIZIONE DEL CORSO	This is a course in theory and models in physics of matter; it aims to furnish some basic knolwedge concerning quantum physics of atoms, molecules and solids.
PREREQUISITI	Sufficiency in calculus, probability theory, linear algebra, electromagnetism
OBIETTIVI FORMATIVI	Learning Outcomes; after the course the student should be able to *Solve basic problems in special relativity *Solve basic problems in quantum mechanics *Be able to recognize the validity range of classical mechanics and use, whenever necessary, the achivement of modern physics
MODALITA' D'ESAME	**test:** . Physics of matter I is only the first modulus of the complete course named Physics of matter. There a single final exam which includes the contents of modulus I and modulus II The exam consists of two cascaded parts: the first part is written test (duration: two hours and a half); the student is asked to solve exercises ; it is aimed to verify to what extent the student has gained the ability to apply theory to solve simple case studies; the second part is an oral test aimed to determine to what extent the student has gained an overall knowledge of the main topics of the course.
ALTRE INFORMAZIONI UTILI	This is a course in theory and models in physics of matter; it aims to furnish some basic knolwedge concerning quantum physics of atoms, molecules and solids.

PROGRAMMA ESTESO	Introduction: Physics and tecnology from the end of 1800 to today (3 hours).Mechanical and electromagnetic waves (2 hours).Special relativity (5 hours). Elements of probability and the Maxwell distribution (5 hours). The quantum nature of light (5 hours). Atomic models and the matter wave (5 hours). Quantum mechanics in one dimension (12 hours). The angular momentum (5 hours). The hydrogen atom, eigenvalues and eigenfunctions (3hours). Quantum statistics (2 hours). Multielectron atoms (2hours). Introduction to molecules (5 hours).
TESTI DI RIFERIMENTO	[1] R. Eisberg, R, Resnick, "Quantum Physics", J. Wiley and Sons. [2] R.A. Serway, C. J. Moses, C. A. Mojer, "Modern Physics", Saunders College [3] M. Born, "Atomic Physics", Dover Books on Physics [4] R. Gautreau, W. Savin, "Schaum's Theory and Problema in Modern Physics"