FISICA MATEMATICA M - Z

MAT/07 - 9 CFU - 2° Semester

Teaching Staff

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LEARNING OBJECTIVES

The objective of the course are the following:
Knowledge and understanding: the student will learn basic concets in complex analysis and mechanics. He/she will develop computational abilities.
Applying knowledge and understanding: the student will apply the techniques to the computation of integrals, to the solution of differential problems, and to the investigation of mechanical systems.
Making judgements: the arguments treated will lead the student to judge the best techniques to solve a problem.
Communication skills: the student will learn to use the language to communicate clearly in a scientific context.
Learning skills: the students will be invited to further investigate some arguments, individually and in groups.

COURSE STRUCTURE

Lectures in classrom

DETAILED COURSE CONTENT

Olomorphic and meromorphic functions; integration with residues; Laplace transform and applications; Fourier series and Fourier transform; distribution theory.

Vector calculus; kinematic of points and rigid bodies; geometry of the masses; general principles of mechanics; conservative forces; relative kinematic and fictuous forces; contrains; dynamics of material systems; elements of analytical mechanics.

TEXTBOOK INFORMATION

1. G. Barozzi, Matematica per l'ingegneria dell'informazione, Zanichelli, Bologna (2004)
2. P. Biscari, T. Ruggeri, G. Saccomandi, M. Vianello, Meccanica razionale, Springer (2016)
3. A. Muracchini, T. Ruggeri, Esercizi di Meccanica Razionale