AEROSPACE ENGINEERING (LM52)

(Brindisi - Università degli Studi)

Teaching MATHEMATICAL AND NUMERICAL METHODS IN AEROSPACE ENGINEERING, WITH

GenCod A003291
Owner professor Raffaele VITOLO

Teaching in italian MATHEMATICAL AND NUMERICAL METHODS IN AEROSPACE ENGINEERING, WITH

Teaching MATHEMATICAL AND NUMERICAL METHODS IN AEROSPACE

SSD code MAT/07

Reference course AEROSPACE ENGINEERING
Course type Laurea Magistrale

Credits 6.0

Teaching hours Ore-Attivita-frontale: 54.0

For enrolled in 2021/2022

Taught in 2021/2022

Course year 1

Language INGLESE

Curriculum CURRICULUM AEROSPACE DESIGN

Location Brindisi

Semester Primo-Semestre

Exam type Orale

Assessment Voto-Finale

Course timetable
https://easyroom.unisalento.it/Orario

BRIEF COURSE DESCRIPTION	Algorithms and methods of approximate solution of algebraic and differential equations, with computer experiments.
REQUIREMENTS	Calculus of functions of one or more real variables; linear algebra.
COURSE AIMS	The students will acquire basic knowledge about main numerical methods in engineering applications.
TEACHING METHODOLOGY	Lectures and computer experiments.
ASSESSMENT TYPE	Oral exam on the course program (as exposed during the lectures) and proof of knowledge of the Matlab language.

FULL SYLLABUS

Matrix computations
Principles of numerical mathematics
Direct methods for the solution of linear systems
Iterative methods for the solution of linear systems
Iterative methods for eigenvalues and eigenvectors
Solution of non-linear algebraic equations
Polynomial interpolation of functions and data
Numerical integration
Orthogonal polynomials and Fourier transform
Numerical solution of ODEs
Introduction to PDEs for Engineers
Finite difference methods and finite element methods for PDEs.

REFERENCE TEXT BOOKS

Quarteroni, Sacco, Saleri: Numerical Mathematics, 2nd ed., Springer 2006.