UNIVERSITÀ DI PAVIA

Anno Accademico 2020/2021

ADVANCED NUMERICAL METHODS FOR PARTIAL DIFFERENTIAL EQUATIONS

Enrollment year	2020/2021
Academic year	2020/2021
Regulations	DM270
Academic discipline	MAT/08 (NUMERICAL ANALYSIS)
Department	DEPARTMENT OF MATHEMATICS "FELICE CASORATI"
Course	MATHEMATICS
Curriculum	PERCORSO COMUNE
Year of study	1°
Period	2nd semester (01/03/2021 - 11/06/2021)
ECTS	6
Lesson hours	48 lesson hours
Language	Italian
Activity type	ORAL TEST
Teacher	MOIOLA ANDREA (titolare) - 3 ECTS BREZZI FRANCO - 3 ECTS
Prerequisites	Basic knowledge of numerical analysis, mathematical analysis, partial differential equations and Matlab language. It is preferable to have attended, or to attend during the same term, the Finite Elements class.
Learning outcomes	The course aims at studying in detail some modern methods for the numerical approximation of partial differential equation that are relevant for applications. The methods under consideration will be analysed theoretically and implemented numerically.
Course contents	The course will focus on some advanced techniques for the solution of partial differential equations that complement and extend the programme of the Finite Element course. Some examples are: boundary element method (BEM), isogeometric

	analysis (IGA), virtual element method (VEM), discontinuous Galerkin (DG) method, immersed boundary method (IBM), domain decomposition (DD), eigenvalue problems, space-time Galerkin methods, preconditioning techniques.
Teaching methods	Classroom lectures, tutorials in the computer lab, study of research papers, seminars.
Reccomended or required readings	Notes prepared by the lecturer. Scientific papers provided by the lecturer.
Assessment methods	Oral exam and report.
Further information	
Sustainable development goals - Agenda 2030	$lbl_legenda_sviluppo_sostenibile