

International Doctorate in Civil and Environmental Engineering

DOCTORAL COURSE – A.Y. 2020/21

Introduction to tensor calculus

Teacher: Dr. Cristina Padovani

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Calendar	
02/02/2021 - 14:00-16:00	
04/02/2021 - 14:00-16:00	
09/02/2021 - 14:00-16:00	
11/02/2021 - 14:00-16:00	
16/02/2021 - 9:00-11:00	
18/02/2021 - 9:00-11:00	
23/02/2021 - 9:00-11:00	
25/02/2021 - 9:00-11:00	
Total	16 hours – 8 credits

Program
Finite-dimensional vector spaces, scalar products, norms, bases, subspaces, maps, functionals, convergence of vectors, projections, differentiation. Second-order tensors, symmetric and skew-symmetric tensors, orthogonal tensors, eigenvalues, eigenvectors, spectral theorem, square-root theorem, polar decomposition theorem, Cayley-Hamilton theorem, coaxial tensors. Third and fourth-order tensors. Isotropic functions. Derivatives of tensor functions.