



International Doctorate in Civil and Environmental Engineering

DOCTORAL COURSE – A.Y. 2021/22

Introduction to tensor calculus

Teacher: Dr. Cristina Padovani

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Calendar	
08/02/2022 - 10:00-12:00	On line course
11/02/2022 - 10:00-12:00	On line course
15/02/2022 - 10:00-12:00	On line course
18/02/2022 - 10:00-12:00	On line course
22/02/2022 - 10:00-12:00	On line course
25/02/2022 - 10:00-12:00	On line course
01/03/2022 - 10:00-12:00	On line course
04/03/2022 - 10:00-12:00	On line course
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.