



PROBABILITY AND STATISTICS FOR ENGINEERING APPLICATIONS

Anno immatricolazione	2018/2019
Anno offerta	2018/2019
Normativa	DM270
SSD	ICAR/09 (TECNICA DELLE COSTRUZIONI)
Dipartimento	DIPARTIMENTO DI INGEGNERIA CIVILE E ARCHITETTURA
Corso di studio	CIVIL ENGINEERING FOR MITIGATION OF RISK FROM NATURAL HAZARDS
Curriculum	PERCORSO COMUNE
Anno di corso	1°
Periodo didattico	Secondo Semestre (04/03/2019 - 22/03/2019)
Crediti	6
Ore	51 ore di attività frontale
Lingua insegnamento	English
Tipo esame	SCRITTO E ORALE CONGIUNTI
Docente	BAZZURRO PAOLO FRANCESCO (titolare) - 4 CFU VENINI PAOLO - 2 CFU
Prerequisiti	The full comprehension of structural problems investigated in the class requires a basic knowledge of engineering mechanics and structure mechanics. For the developments in a probabilistic framework, concepts of multidimensional differential calculus are requested.
Obiettivi formativi	Students are expected to learn and fully understand the most used methods for the analysis and design of complex structural systems under material and load uncertainty. Methods for input/output uncertainty propagation should be part of the knowledge of the students at the end of the course.
Programma e contenuti	a) Basics in probability theory. Random variables, probability density function (pdf) and cumulative distribution function (cdf), expectations and moments of order one, two and three.

	<p>b) main distributions and their use in engineering practice: Gaussian, lognormal, type 1 and 2 extreme, exponential. Applications.</p> <p>c) Introduction to statistics. Applications to parameter estimation.</p>
Metodi didattici	Lectures on theoretical and practical issues. Problems solved independently by students under the supervision of the teacher (when needed)
Testi di riferimento	<p>Ang, A. H. and Tang, W. H. (2007). "Probability Concepts In Engineering: Emphasis On Applications In Civil & Environmental Engineering," Wiley.</p> <p>Benjamin, J. R. and C. A. Cornell (1970). Probability, Statistics, and Decision for Civil Engineers. New York, McGraw-Hill.</p>
Modalità verifica apprendimento	Homeworks and final exam (written)
Altre informazioni	
Obiettivi Agenda 2030 per lo sviluppo sostenibile	Gli obiettivi