

**Course offered for the PhD program
in Civil, Chemical and Environmental Engineering
Curriculum in Structural and Geotechnical Engineering, Mechanics and Materials
Curriculum in Wind Science and Engineering
A.Y. 2019/2020 (XXXV cycle)**

(course is open for participation of students from other PhD cycles or programs)

1. Title

Analysis of transient phenomena

2. Course Description

The aim of the Course is to provide basic knowledge on the probabilistic modelling, statistical analysis and numerical simulation of transient phenomena.

The first part of the Course is devoted to time- and frequency-domain statistical characterization of stationary random processes and on their numerical simulation.

The second part of the Course deals with the analysis of non-stationary transient phenomena. Different kinds of non-stationary phenomena are considered and, based on their specific properties, different tools for their time-frequency analysis are presented (e.g. moving average extraction, time-frequency wavelet analysis).

Numerical applications in Matlab dealing with the statistical analysis of different phenomena are presented.

3. Course Organization

The course consists of lectures and exercises. Numerical applications in Matlab are introduced.

4. Teacher

Federica Tubino

5. Duration and credits

10 hours (2 credits)

6. Activation mode and teaching period

The course will take place in April 2020 (4 lectures of approximately 2.5 hours each). The minimum number of participants to activate the course is 3.

7. Deadline for registration

The deadline for applications is March 15th, 2020. Please, send an e-mail confirmation to Federica Tubino, federica.tubino@unige.it.

8. Final exam

Test examination at the end of the course