UNIVERSITÀ DEGLI STUDI DELL'AQUILA

Attività formative del Dottorato di Ricerca in Ingegneria Civile, Edile-Architettura e Ambientale
Ph.D.ICEAA

Coordinatore del Dottorato: Prof. Marcello Di Risio

A basic Introduction to research tools for engineers and scientist

(12 hrs. – the course is open to PhD students of the University of L'Aquila)
Lecturer: Dr. Davide Pasquali, PhD

Course Introduction

The main aim of the course is to provide basic knowledge of the tools of data analysis in science and engineering.
Monitoring systems, experimental investigations, and mathematical models have in common the necessity to interpret and analyze data. The answer to this necessity is to use statistical tools able to provide a quantitative representation of a given phenomenon.
The first part of the course is devoted to providing the basic knowledge about statistical analysis of time series. A particular interest will be dedicated to the study of extreme events (long term statistics).
In the second part, the attention will be oriented to give the basic knowledge of the time-frequency analysis (short term statistic).
Numerical applications in Matlab will be presented to solve some examples.

Tentative program

a) Recap on basic statistics. Extreme Value Analysis. Definition of the return levels of a stochastic variable. (4hrs)
b) Overall description of time-frequency analysis. (3hrs)
c) Basics of Matlab. (2h)
d) Live creation of scripts for solving course problems. (2hrs)

Lectures

5 lessons (2 classes per week) of 2,5hrs

23/06/2020 15:00 – 17.30
25/06/2020 15:00 – 17.30
30/06/2020 15:00 – 17.30
02/07/2020 15:00 – 17.30
07/07/2020 15:00 – 17.30

Aula virtuale MS Teams: br2yuo6