

# Elements of non-linear dynamics

## Professor

Maria Girardi

## Email

maria.girardi@isti.cnr.itl

## Institution

Institute of Information  
Science and Technologies  
“A. Faedo”, ISTI-CNR

## General Information

The course provides some basic notions on the dynamic behaviour of non-linear mechanical systems. Perturbation methods and the most common algorithms for solving non-linear dynamic problems are also introduced.

## Schedule

### Dates

### Description

19/4/23 - 10:00-12:00

Introduction and preliminary remarks  
Numerical solution of initial value problems

21/4/23 - 10:00-12:00

Perturbation methods

26/4/23 - 10:00-12:00

Non-linear oscillators: single and multiple DOF  
systems

28/4/23 - 10:00-12:00

Continuous systems, finite elements

3/5/23 - 10:00-12:00

Non-linear dynamic analyses via finite element codes  
Some example applications

**Total: 10 hours – 5 credits**

## Other information

The course is scheduled online. For any information [www.indicee.unifi.it](http://www.indicee.unifi.it) - dott-dicea@unifi.it