

**Course offered for the PhD program
in Civil, Chemical and Environmental Engineering
Curriculum in Structural and Geotechnical Engineering, Mechanics and Materials
a.a. 2017/2018 (XXXIII ciclo)**

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

1. Title

Fracture Mechanics: fundamentals and applications

2. Course Description

- Stress and energy analysis:
 - Review of linear isotropic elasticity
 - Stress concentration
 - Stress intensification
 - Energy Release Rate
- Fracture criteria:
 - Griffith energy criterion
 - Orowan-Irwin fracture criterion
 - estimate of the size of the process zone at the crack tip
 - Size effects and ductile to brittle transition
 - Mixed mode fracture
- Computational linear elastic fracture mechanics

3. Course Organization

Frontal lessons and practical classes; problems and examples solved in class; course will be held in English.

4. Teacher

Prof. Roberta Massabò

5. Duration and credits

10h, 2 CFU

6. Activation mode and teaching period

Period: February 2018

Application: email message to the teacher (roberta.massabo@unige.it)

7. Deadline for registration

End of January 2018

8. Final exam

Final oral exam at the end of the course or solution of Fracture mechanics problem with ANSYS.