

# JOB VACANCY ANNOUNCEMENT

## VAC-2023-79 – Research Engineer for developing fracture mechanics simulation due to pressure pulses

**Number of places:** 1

**Category:** RENG5

**Workplace:** Barcelona, Campus Nord UPC

**Salary (gross):** 22.219,99 €

**Weekly working hours:** 40h/week

### Functions to be developed:

The candidate is responsible for the creation of a computational tool at user level to be applied in an industrially relevant environment, for the analysis and optimization of blast plans. This tool will be designed and validated according to the industrial user's needs. The interface will be complemented with a guide with recommendations for the analysis of blasts interaction with solids and structures. Additionally, a methodology for educating the potential users and guidelines for future development of the code.

Besides, the development of novel constitutive laws for fracturing (damage, plasticity, and high cycle fatigue) and composite materials (homogenization, Rule of Mixtures, etc.) may be needed.

### Required skills:

- Master's degree (or equivalent) in Civil Engineering, Mechanical Engineering, Industrial Engineering, Computational Mechanics, or related fields
- Excellent written and oral communication skills in English demonstrable with an academic certificate.
- Strong background and knowledge of the Finite Element Method or other relevant numerical methodologies.

### Other valued skills (not mandatory):

- Authorship or co-authorship of publications in journals and/or contributions to international conferences.
- Education from recognized universities and research institutions, as well as participation in research projects, will be viewed favourably. International experience will be an additional advantage.

- Knowledge of programming languages such as Python and/or C++.
- Proficiency in nonlinear constitutive modelling of solids (damage, plasticity, etc.).
- Proficiency in modelling compressible fluids and pressure waves.
- Experience in using GitHub and/or GitLab environments.
- Previous involvement in competitive scientific projects will be an additional advantage.
- Knowledge in JavaScript will be valued.

**Qualification system:**

The requisites and merits will be evaluated with a maximum note of 100 points. Such maximal note will be obtained summing up the following points:

- **Publication and career track:** 30%
- **Previous research and academic experience in the field of the position:** 20%
- **Programming skills:** 30%
- **Language skills:** 10%
- **Communication/Teaching skills:** 10%

Candidates must complete the "Application Form" form on our website, indicating the reference of the vacancy and attaching the required documents.

The deadline for registration to the offer ends on December 19<sup>th</sup>, 2023 at 2 p.m.

The preselected candidates may be requested to send the documentation required in the "Requirements" and "Merits" sections, duly scanned, and may be called to go through selection tests (which might be of eliminatory nature) and / or personal interviews.

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