This course will help you understand and know how to use advanced numerical methods and advanced techniques.

**Highlights**

- Explicit FEM models
- Particle techniques
- Transient & non-linear models

**Prerequisites**

- Knowledge of finite element technique

**Key elements**

- **Dates:** January 10 to 13, 2023 (exam: February 15, 2023)
- **Duration:** 11 hours
- **For whom:** recent graduates, jobseekers and experienced employees
- **Location:** ISAE-SUPAERO, Toulouse
- **Course fees:** €1,600
- **Language:** English

**Learning objectives**

After completing this course, participants will be able to:

- Understand the assumptions and fields of application of advanced techniques related to explicit finite elements in dynamics and particle techniques.

**Practical information and registration**

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Course content

Explicit FEM models
- Explicit algorithms
- Matrix variability
- Material modelling
- Rapid dynamics

Particle techniques
- SPH method
- Fragmentation & fluid interaction

Teaching methods

<table>
<thead>
<tr>
<th>Teaching methods</th>
<th>Yes</th>
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<tbody>
<tr>
<td>Lectures / tutorial</td>
<td>X</td>
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<tr>
<td>Collaborative learning</td>
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<td>Flipped classroom</td>
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<td>Blended learning (online and face to face)</td>
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<tr>
<td>Learning by doing</td>
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<tr>
<td>Project-based</td>
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<td>Simulation</td>
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<td>Case study</td>
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Assessment

Oral test