ITASCA FRANCE

29 Avenue Joannes Masset F-69009 Lyon

Tel: +33 (04) 72 18 04 20

itasca@itasca.fr

MESHING IN ITASCA SOFTWARE

Duration	7 hours
Location	Online – Microsoft Teams Platform
Instructors	Mr. Etienne Lavoine and Mr. Ali Haidar
Registration fees	€950,00 (excl. Taxes)
Audience	Engineers with an experience in numerical modeling
Pre-requirements	Pass the entrance test with 70% correct answers. Questions relate on numerical modeling.
Teaching Methods	Our instructors have knowledge enriched at the rate of consulting studies they carry out for our customers. We value this knowledge by stimulating exchanges between professionals and promoting the sharing of learning within the group. The topics covered during the training are approached in an evolutionary way, from simple to more complex. All our training courses are based on: • Theoretical contributions: the instructors rely on a theoretical programming and numerical simulation approach. • Concrete cases: examples of applications made by Itasca to illustrate and apply the theory seen beforehand. Sharing practices and experiences: Sharing practices and experiences enhances and enriches the group.
Training Materials	• Theoretical contributions • Videos • Practical cases and scenarios
Assessment Methods	The training will end with an individual test which will validate the knowledge acquired. The test will be a quiz composed of several questions on the topics covered during the training.
Objectives	• Identify the different types of mesh • Manipulate the built-in tools in FLAC2D/3D and 3DEC • To be able to use BlockRanger and Griddle

Program

Introduction

- Icebreaker
- Objectives of the training
- Importance of mesh quality in numerical modeling

1. Selecting the Right Mesh for Your Problem

a) What is Mesh Generation?
- Overview of mesh generation workflows

b) Types of Meshes
- Structured meshes: Regular grids, easy to define, efficient
- Semi-structured meshes (e.g., Octree): Adaptive refinement with partial structure
- Unstructured meshes: Greater flexibility for complex geometries
- Other mesh definitions:
  - *Conformal*, *manifold*, *watertight*, *hybrid* — key concepts and when they matter

c) What Makes a Good Mesh?
- Element shape and size, and impact on accuracy and computational cost
- Smooth transitions
- Mesh conformity to geometry
- Trade-offs between detail and efficiency

2. Choosing the Right Tool for Mesh Generation

a) Built-in Tools in *FLAC2D/3D* AND *3DEC*
- Primitives with example
- Octree Meshing with example
- Sketch-based Tools (FLAC2D/3D) / Examples: dam, tunnel, slope wizard with example
- Extrusion and Geometry Logic with example
- Automatic 3D meshing from geometry with example
- Building Blocks (*FLAC3D*) with example
- Cutting in *3DEC* with example

b) External Tools and Advanced Mesh Strategies
- BlockRanger (via Griddle) with regular mesh example
- Griddle with example
- Hybrid Meshing, Combining structured and unstructured regions with example

3. Conclusion and key Takeaways

4. Q&A and discussion
5. Quiz + Evaluation

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