

## Grid Generation Short Course

**Purpose:** to give engineers and managers who are associated with the CFD process a working understanding of grid generation and its role in the overall CFD process.

**Format:** 4 hours short course to be given adjacent to an AIAA conference. Lecture via PowerPoint, with copies of slides to participants.

**Instructors:** two or three members of the MVCE TC.

**Schedule:** ready for 2006 Fluid Dynamics meeting (June in San Francisco)

### Course outline:

- Grid generation basics (30 minutes)
  - Overview of CFD process
  - Rogue's gallery of different grid types
- Geometry definition (30 minutes)
  - Direct interfaces to CAD systems
  - File-based geometry definitions
- Block-structured grids (20 minutes)
  - Brief history
  - Basic strategy
  - Examples
  - Strengths
  - Weaknesses
- Cartesian grids (20 minutes)
  - Brief history
  - Basic strategy
  - Examples
  - Strengths
  - Weaknesses
- Unstructured grids (20 minutes)
  - Brief history
  - Basic strategy
  - Examples
  - Strengths
  - Weaknesses
- Hybrid grids (20 minutes)
  - Brief history
  - Basic strategy
  - Examples
  - Strengths
  - Weaknesses
- Overset grids (20 minutes)
  - Brief history

- Basic strategy
- Examples
- Strengths
- Weaknesses
- Grid adaptation (20 minutes)
  - Brief history
  - Basic strategy
  - Examples
  - Strengths
  - Weaknesses
- Future directions (20 minutes)
  - Current unmet needs
  - Expected future needs
  - Promising technologies to watch
  - Catalog of websites devoted to grid generation
- 10 questions you should ask your grid generator (10 minutes)
- Questions & answers (20 minutes)

**Next steps:**

- Determine if there is MVCE support for such a course
- Line up instructors (who take responsibility for various sections)
- Work through AIAA to get official recognition of course
- Put together first draft of presentation material
- Get MVCE approval of course contents
- Finalize course material
- Offer course
- Celebrate!!