

**MVCE Grid Generation Short Course**  
**Rev 3 – 9 Aug 06**

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

**Instructors:** members of the MVCE TC.

**Course outline: Day 1**

- Grid generation basics (1 hour) Dannenhoffer
  - Overview of CFD process
  - Rogue's gallery of different grid types
- Geometry definition (2 hours) Chawner
  - Direct interfaces to CAD systems
  - File-based geometry definitions
  - Parametric systems
- Block-structured grids (2 hour) Jones
  - Brief history
  - Basic strategy
  - Examples
  - Guidelines for use
- Cartesian grids (2 hours) Karman
  - Brief history
  - Basic strategy
  - Examples
  - Guidelines for use
- Overset grids (1 hour) Noack
  - Brief history
  - Basic strategy
  - Examples
  - Guidelines for use

**Course outline: Day 2**

- Unstructured grids (2 hours) Michal
  - Brief history
  - Basic strategy
  - Examples
  - Guidelines for use
- Hybrid grids (2 hours) Steinbrenner
  - Brief history
  - Basic strategy
  - Examples
  - Guidelines for use

- Grid adaptation (2 hours) Covallo
  - Brief history
  - Basic strategy
  - Examples
  - Guidelines for use
- Future directions (1 hour) Dannenhoffer
  - Current unmet needs
  - Expected future needs
  - Promising technologies to watch
  - Summary of strengths and weaknesses of various approaches
  - Why grid generation is not a mature topic
  - Catalog of websites devoted to grid generation
- 10 questions you should ask your grid generator (1/2 hour) Dannenhoffer
- Questions & answers (1/2 hour) All

**Development schedule:**

- Aug 15 Course schedule/assignments distributed
- Sept 15 Outline of each presentation to JFD  
(slide titles and main points)
- Oct 15 Review and adjustment of slide outlines
- Jan 15 Draft slides due to JFD
- Feb 1 Review of draft slides back to authors
- May 1 Final slides due
- May 15 Completed course package to AIAA for printing, ...
- June 28 Course offered in Miami, FL