

Fluid Mechanics & CFD Review

Course level: introductory

Duration: 2.5 days

Fluent Training

Center location: Lebanon, NH

Course format: 100% lecture with ongoing discussion

Prerequisites: technical education and background though an engineering degree is not required

Cost: \$1750 per person

Course fee includes a mid-morning snack and lunch each day.

Recommended follow-on courses, depending on your area of interest:

- Introduction to FLUENT
- Introduction to Airpak
- Introduction to Icepak
- Introduction to FIDAP
- Introduction to POLYFLOW

Check course dates and register:
fluent.com/direct/train-me

The perfect first step to learn about fluids engineering and the benefits of this type of analysis

Intended Audience

This course is designed for clients who have just begun to use computational fluid dynamics (CFD) and who need an introduction or refresher on the principles of fluid mechanics and heat transfer.

Core Objectives

The primary goal of this course is to make students more successful in their application of CFD by having a more thorough knowledge of the underlying physics and numerical techniques in Fluent's software. An overview of advanced topics typically covered in a graduate-level fluid mechanics course is included.

Students can expect to gain:

- A working knowledge of the topics covered to develop solution approaches for a wide range of flow problems along with a deeper understanding of fluid physics
- Insight into how to use CFD from both a practical and academic standpoint
- Knowledge through real-world examples similar to applications you may encounter

Deliverables

Each student receives:

- A meeting with your Consulting Engineer
- A bound manual with lecture notes
- Access to tutorials and training materials
- Introduction to the online User Services Center for future reference

Customer Site Option

Any of the instructor-led classes may be conducted at your company site using your computing resources – a more cost-effective option if you have multiple users that require training.

Questions or to Register

If you have questions concerning this course, please contact our Training Coordinator:

800-445-4454 x521

trng-coor-nh@fluent.com

Instructor Profiles



Chi-Yang Cheng, PhD

Chi-Yang Cheng's interests are in the general areas of fluid dynamics and associated physical phenomena, numerical methods, and object-oriented numerical programming. He had been a Mechanical Engineering professor at Grove City College in Pennsylvania for 10 years before joining Fluent Inc. He received his PhD and MS degrees from the University of Rhode Island and his bachelor's degree in Mechanical Engineering from National Taiwan University.



Jeremy Edwards, PhD

Dr. Edwards holds BS, MS, and PhD degrees in mechanical engineering from the University of Tulsa in Tulsa, OK. His interests include applied CFD, discrete phase modeling, sand erosion prediction, and CFD code validation. He has performed research, consulting, and published in all of these areas. Prior to joining Fluent's training staff, Dr. Edwards served on the faculty of Petroleum Engineering at Louisiana State University and performed consulting services for several major oil and gas companies.

Course Agenda

Day 1

8:15 am	Introduction and Welcome
8:30 am	Introduction to Fluid Mechanics
9:00 am	Governing Equations of Fluid Mechanics
10:00 am	Break
10:30 am	Potential Flow
11:15 am	Boundary Layer and Viscous Flows
12:00 pm	Lunch
1:00 pm	External Flows
1:45 pm	Internal Flows
2:30 pm	Break
3:00 pm	Heat Transfer
3:45 pm	Discussion
5:00 pm	Wrap-up

Day 2

8:15 am	Introduction to CFD
9:00 am	Mathematical Equations of CFD
9:50 am	Overview of CFD Solution Methodologies
10:20 am	Break
10:40 am	Discretization I
12:00 pm	Lunch
1:00 pm	Discretization II
1:50 pm	Break
2:20 pm	Solution Methods
3:30 pm	Postprocessing and Visualization
4:20 pm	Discussion
5:00 pm	Wrap-up

Day 3

8:15 am	CFD Modeling of Turbulent Flows
9:30 am	Break
9:50 am	Designing Grids for CFD
10:30 am	Case Studies
11:30 am	Wrap-up