Course Description

CFD for Industry is a short course that aims at training industry professionals in the proper use of Computational Fluid Dynamics software. Today’s CFD packages are increasingly powerful and robust, commercial packages also user-friendly, but their increased ability to deliver a converged result may be misleading. The nonlinear nature of fluid mechanics means that relatively small mistakes in the simulation setup may result in fundamentally wrong flow fields leading to faulty design.

This short course focuses on the methodical process of setting up correctly your CFD simulation and of evaluating the quality of your solution, regardless of the software package used. Qualitative and quantitative criteria for selecting the best grid, domain size, convergence threshold, and other parameters will be taught and demonstrated during practice sessions.

The short course will cover a review of fundamentals, solution procedure, convergence analysis, mesh generation, physical modelling, verification and validation, and best practices. The theory will be complemented by improved hands-on practice sessions using the OpenFOAM® CFD software package, exemplifying concepts learned.

Participants in the short course can apply for Continuing Professional Development credits with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.
Short Course CFD for Industry

Please, register per e-mail sending the information below to carlos.lange@ualberta.ca by August 5, 2016. Alternatively, complete this form and return by the deadline with payment to:

Short Course CFD for Industry
10-203 Donadeo Innov. Centre for Engg.
9211-116 Street NW
University of Alberta
Edmonton, Alberta, Canada T6G 1H9

Name: ________________________________
Company: ________________________________
Title: ________________________________
Mailing Address: ________________________________
Phone: ________________________________
E-mail: ________________________________

Price: $600 + $30 GST = $630 CAD per person
Payment form:
□ Cash
□ Cheque (payable to the University of Alberta)
□ Purchase Order (Dept. will issue invoice)
□ Visa/MasterCard (call 780-492-2950)

Registration and Fee

Register before the deadline by following the instructions in the attached form. Register early as space is limited.

The fee for the two day short course is $600 CAD + GST.

This includes course notes, a live and installable Linux appliance with OpenFOAM®, as well as access to workstations with CFD software during the practice sessions. Catering during coffee breaks and lunches is also included.

Dates and Location
August 11–12, 2016
5-013 Engg. Teaching and Learning Complex
9107 116 Street NW, U. Alberta, Edmonton

Schedule

Thursday, August 11, 2016
08:00 – 08:50 Basic Equations of Fluid Mechanics
09:00 – 09:50 Review of Numerical Methods
10:00 – 10:50 Equation Discretization
11:00 – 11:50 Intro to OpenFOAM
lunch break
13:00 – 13:50 Setup and Solution Procedure
14:00 – 14:50 Physical Modeling I - Multiphase Flows, Porous Media
15:00 – 16:50 Mesh Generation, Problem Setup and Post-Processing (practice)

Friday, August 12, 2016
08:00 – 08:50 Physical Modeling II - Turbulence
09:00 – 09:50 Convergence Analysis
10:00 – 11:50 Mesh Refinement and Convergence (practice)
lunch break
13:00 – 13:50 Verification and Validation
14:00 – 14:50 Best Practices
15:00 – 16:50 Multiphase Flow: Setup and Solution (theory and practice)