ERCOFTAC SIG 41
Fluid-Structure Interaction with impact on industrial applications
16-17 October 2014
Course Coordinators:
Dr. Marianna Braza, IMFT, France & Elisabeth Longatte, EDF, France
Venue: EDF, Chatou-Paris, France

Lecturers:

Prof. G. Barakos, University of Liverpool, UK.
Prof. A. Bottaro, University of Genova, Italy
Prof. F. Chinesta, Ecole Centrale Nantes, France
Dr. T. Coupez, CEMES Sophia Antipolis, France
Dr. E. Fares, Exa Co., France
Dr. Y. Hoarau, ICUBE, Strasbourg, France
Prof. K. Hourigan, Monash University, Australia
Dr. A. Revell, Univ. Manchester, U.K.
Prof. M. Schaeffer, University of Darmstadt, Germany
Dr. J. Vos, CFS Engineering, Switzerland
Prof. J. Hunt, CPOM, UCL, UK
Prof. A. Mahbub, Shenzhen Grad Sch., Harbin Inst of Technology, China

Scope:

The scope of this course is to bring together the academic and industrial scientific communities in Fluid Dynamics (FD) and Structural Mechanics (SM) on this topic, in order to address the state-of-the-art methods in theoretical, experimental and numerical approaches. The course contents involve fluid-structure interaction phenomena associated with solid structure rotation, fluid-structure coupling involving instabilities, vibrations, separation. A principal goal is to enable researchers in the FSI community with state-of-the-art methods for analysing the fluid-structure interaction phenomena and to come up with quality achievements and best practice guidelines for efficient and secure design. The domains of applications cover a large spectrum including flow and movement induced vibrations in hydrodynamics and in aerodynamics. The course will be composed of ten Key Note Lectures. A large audience coming from the above academic and industrial communities is previewed.
Thursday 16 October 2013

9:00  Welcome address and Fluid-Structure interaction coupling in EDF – Chatou
      E. Longatte

9:45  Welcome address and FSI related to the Smartwing Morphing Centre
      M. Braza

10:30 Three-dimensional transitions and FSI in the wakes of rotating bluff bodies
      K. Hourigan

11:20 Coffee break

11:50 Flow through anisotropic poroelastic media
      A. Bottaro

12:40 Lunch

14:00 Model Order Reduction in Fluid Structure Interaction
      F. Chinesta

14:50 Partitioned Approaches for Simulating Fluid-Structure-Acoustics Interaction
      M. Schaeffer

15:40 Coffee break

16:10 Lattice-Boltzmann Flow simulations for industrial FSI applications
      E. Fares
Friday 17 October 2013

9:00 Fluid Structure Interaction Methods for the Analysis of Rotary 
G. Barakos

9:50 Fluid-Structure interaction coupling using Chimera 
Y. Hoarau

10:40 Coffee break

11:10 Fluid Structure Interaction simulations on the F/A-18 fighter for fatigue evaluation 
J. Vos

12:00 Highly Deformable Fluid Structure Interactions Using Immersed Boundary Method 
A. Revell

12:50 Lunch

14:00 Implicit Boundary and adaptive meshing for fluid structure interaction 
T. Coupez

14:50 Turbulent sheared interfaces, wall effects and separated/non-separated wake flows 
J. Hunt

15:40 Fluid-Structure Interactions between Two Circular Cylinders 
M. Alam

16:30 Industrial round-table discussion and Q & A sessions 
All

17:00 Closing address and refreshments