

UNIVERSITY OF WARWICK School of Engineering

Assignment 3 - CFD using STAR-CD code

The report should be handed in on or by Wednesday in Week 24 (11th May 2005). For any enquiries about this assignment, please contact Dr Yongmann M. Chung (Y.M.Chung@warwick.ac.uk) in Room A312 in Engineering.

You are required to run the STAR-CD commercial CFD code to solve any engineering problems. You are free to choose any topic you wish *in consultation with YMC*. A few examples are given below:

- Flow around an aircraft wing or hydrofoil.
- **CFD** in sports - Swimming, Yacht, golf ball, etc.
- Aerodynamics of flow around a car.
- Bio-fluid - Blood flow through a heart/artery system, Air flow inside the wind-pipe.
- Nano-fluid, Environmental fluid mechanics.
- Flow control.

Before the main simulations, you need to study the effects of computational domain size, boundary condition, and computational grid. You are required to write a report on the results of your CFD work, including the following aspects:

- Background information - overview.
- **Step 1:** Problem Definition - Governing equations.
- **Step 2:** Computation Domain.
- **Step 3:** Boundary Conditions.
- **Step 4:** Computational Grid.
- **Step 5:** Computer Simulation.

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- *Step 6*: Results & Discussion - Validation, Comparison & Analysis.
- Suggestions for Future Work.

This assignment is an individual project. All reports must be written independently. Copying or reproducing the work of other people without acknowledgement will be considered a violation of University Regulations. Any evidence of collusion will be promptly reported to the School of Engineering for action.

Good Luck!