Course Title: Large Eddy Simulation
Prerequisite: Viscous Flow, CFDI
Number of Credits: 3
Lecturer: Dr. Mohammad Saeedi

Course Description:
Providing basic skills in students to conduct large-eddy simulation

Course Topics:
- Overview of time/phase averaging and RANS models
- Unsteady simulation of turbulent flows (URANS and LES/DNS)
- Scale separation and faltering in LES
- Implicit and explicit filtering concept
- Subgrid scale modeling
- Constant, dynamic and multi dynamic coefficient models
- Modeling of Kinetic energy forward/backward scattering
- A priori/A posteriori analysis
- Wall modeling in LES
- Hybrid RANS-LES and detached eddy simulation (DES)
- Synthesized inlet turbulence (stochastic reconstruction techniques)
- Physical inlet turbulence (rescaling and precursor methods)
- Interpretation of LES results
- Frequency spectrum analysis

The course aims to:
Provide basic skills in students to conduct large-eddy simulation

Reading Resources:
- Different articles from Journal of Fluid Mechanics and Physics of Fluids.

Evaluation:

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