Computational fluid dynamics 411 (MKM 411)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEng Mechanical Engineering
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Prerequisites	MTV 310
Contact time	3 lectures per week, 1 practical per week
Language of tuition	English
Academic organisation	Mechanical and Aeronautical En
Period of presentation	Semester 1

Module content

Introduction to continuum mechanics, continuity equation, momentum equation, Navier-Stokes equation, energy equation, boundary conditions in thermal fluid systems, finite difference method, introduction to finite volume method (FVM), FVM for diffusion problems, FVM for convection-diffusion problems, introduction to pressure-velocity coupling in FVM. SIMPLE algorithm, selecting and assessing the applicability and limitations of the method, properly applying the method with commercial software, critically testing and assessing the end-results.

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