

Universiteit van Pretoria Jaarboek 2018

Numeriese termostroming 781 (MSM 781)

Kwalifikasie	Nagraads
Fakulteit	Fakulteit Ingenieurswese, Bou-omgewing en Inligtingtegnologie
Modulekrediete	16.00
Programme	BIngHons Meganiese Ingenieurswese BScHons Toegepaste Wetenskap Meganika BScHons Toegepaste Wetenskap Meganika: Fisiese Batebestuur
Voorvereistes	MSM 780 Numeriese termostroming 780
Kontaktyd	21 kontakure per semester
Onderrigtaal	Module word in Engels aangebied
Departement	Meganiese en Lugvaartkundige Ingenieurswese
Aanbiedingstydperk	Semester 2

Module-inhoud

*Hierdie inligting is slegs in Engels beskikbaar.

The Efficient Solvers: Background, multigrid theory and detailed description of the algorithm. Finite Volume method: Understand the governing equations, general form of the transport equations, Gauss's theorem and the finite volume discretisation. Iterative solution algorithm: Pressure-velocity coupling, types of grids, unsteady flows, multiple phases. Finite Volume Discretisation: Diffusion term, convection term and source term for steady flows. Convection-diffusion problems: Boundary conditions, higher order discretisation, accuracy / stability. Solution Algorithm for Pressure-Velocity coupling: SIMPLE, SIMPLER, SIMPLEC and PISO. Laminar, transitional and turbulent flow: Background and theory. Turbulence modelling and examples: Definition of turbulence, turbulence modelling approaches, turbulence models (zero-equation models, one equation, two equation, Reynolds Stress Model (RSM), Large Eddy Simulation, wall function approach), turbulence modelling guidelines. Recent CS developments: Current state of the art in turbulence modelling etc. Viscous boundary meshes: Background and objectives, internal and external flow, turbulence modelling considerations.

Die inligting wat hier verskyn, is onderhewig aan verandering en kan na die publikasie van hierdie inligting gewysig word.. Die [Algemene Regulasies \(G Regulasies\)](#) is op alle fakulteite van die Universiteit van Pretoria van toepassing. Dit word vereis dat elke student volkome vertrouwd met hierdie regulasies sowel as met die inligting vervat in die [Algemene Reëls](#) sal wees. Onkunde betreffende hierdie regulasies en reëls sal nie as 'n verskoning by oortreding daarvan aangebied kan word nie.