

University of Pretoria Yearbook 2019

Advanced fluid mechanics 781 (MSX 781)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEngHons Mechanical Engineering BScHons Applied Science Mechanics BScHons Applied Science Mechanics: Physical Asset Management
Prerequisites	MSX 780 Fluid mechanics 780
Contact time	21 contact hours per semester
Language of tuition	Module is presented in English
Department	Mechanical and Aeronautical Engineering
Period of presentation	Semester 2

Module content

Exact solutions: potential flow, Couette flow, Poiseuille flow and combined Couette-Poiseuille flow, laminar boundary layers (similarity solutions for flat plate flow). Stability of laminar flows: introduction, linearised stability, transition to turbulence, approximate prediction of transition. Turbulent flow: Reynolds averaged equations, two-dimensional turbulent-boundary-layer equations, velocity profiles, turbulent flow in ducts, flat plate flow, turbulence modelling.

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