



University of Pretoria Yearbook 2016

Thermofluids 310 (MTV 310)

Qualification Undergraduate

Faculty [Faculty of Engineering, Built Environment and Information Technology](#)

Module credits 16.00

Programmes [BEng Mechanical Engineering](#)

[BEng Mechanical Engineering Engage](#)

[BEng Metallurgical Engineering](#)

[BEng Metallurgical Engineering Engage](#)

[BEng Mining Engineering](#)

[BEng Mining Engineering Engage](#)

Prerequisites No prerequisites.

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: Liquids and gases, pressure, viscosity, temperature, heat. Introduction to Navier-Stokes and continuity equations. Definitions and properties of fluids, fluid statics, fluid dynamics, Bernoulli equations. Flow measurements. Dimensional analysis: force, drag, Reynolds number, force coefficient, power. Flow in pipes and channels: friction coefficients and Reynolds number, pressure drop; laminar, turbulent and transitional flow. Flow over bodies: drag and lift. Experimental techniques in fluid mechanics. Introduction to basic thermodynamic heat transfer concepts: conduction (steady state and transient heat conduction), extended surfaces, applications.

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