



University of Pretoria Yearbook 2019

Thermoflow 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	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Mechanical and Aeronautical Engineering
Period of presentation	Semester 1

Module content

Fluid mechanics: Introduction to fluid properties and fluid continuum concepts. Fluid statics and pressure. Control volume method for mass, momentum and energy conservation using integral approach. Bernoulli equation. Dimensional analysis and similarity. Flow in pipes and channels: friction coefficients and Reynolds number, pressure drop; laminar, turbulent and transitional flow. Experimental techniques in fluid mechanics. Heat transfer: Introduction to heat transfer mechanisms, thermal properties of materials. Solution of the heat conduction equation for different boundary and initial conditions. Heat generation in a solid. Steady heat conduction. Thermal resistance networks describing conduction, radiation and convection.

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