

University of Pretoria Yearbook 2020

Thermodynamics 221 (MTX 221)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEng Industrial Engineering BEng Industrial Engineering ENGAGE BEng Mechanical Engineering BEng Mechanical Engineering ENGAGE BEng Mining Engineering BEng Mining Engineering ENGAGE
Prerequisites	FSK 116 or FSK 176
Contact time	1 practical per week, 1 tutorial per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Mechanical and Aeronautical Engineering
Period of presentation	Semester 2

Module content

Application overview. Concepts: system, control mass, control volume, property, state, process, cycles, mass, volume, density, pressure, pure substances, property tables, ideal gases, work and heat, internal energy, enthalpy, specific heat capacity. First law of thermodynamics for control masses and control volumes. Conservation of mass. Processes: isothermal, polytropic, adiabatic, isentropic. Second law of thermodynamics and entropy for control masses and control volumes. Introduction to power cycles. Experimental techniques in thermodynamics.

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