

University of Pretoria Yearbook 2018

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 Afrikaans and English are used in one class

Department Mechanical and Aeronautical Engineering

Period of presentation Semester 2

Module content

Application overview. Concepts: system, 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 system and control volume. Conservation of mass. Processes: Adiabatic, isentropic, compressible and incompressible gases. Second Law of Thermodynamics for system and control volume. Entropy and enthalpy. Third Law of Thermodynamics. Introduction to vapour power, cooling and gas cycles. Experimental techniques in thermodynamics.

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