

University of Pretoria Yearbook 2022

Thermodynamics 221 (MTX 221)

Qualification Undergraduate

Faculty Faculty of Engineering, Built Environment and Information Technology

Module credits 16.00

NQF Level 06

Programmes BEng (Mechanical Engineering)

BEng (Industrial Engineering)

BEng (Industrial Engineering) ENGAGE

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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