

University of Pretoria Yearbook 2017

Thermodynamics 221 (MTX 221)

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| 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 BEng Mining Engineering ENGAGE |
| Prerequisites | FSK 116 or FSK 176 |
| Contact time | 1 tutorial per week, 1 practical per week, 3 lectures per week |
| Language of tuition | Afrikaans and English is used in one class |
| Academic organisation | Mechanical and Aeronautical En |
| 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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