University of Pretoria Yearbook 2022

Advanced thermodynamics and energy systems 781 (MTX 781)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	08
Programmes	BEngHons *Mechanical Engineering*
	BScHons (Applied Science) *Mechanics*
Prerequisites	No prerequisites.
Contact time	21 contact hours per semester
Language of tuition	Module is presented in English
Department	Mechanical and Aeronautical Engineering
Period of presentation	Semester 1 or Semester 2

Module content

Fundamental concepts of thermodynamics, total flow exergy, restricted dead state and unconstrained equilibrium state, heat transfer, fluid flow and chemical irreversibilities, thermodynamic optimisation, irreversibility distribution ratio, lost exergy, application of entropy generation minimisation (EGM) technique to the fundamentals of power generation, solar power, wind power, and low temperature refrigeration.