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# University of Pretoria Yearbook 2022

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## Advanced thermodynamics and energy systems 781 (MTX 781)

<b>Qualification</b>	Postgraduate
<b>Faculty</b>	<a href="#">Faculty of Engineering, Built Environment and Information Technology</a>
<b>Module credits</b>	16.00
<b>NQF Level</b>	08
<b>Programmes</b>	<a href="#">BEngHons Mechanical Engineering</a> <a href="#">BScHons (Applied Science) Mechanics</a>
<b>Prerequisites</b>	No prerequisites.
<b>Contact time</b>	21 contact hours per semester
<b>Language of tuition</b>	Module is presented in English
<b>Department</b>	Mechanical and Aeronautical Engineering
<b>Period of presentation</b>	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.

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