University of Pretoria Yearbook 2022

Heat transfer 410 (MTV 410)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	08
Programmes	BEng (Mechanical Engineering)
	BEng (Mechanical Engineering) ENGAGE
Prerequisites	No prerequisites.
Contact time	1 practical per week, 3 lectures per week
Language of tuition	Module is presented in English
Department	Mechanical and Aeronautical Engineering
Period of presentation	Semester 1

Module content

Introduction to basic thermodynamic heat transfer concepts. Conduction (steady state and transient), heat resistance networks. Conduction in two dimensions. Convective heat transfer: forced convection (external and internal), natural convection. Boiling and condensation. Thermal radiation. Heat exchangers: classification, Parallel flow and counterflow heat exchangers; double-pass, multi-pass and cross-flow heat exchangers; LMTD method, Effectiveness-NTU method, selection of heat exchangers. Experimental techniques in heat transfer.

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