

University of Pretoria Yearbook 2022

Heat and mass transfer 420 (MHM 420)

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 2

Module content

Fundamentals of Thermal Radiation; blackbody radiation, radiative properties, Kirchhoff's law. Radiation Heat Transfer; the view factor, gray surfaces, radiation shields. Boiling and condensation; pool and film boiling, film condensation, dropwise condensation. Heat exchangers; types, analysis, design, and selection. Mass transfer: Fick's Law, mass diffusion, mass convection, simultaneous heat and mass transfer, porous catalysts.

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