

University of Pretoria Yearbook 2021

Transfer processes 311 (COP 311)

Qualification Undergraduate

Faculty [Faculty of Engineering, Built Environment and Information Technology](#)

Module credits 16.00

NQF Level 07

Programmes [BEng Chemical Engineering](#)

[BEng Chemical Engineering ENGAGE](#)

Prerequisites WTW 238, (WTW 263)

Contact time 3 tutorials per week, 4 lectures per week

Language of tuition Module is presented in English

Department Chemical Engineering

Period of presentation Semester 1

Module content

Momentum transfer. Fluid statics. Control volume approach for conservation of mass, energy, and momentum. Application to pumps and turbines. Navier-Stokes equations, derivation and applications. Laminar and turbulent boundary layer theory. Heat transfer: fundamentals of heat transfer. Differential equations of heat transfer. Steady state conduction. Introduction to unsteady state conduction. Convection heat transfer and the thermal boundary layer. Radiation heat transfer. Mass transfer: fundamentals of mass transfer. Diffusion and the diffusion coefficient. Differential equations of mass transfer. Steady state molecular diffusion in one or more dimensions.

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