# University of Pretoria Yearbook 2018

# Transfer processes 311 (COP 311)

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| **Qualification** | Undergraduate |
| **Faculty** | Faculty of Engineering, Built Environment and Information Technology |
| **Module credits** | 16.00 |
| **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.