University of Pretoria Yearbook 2020

Chemical engineering design 320 (CIO 320)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEng Chemical Engineering
	BEng Chemical Engineering ENGAGE
Prerequisites	(CTD 223), SWK 210, COP 311 GS
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 2

Module content

Steady and unsteady state conductive heat transfer in one to three dimensions. Temperature distributions. Convective heat transfer. Application of boundary layer theory. Determination of film coefficients. Design of heat transfer equipment. Radiant heat transfer. Application of the mechanical energy balance to single phase Newtonian fluids in steady state systems. Adjustment for multiphase, non-Newtonian as well as pulsating systems. Orifice design. Optimal economic choice of pipe diameters, pumps and control valves.