University of Pretoria Yearbook 2022

Materials science 223 (NMC 223)

Qualification	Undergraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
NQF Level	06
Programmes	BEng (Metallurgical Engineering)
	BEng (Metallurgical Engineering) ENGAGE
Prerequisites	NMC 113 or NMC 123
Contact time	2 practicals per week, 4 lectures per week
Language of tuition	Module is presented in English
Department	Materials Science and Metallurgical Engineering
Period of presentation	Semester 2

Module content

Phase diagrams, phases and solid solutions. The heat treatment of steel (phase equilibria, the diffusion-controlled and martensitic transformations of austenite, hardening and tempering, hardenability, the application of IT and CCT diagrams, heat treatments). Steel types and classification. Cast irons (white, grey, malleable and spherical graphite irons). Stainless steels (ferritic, martensitic, austenitic and duplex types).