

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).

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