

University of Pretoria Yearbook 2022

Pyrometallurgy 321 (NPM 321)

Qualification Undergraduate

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

Module credits 16.00

NQF Level 07

Programmes [BEng \(Metallurgical Engineering\)](#)

[BEng \(Metallurgical Engineering\) ENGAGE](#)

Prerequisites NPT 220

Contact time 2 tutorials 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

Overview of pyrometallurgical process routes, types of reactions, and reactor designs. Review of relevant thermodynamic principles (equilibrium constants, Henrian and Raoultian activities and activity coefficients). Slag basicity and viscosity. Energy and reductants. Overview of pyrometallurgical separation principles (vapour-phase, solid-state and liquid-liquid routes). Examples of pyrometallurgical separation processes (ironmaking and steelmaking, sulphide smelting and converting, ferroalloys).

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