

# University of Pretoria Yearbook 2017

## Pyrometallurgy 321 (NPM 321)

**Qualification** Undergraduate

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

**Module credits** 16.00

**Programmes** [BEng Metallurgical Engineering](#)  
[BEng Metallurgical Engineering ENGAGE](#)

**Prerequisites** (NPT 220)

**Contact time** 2 tutorials per week, 3 lectures per week

**Language of tuition** Module is presented in English

**Academic organisation** Materials Science and Metallur

**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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