



University of Pretoria Yearbook 2020

Metallurgical analysis 700 (NPA 700)

Qualification	Postgraduate
Faculty	Faculty of Engineering, Built Environment and Information Technology
Module credits	16.00
Programmes	BEngHons Metallurgical Engineering
Prerequisites	No prerequisites.
Contact time	24 Hours
Language of tuition	Module is presented in English
Department	Materials Science and Metallurgical Engineering
Period of presentation	Semester 1 or Semester 2

Module content

The aim is to solve metallurgical problems with the aid of hi-tech analytical techniques. These different analytical techniques are given in modular form and the respective metallurgical area of specialisation will dictate the combination of three techniques to suit the requirements of the research student. Specialisation areas like Physical Metallurgy, Welding Metallurgy, Hydro Metallurgy, Pyro Metallurgy and Minerals Processing are covered and any other combination can be requested by the study leaders after consultation with the course leader. The techniques included are TEM, SEM, Auger Spectroscopy (AES), X-ray Photo-electron Spectroscopy (XPS), Glow Discharge Optical emission Spectroscopy (GDOES), X-ray Diffraction (XRD), X-ray fluorescence (XRF), Gleeble hot working simulations and Dilatometry. Lectures cover the theory of these techniques in depth and the theory is illustrated with industrial case studies.

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