

# University of Pretoria Yearbook 2017

## Metallurgical analysis 700 (NPA 700)

**Qualification** Postgraduate

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

**Module credits** 16.00

**Programmes** [BEngHons Metallurgical Engineering](#)  
[BScHons Applied Science Metallurgy](#)

**Prerequisites** No prerequisites.

**Contact time** 24 Hours

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

**Academic organisation** Materials Science and Metallur

**Period of presentation** Semester 1

### 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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