

# University of Pretoria Yearbook 2016

## Mathematical modelling of metallurgical processes and materials 780 (NWM 780)

|                               |   |
|-------------------------------|---|
| <b>Qualification</b>          | Postgraduate  |
| <b>Faculty</b>                | <a href="#">Faculty of Engineering, Built Environment and Information Technology</a>                                      |
| <b>Module credits</b>         | 32.00   |
| <b>Programmes</b>             | <a href="#">BEngHons Metallurgical Engineering</a><br><a href="#">BScHons Applied Science Applied Science: Metallurgy</a> |
| <b>Prerequisites</b>          | No prerequisites.   |
| <b>Contact time</b>           | 48 Contact hours  |
| <b>Language of tuition</b>    | English   |
| <b>Academic organisation</b>  | Materials Science and Metallur  |
| <b>Period of presentation</b> | Semester 1 or Semester 2  |

### Module content

This module covers both the theory and practice of mathematical modelling applied to metallurgical processes and materials. The module applies the theory mastered in prior learning such as mathematics, physics, thermodynamics, fluid mechanics, heat transfer, etc. to create mathematical representations of processes and materials. A range of modelling techniques is addressed in the module, such as solution models of solid and liquid mixtures, mass and energy balances, steady state process models, dynamic process models, heat transfer models, computational fluid dynamics models, multiphysics models and technical-economic models. The created models are then applied to solve problems encountered in research and industry.

The information published here is subject to change and may be amended after the publication of this information. The [General Regulations \(G Regulations\)](#) apply to all faculties of the University of Pretoria. It is expected of students to familiarise themselves well with these regulations as well as with the information contained in the [General Rules](#) section. Ignorance concerning these regulations and rules will not be accepted as an excuse for any transgression.