

University of Pretoria Yearbook 2022

Refractory materials 700 (NVM 700)

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| Qualification | Postgraduate |
| Faculty | Faculty of Engineering, Built Environment and Information Technology |
| Module credits | 30.00 |
| NQF Level | 08 |
| Programmes | BEngHons Metallurgical Engineering BScHons (Applied Science) Metallurgy |
| Prerequisites | No prerequisites. |
| Contact time | 48 contact hours per semester |
| 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 objective is to convey a fundamental understanding of the principles that are involved in the manufacture, selection and use of refractories. Relevant thermodynamic principles are reviewed, with emphasis on the thermodynamic properties of oxide materials, metals and slags, and how these affect refractory performance. Phase diagram use in refractory selection and prediction of slag-metal-refractory interactions is covered. A section on manufacture covers the types of raw materials, design and formulation, handling, manufacturing routes, and quality control (including practical mineralogy). Finally, design properties of refractories for the ferrous, cement, aluminium, copper, platinum and ferro-alloy industries are reviewed.

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