

University of Pretoria Yearbook 2016

Mechanical metallurgy 700 (NMM 700)

Qualification Postgraduate

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

Module credits 32.00

Programmes [BEngHons Metallurgical Engineering](#)

[BScHons Applied Science Applied Science: Metallurgy](#)

Prerequisites No prerequisites.

Contact time 48 contact hours per semester

Language of tuition English

Academic organisation Materials Science and Metallur

Period of presentation Year

Module content

We cover the interaction between the internal structure of metals – on the atomic and microscopic scales – and their mechanical properties. Practically important topics such as elastic and plastic stress analysis, dislocations and deformation, room and high temperature deformation processes, mechanical property/microstructure relationships for low and medium Carbon steels and for micro-alloyed and HSLA steels, fatigue processes, stress corrosion cracking, creep deformation processes and fracture mechanics are covered in depth, and illustrated with case studies. The course is largely available on CD-ROM with references to the latest literature.

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