



**University of the Witwatersrand,
Johannesburg**

**School of Chemical and Metallurgical
Engineering**

presents a short course on:

***Tribology: friction, wear and
lubrication***

19th to 23rd September 2011

Course objectives

Tribology is the science & technology of friction, wear and lubrication of interacting surfaces in relative motion. Friction in all types of industries causes wear (the removal of surface material) and consumes energy. Internationally it is estimated that 30 to 50% of all energy in industrialized countries is used to overcome friction, and that an equally large part of all production costs is spent on replacing worn components. The main objective in this course is to expose delegates to the basic principles of tribology and the most common industrial systems that experience friction and wear. The course is structured to offer delegates practical solutions which can be implemented leading to optimisation of equipment lifetimes and system operations.

Course outcomes

At the end of the course the delegates will:

- Have a comprehensive, systematic and integrated knowledge of the principles of friction, wear and lubrication;
- Have a critical and coherent understanding of the methods used to combat friction and wear-related problems;
- Have the ability to identify, analyse and address industrial friction and wear-related problems;
- Understand the differences between proactive & predictive maintenance and their applications in industry.

Who should attend?

This course is designed for engineers, managers and technicians who wish to gain an understanding of friction, wear and lubrication processes in common industrial systems.

Lecturers

Mr Patrick Swan (Pr.Eng, SAIMEchE) is a specialist in Tribology and Failure Analysis with over 40 years of experience gained locally and internationally. Technical director of Lucas Lee and Associates and past President of the South African Institute of Tribology

Dr Natasha Sacks (SAIMM) is a Senior lecturer in Metallurgical and Materials Engineering at Wits University. Dr.Eng in Engineering from the Friedrich Alexander University, Erlangen, Germany.

Course outline

- Fundamentals of friction, wear and lubrication
- Lubricating greases
- Synthetic lubricants
- Condition monitoring and oil filtration

- Gears and brakes
- Rolling and plain bearings
- Hydraulic systems
- Internal combustion engines
- Compressor operation
- Mining and quarry equipment
- Materials selection
- Surface engineering
- Failure analysis
- Case studies

Course fees

Course fees (per delegate for the course):
R 9,250 excluding VAT

Course fees include notes, teas and lunches.

Certificates

Short course participants have the choice of doing either a Certificate of Attendance (no assessment required) or a Certificate of Competence (by meeting the University's assessment requirements).

Enquiries and booking

To register online visit www.witsenterprise.co.za
Contact: Melissa Moodley, Tel: +27 11 717 4598 or via email Melissa.Moodley@wits.ac.za

Technical enquiries

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**This course is endorsed by the South African
Institute of Tribology.**

