



## **Report-Back SAIT Training: Lubrication Engineering 74 and 75**

Our ever-popular and informational Lubrication Engineering Course, 74, was held in Cape Town at the Breakwater Lodge in August this year. 21 delegates attended this course. Congratulations to **Sifiso Nzimande, Philip Roberts, Shirish Sukdeo, Clayton Smith, Jean Balie and Graeme Lindner** for achieving a distinction in the exam.

**Delegates at Lubrication Engineering 74 with Patrick Swan**



Because the earlier Lubrication Engineering Courses in Johannesburg during 2011 were over-subscribed, the SAIT ran an extra course (75) in September. There were 21 delegates. Congratulations to **Tendayi Chimutanda, Bester Muntande, Robbie Wilson and Martin Sweeney** for achieving distinctions in their exam.

**Delegates at Lubrication Engineering 75 with Gill Fuller, Isabel Bradley and Wade de Chalain**

## **Lubrication Engineering In-House at Medupi Power Station**

From 17 to 21 October, the SAIT ran an in-house Lubrication Engineering Course for staff at Medupi Power Station near Lephalale.



**Delegates at the Madupi In-House Course with Gill Fuller, SAIT Secretary.**

## **SAIT Training - Courses in 2012:**

**One-day Introduction to Lubrication Engineering:** 8 February 2012

**One-day Introduction to Wear and Materials:** 9 February 2012

**Five-day Lubrication Engineering 76:** 13 - 17 February 2012

*The above courses will be presented at Science Park, 1 Northway, off Marlboro Drive, Kelvin, Sandton, Johannesburg.*

**Five-day Lubrication Engineering 77:** 14 - 18 May 2012

*To be presented at Sica's Guest House, 19 Owen Avenue, Mayville, Durban*

**Five-day Lubrication Engineering 78:** 11 - 15 June 2012

*To be presented at Science Park, 1 Northway, off Marlboro Drive, Kelvin, Sandton, Johannesburg.*

**Five-day Lubrication Engineering 79:** 13 - 17 August 2012

*To be presented at Breakwater Lodge, V&A Waterfront, Cape Town*

For further information on any of these courses, please go to <http://www.sait.org.za/> or contact Gill or Isabel at [secretary@sait.org.za](mailto:secretary@sait.org.za) or [admin@sait.org.za](mailto:admin@sait.org.za).

**To read another of Dave Scott's informative Tribology-related articles, click the link below:**

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### **Science Friction! By Isabel Bradley, SAIT Assistant Secretary.**

Whenever I tell people that I work for the Southern African Institute of Tribology, they get a gleam in their eyes. They ask, 'so is that a study of primitive people in outlandish parts of the world?' The gleam often becomes a glaze when I explain that, 'no, it's the study of friction, lubrication and wear – all engineering of one kind or another.'

Only engineers retain that enthusiastic gleam.

The word 'tribology' was taken from the Greek, 'tribos', which means 'rubbing'. The science of Tribology includes all of the sciences and technologies of interacting surfaces in relative motion. The word was first used in 1966 in the Jost Report, a study conducted in the United Kingdom, which investigated the amount of money lost annually due to friction and wear. This report was titled, 'Lubrication (Tribology) Education and Research'.

The first important component of Tribology is Friction, defined as 'the rubbing of one object or surface against another'.

Few people realise just how important friction is in their daily lives. It is almost as important as gravity. Without friction, we would be in endless motion: it ensures that we keep our feet, literally, on the ground.



The earliest 'scientific discovery' involving friction was the making of fire by prehistoric man. The friction caused by rubbing two sticks together generates heat which kindles a spark in dry material placed where the sticks meet, ultimately producing a flame. Flint strikes sparks off steel. To this day we still start a fire using various forms of friction – a match scratched against a matchbox, flint and steel igniting a gas-soaked wick in a cigarette lighter.

Tyres on vehicles of all types provide the correct amount of contact between the tyre and the road surface for the required friction to maintain the car's forward movement, while ensuring the car stays safely 'on track'. Applying the brake pedal creates internal friction within the brake system, which in turn increases the pressure and the amount of friction between the tyres and the road surface, slowing the vehicle down and ultimately stopping it completely.



Aerodynamics is the study of the properties of moving air, especially the interaction between the air and solid bodies moving through it. Friction between air or gas and a vehicle, is known as 'drag'. Understanding how to maximise or minimise the amount of drag is one of the many complex subjects studied when learning to design motor-cars, aeroplanes and space-craft. NASA's now-defunct space programme utilising the shuttles called for vehicles which could withstand the intense friction both leaving and returning to the earth's atmosphere.





In this article on Friction, the surface has only been scratched. Scratching itself is a useful and comforting application of friction when one has an itch.

Children often play with 'friction' cars. The child spins the wheels of the toy backwards, repeatedly, on a carpet or other rough surface. This application of friction winds a spring tight inside the toy. When released, the car is propelled forwards – often bumping to a halt against the skirting board. Of course, the friction caused by the car bumping against the skirting board soon wears away paint and wood and dents the toy car.



But that brings us to the topic of 'wear', which deserves its own in-depth exploration in the next edition of

SAIT News.

## International Tribological Events

**VII International Conference, Lubricants Russia 2011:** November 9 – 10 2011, Renaissance Moscow Hotel. To register contact Elena Konstantinova at [Konstantinova.Elena@rpi-inc.com](mailto:Konstantinova.Elena@rpi-inc.com) or go to <http://www.rpi-conferences.com/>.

**TAE 18<sup>th</sup> International Colloquium Tribology,** Industrial and Automotive Lubrication: 10 – 12 January, 2012 in Stuttgart/Ostfildern, Germany. E-mail [info@tae.de](mailto:info@tae.de) for further information; visit website [www.tae.de/tribology/](http://www.tae.de/tribology/); phone +49 71-34008-0 or fax +49 711 34008-65

**UNITI Mineral Oil Technology congress 20 & 21 March 2012:** Registration opened in October 2011. An early bird booking discount will be granted for registrations made before 15 December 2011. For further information go to the homepage at <http://www.umtf.de/> or contact Carmen Fogel at [Fogel@uniti.de](mailto:Fogel@uniti.de).

## Tribology in Action



Motorcyclists need friction between tyre and track to keep them on the road.

