

CHAIR TALK

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DAAD Deutscher Akademischer Austausch Dienst
German Academic Exchange Service

WORD FROM THE EDITOR



LeRoi Grimbeek

Welcome to the latest jam packed edition of **Chair Talk!** We're almost half way through the year, with the biggest sporting event to take place on the African continent just around the corner!

Due to personal reasons we had to bid farewell to our close friend and colleague, Professor Hinrich Holdack-Janssen, whom acted as Chair to the entity for the past three years. Professor Holdack-Janssen returned to Germany at the end of April, where he will continue lecturing at the university of Ostfalia. He will however remain involved with the various projects and exchange programmes. Professor Theo van Niekerk, co-initiator of the VWSA / DAAD Chair has been appointed as the new Chair of the entity. We would

like to congratulate Professor van Niekerk on his appointment and wish him all of the best with his new position.

The Chair is heading into an exciting period with several new projects and engineering workshops / seminars being identified in collaboration with industry. The foundation has also been laid for the development of an exciting new curriculum, an Advanced Diploma in Automotive Engineering at NMMU, which will be aimed at further satisfying the needs of industry in the near future.

Let us all embrace the 2010 FIFA Soccer World Cup and make it an unforgettable experience for all!!

WORD FROM THE CHAIR



Prof van Niekerk

It's with great sadness that I start as VWSA / DAAD Chair with the news that my predecessor, Prof Hinrich Holdack-Janssen's wife, Antke, sadly passed away on Saturday the 22nd of May. Our thoughts and prayers are with Hinrich, Mona and Eva.

The VWSA / DAAD International Chair in automotive Engineering was initiated with the overall objective to bring educational programmes closer to the automotive manufacturing industry. This is totally inline with the NMMU's mission of engagement, and therefore I feel very excited and privileged to be involved at the cutting edge of industry – university collaboration.

As a team we would like to build on the good foundation laid by my predecessor and now international research partner, Professor Hinrich Holdack-Janssen. I have learned that through effective partnerships it is possible to develop industry based educational platforms that are credit based and aligned with the exit level outcomes of a particular engineering programme. This type of integrated education will equip our graduates with knowledge and skills sought after by industry, give them the edge and contribute in making NMMU Engineering unique.

Through VWSA we certainly have a dynamic partner that has a very good understanding of skills development and the role of higher education, especially in the context of international collaboration and to engage on educational issues at various levels. Finally, there is certainly a new level of enthusiasm and energy within the School of Engineering towards the automotive industry, and I find myself in a position to make use of this opportunity to be a positive agent in industry-university engagement.



ENGINEERING WORKSHOPS



Back from left to right: Prof Theo van Niekerk, Mr Juergen Kranz (presenter) and Mr Karl du Preez with the VWSA employees

Please feel free to visit the Chair website at <http://www.nmmu.ac.za/default.asp?id=4096&bhcp=1> where the workshop programme can be downloaded. The programme will state the date, fees applicable as well as the registration details.

Chair Doctoral candidate, Mr Juergen Kranz recently presented a one day workshop to VWSA staff on the CANBUS Protocol in Vehicle and Production Industry. Delegates were provided with a better understanding of CANBUS in order to reduce plant down time cycles.

The Chair will once again be presenting an engineering workshop to members of industry as well as NMMU staff and students in August 2010, with the focus being on Water and Energy management.

The energy efficient manufacturing course will start by focussing on international, national and local trends in the use of resources (coal, oil, water etc), identify with course attendees key energy and water cost drivers and finally aims to engage with smaller businesses to reduce energy and water consumption effects with the view to reduce manufacturing costs.

UNDERGRADUATE STUDENT PROJECT INVOLVEMENT



The machine built by the NMMU team

The Chair provided technical, financial and marketing support to the NMMU School of Engineering students whom participated in the national Siemens Cyber Junk Yard competition in Johannesburg on the 19th and 20th of May.

This year's competition incorporated a 2010 World Cup theme that required students to design and build a high tech soccer playing machine using renewable power, with the motto being : "Play the game; Save the planet".

The NMMU team consisted of seven undergraduate students (1 x Mechatronic, 2 x Electrical, 4 x Mechanical engineering) and were mentored by Prof van Niekerk and Mr Karl du Preez.

The team won the prize for the most innovative project, with features such as a gift dispenser, coin slot, levelling board and several unique safety features being added.

Even though the group didn't finish in the top three, LAPPKABEL group rewarded the group of students with equipment to the value of R200 000 for the high quality machine produced.



Other major sponsors of the machine included FESTO, Siemens and LAPPKABEL, while the AIDC provided additional sponsorship for hardware and logistical arrangements.

POST GRADUATE RESEARCH PROJECT



Presentation at the Meisterbock Cubing Centre at VWSA. Presenters Mr Thilo Lichtenburg and Mr Shaun Pretorius with VWSA employees Mr Peter Mcrae, Mr Tom Du Plessis, Dr. Leslie Lee, Mrs Libby Barkhuizen and Mr Jan Waalkens

Flexible measuring systems (FlexMess) is a measurement system developed by the automotive University of Ostfalia in cooperation with Volkswagen in Wolfsburg Germany. The system allows for the measurement and alignment of completely assembled vehicles with GOM optical measurement systems, and was designed by Mr Thilo Lichtenberg as part of his MTech (Mechanical engineering) at the NMMU, which he completed cumlaude. This system for the vehicle to be measured in its natural position and be aligned via the VW RPS standards.

FlexMess exist all around the world but no system exists for the PQ250 platform (new generation Polo).

The Chair measurement team was tasked with the responsibility of developing a fully functional measuring system, which can be used to measure



Mr Shaun Pretorius assisting exchange student Ms Miriam Mahaupt

fully assembled vehicles. The creation of this new measuring system will contribute to the training of NMMU staff and students as well as VW employees. This will result in industry engineers being better trained.

A prototype for a Flexible measuring system for PQ250 was developed by Mr Shaun Pretorius, a MTech (Mechanical engineering) student at NMMU, and has been tested to fall within acceptable tolerances for which the original FlexMess system was designed for. Future analysis can now be conducted by using students and researchers from the university in a cooperative collaboration between VWSA and the NMMU.

Coordinate measurement has been integrated into the Mechanical Design II syllabus (Mechanical Engineering) at NMMU, with the focus on providing an intensive introduction as well as educate young students in the use of such systems.

The FlexMess team assembled by the Chair will in the future look to work closely with the automotive industry, and solve related problems by creating optical adaptor systems for use with optical measuring systems.

The collaboration with the University of Ostfalia and VWSA has lead to the creation of a student measurement group at the NMMU.

For more information on possible industrial projects, please feel free to contact the Project Manager of the NMMU measurement group, Mr Karl du Preez on 041 504 3644 or Karl.duPreez@nmmu.ac.za



CHAIR VISIT TO GERMANY



Dr Nico Jooste, Prof van Niekerk and Prof De Jager with delegates from Ostfalia University and the 2010 (WOB 06) racing vehicle produced by the Formula Student group at Ostfalia

Professor Theo van Niekerk (Chair), Dr Nico Jooste (Director: Office for International Education) and Professor Henk De Jager (Executive Dean: Faculty of Engineering, the Built environment and Information Technology) recently visited the German Academic Exchange Service (DAAD) in Bonn, Germany.

A presentation was done by Prof van Niekerk on the progress and various achievements of the VWSA / DAAD Chair over the past three years as well as discuss the future involvement of DAAD with the Chair.

With the support of DAAD, the Chair would like to establish an advanced diploma in automotive manufacturing, continue staff exchange between NMMU lecturers, industry and Germany, as well as increase the number of PhD and Post Doctorates through the development of a funding programme.

NMMU / OSTFALIA EXCHANGE PROGRAMME



Exchange students from Ostfalia University

The NMMU has had a very fruitful relationship with the University of Ostfalia over the past few years with staff and students benefitting from the exchange programme, which was established in 1998.

Each year the exchange programme allows for three under-graduate students to complete a five month internship period at the partner university. Students are also given a two week introductory German language course.

In September three NMMU Mechanical engineering students will be heading to Wolfsburg as part of the programme.

Currently a group of students from Ostfalia University have been assigned to various projects involving industry partner VWSA. Several students are also researching “GREEN” issues such as the recycling of vehicles, as well as the management of water and energy in in automotive sector. More to be published on the various projects in the next issue of **CHAIR TALK**.



VW RACING SUPPORTS FORMULA STUDENT RACING AT NMMU



Mr Hiten Parmar from VW racing (Middle left) and Mr Trevor Stroud (Back right) with the NMMU Formula student racing team during the NMMU Open day



Mr Hiten Parmar (Front left) with the NMMU racing team at the VW racing premises during construction of the vehicle frame

such as the suspension, fuel tank, differential and steering rack. Suspension uprights, hubs and drive shafts are being custom machined from steel and aluminium to take us through to the next milestone of this project namely, the completion of a rolling chassis!

For more information on the NMMU Formula Student racing project, please feel free to visit the website or contact the Project Manager, Mr Trevor Stroud on 041 504 3565 or Trevor.Stroud@nmmu.ac.za

NMMU Racing reached a significant milestone in May with the completion of the vehicle frame structure and installation of the engine. The team decided that displaying the frame at our annual "Open Day" was an opportunity not to be missed, and worked late into the night to have the frame ready for display on 7 May.

The frame manufacturing process involved cutting all the tubes to length, fixing the suspension mounting tubes to a jig and notching each individual tube to suit its location. After each tube fitted perfectly, it was tack-welded into position ready for the final welding process.

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The frame had to be built very accurately to ensure that the engine, suspension and other components fit perfectly. The engine was placed in position during frame assembly. A removable lower cross member allows the engine's removal for maintenance and repairs.

Now that the main structure is complete, other components can be built onto the frame

