



Summer 2013/14

Enabling e-mobility



Uyilo working group members. From left: **Mary-Ann Chetty** (Innovation Manager: IS&TT), **Prof Danie Hattingh** (Director: eNtsa), **Dirk Odendaal** (Director: Uyilo e-mobility Programme) and **Jaci Barnett** (Director: IS&TT); (not pictured here: Prof Ernst Ferg, Prof Ernest van Dyk).

The Uyilo e-Mobility programme was launched in March 2013 by the NMMU and the Technology Innovation Agency. The programme, hosted by the NMMU, aims to develop viable infrastructure for the use of electric vehicles in South Africa. Establishment of the programme will enable application and solution-driven support to be provided to the emerging electric vehicle industry.

The programme strives to encourage the entry of electrical vehicles to the South African market, but also to enable economic growth and to drive technology innovation.

Uyilo Projects

Uyilo will be funded by the Technology Innovation Agency (TIA) and will be the home to e-mobility projects involving industry and other institutions.

A battery testing centre will be housed at the NMMU as part of Uyilo to develop state-of-the-art battery technology for electric vehicles. Projects will include enhancing battery performance, evaluating innovative cell configurations, validating new materials and chemistry, and testing the battery management systems.

A project with Eskom to determine effects of e-mobility on the grid will be undertaken. Other

stakeholders for this project include the Department of Environmental Affairs and the Nelson Mandela Bay Municipality.

The NMMU has a number of working electric vehicles which it will use to test infrastructure.

Well received

Since its inception, the programme has been supported by stakeholders from all sectors, including Powertech Batteries, Eskom, Sasol, Nissan SA, BMW SA, CSIR, Nelson Mandela Bay Metro, NMMU and TIA.

It is a great opportunity for the NMMU to be in the forefront of developing new technology. The NMMU's research will be aligned with industry to make a national impact in support of NMMU's Vision 2020.

“Experts anticipate that 10% of the world's vehicles will be powered by alternative energy sources by 2020, so it is imperative that South Africa not be left behind but starts working towards this new future,” says Dirk Odendaal.

2013 Highlights

Student Counselling Centre software:

License agreements were signed for the Learning Enhancement Checklist with Walter Sisulu University and for the Ukubamba management system with University of Johannesburg. The Wellness Questionnaire for Higher Education is ready for commercialisation.

Algae to Energy Project:

Two patents and one registered trademark applications were filed. The project is still underway and has been flagged for accelerated commercialisation by the funder.

Infrared Diode development:

An informal partnership has been established with Detek in order to move the project forward.

Timber grading machine development:

Research work was completed to finalise proof of concept studies.

Tweryly renewable energy street-light:

An option agreement was signed with an entrepreneur to take the technology into the market.

Novel spiral mechanism:

The sprinkler system drive component was funded by TIA's Youth Technology Innovation Fund and was successfully completed.

TIMS:

A Technology Information Management System was created for the management of projects, initiatives and contracts. The system is versatile, user-friendly and promotes a project management approach.

Weldcore® commercial roll-out



Eskom representatives visit eNtsa. From left: **Mr Dheshan Naran** (Head: Eskom Materials & Plant Integrity), **Mr Marthinus Bezuidenhout** (Corporate Consultants Materials), **Mrs Sumaya Nassiep** (Plant Performance Optimisation) and **Mr Etienne Phillips** (Senior Project Engineer: eNtsa).

eNtsa is in the process of engaging with Eskom to discuss the commercial roll-out of the award winning, friction hydro-pillar processing (FHPP) technology, Weld-Core®.

“The patented technology developed by eNtsa and Eskom is for sampling and repairing of thick walled steam pipes. The technology has reached a level of maturity which effectively allows it to enter the first phase of roll out into industry”, says Mr Donnie Erasmus, Project Manager of the Weldcore® project.

Discussions are underway with the IDC regarding the funding of Mantacor, the

spin-out company, that will commercialise the technology. A business plan is currently being written which will include the roll-out of numerous applications of the Weldcore® technology.

The WeldCore® project, funded by Eskom and TIA over many years, has also contributed to academic efforts within the NMMU. Research conducted has produced numerous academic publications which include Masters and Doctoral dissertations, journal outputs and papers presented at both national and international conferences.

Solar testing partnership

The NMMU has signed an agreement with Enertis Solar for the testing of solar photovoltaic (PV) modules at the NMMU’s facilities. This brings together Enertis’ expertise and know-how with the NMMU’s knowledge accumulated over years of research. Prof Ernest van Dyk and Dr Freddie Vorster have vast expertise on PV modules and related components. Enertis provides testing, engineering and advisory services to PV projects totaling over 2,000 MW worldwide.

With the South African government’s new drive to promote and implement renewable energy projects through its Renewable Energy Independent Power Producer Procurement Programme of the Department of Energy, the solar PV market is one of the industries with highest growth potential in the country.

The agreement signed between Enertis Solar and the NMMU will enable Enertis Solar to provide clients with quality control services for PV modules to aid in identifying performance issues in the most crucial components of a PV plant. Tests will be done by the NMMU accord-

ing to IEC standards as well as other accredited testing procedures. This will ensure optimal PV plant functioning, anticipation of probable component failures and prevention of any potential issues affecting the plant energy yields, thereby improving plant efficiency. The collaboration will go beyond testing services and will include sharing of technical know-how and training of university staff and students on testing practices for the solar photovoltaic market.

With NMMU’s assistance, Enertis Solar will be able to further assist customers to secure their solar investments and establish an African footprint. To date, Enertis Solar has provided technical due diligence on three solar PV plants in South Africa, totaling 100 MW.

This partnership has brought Enertis Solar and the NMMU together to provide the renewable energy industry with a crucial and essential service. The PV testing lab has been established on the CSIR campus and in January 2014, the first batch of modules was tested. SANAS accreditation of the PV testing laboratory is currently underway.

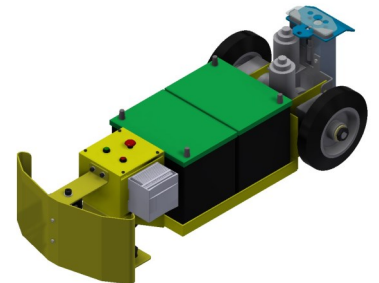
Touch Tutor®



Maths and Science teaching software developed by the Govan Mbeki Maths Development Unit, called Touch Tutor®, has been embedded on the netsurferSCHOLAR™ tablet computers. They are available in retail stores owned by the Foschini group.

AGV prototype developed

An Automated Guided Vehicle prototype has been developed in the Department of Mechatronics under the supervision of Prof Igor Gorlach. The AGV will have a price advantage compared to other AGVs available in South Africa. AGV’s are typically used in industries like the automotive industry to transport components between different parts of the factory.



Energy funding boost

The Centre for Energy Research at the NMMU conducts research in renewable energy systems including solar and wind energy. In 2013 the CER received funding from the South African National Energy Development Institute to conduct research in the fields of energy yield and photovoltaic characterisation.



Local talks & sharing of knowledge



From left: **Jean-Pierre Muller** (Trade & Investment Commissioner: Wallonia Brussels Trade Commission) with **Jaci Barnett**.

Belgian Talk:

Jaci was invited to address a delegation of Belgian academics and university management staff on “South African universities and the South African innovation system”. The delegation, presided by Her Royal Highness Princess Astrid of Belgium, visited Johannesburg, Pretoria and Cape Town in October.

Entrepreneurship Course:

The IS&TT department, together with Rhodes University, won a tender from the Technology Innovation Agency to present a technological entrepreneurship course in the Eastern Cape. Held at Rhodes University over a week in August, the course was attended by 35 postgraduate students from Rhodes, NMMU and Walter Sisulu University.

Dr Jo Zeelie from the NMMU and Jaci presented a number of lectures and were involved in assessments of the students’ oral pitches as well as assessing the business plans produced by the students. A number of entrepreneurs, including Robert Bosch, one of the NMMU’s inventors, gave talks on their entrepreneurship journey.

UniZulu Talk:

Jaci was invited by the Deputy Vice Chancellor: Research of the University of Zululand to speak to their senior management about models for technology transfer offices. She discussed strategies, structures and challenges, as well as some lessons learned from the NMMU experience.

MUT Talk:

Mary-Ann presented at a seminar hosted by the KwaZulu-Natal Regional Office of Technology Transfer (KZN ROTT) at the Mangosutho University of Technology, Durban on 23 July 2013. The seminar, on “Technology Transfer: Compliance, Funding Opportunities & Government Partnerships” brought together academics, researchers, Deans and Deputy Vice Chancellors from all the universities in KwaZulu-Natal. Mary-Ann conducted an interactive presentation on the “Challenges of Commercialisation faced by Universities”.



Showing speaker appreciation. From left: **Dr Anette Mienie** (Director: Research—MUT) and **Mary-Ann Chetty**.

Workshops for IP awareness

SARIMA (Southern African Research & Innovation Management Association) was contracted by NIPMO (National Intellectual Property Management Office) to present a series of ten workshops on IP Awareness for researchers across the country. The workshop material, called IP Wise™, was developed by the NMMU’s Jaci Barnett and the Medical Research Council’s Shelley Mulder.

The staff of NMMU’s IS&TT department played a major role in the workshops. Jaci presented at four of the workshops, at Wits University (for staff and students of Wits, the University of Johannesburg and Mintek), at UKZN (for staff and students of UKZN, Durban University of Technology and Mangosutho University of Technology), at Rhodes, and at the NMMU.

Mary-Ann Chetty co-presented with Jaci in Durban, and Zee Dudhia co-presented at the NMMU. The workshops were very successful, reaching over 400 researchers across the country. The Companies and Intellectual Property Commission also attended the

NMMU workshop and presented on their offerings in IP registration.

Feedback from participants in the IP Wise workshops was extremely positive and has prompted NIPMO to offer these workshops again in 2014.



Talk IP... From left: **Jaci Barnett**, **Thabang Jase** (Tech Transfer Specialist: NIPMO), **Michelle Mulder** (President: SARIMA), **Mojalefa Khoza** (Education & Awareness Manager: CIPC).

Visit to Lesotho

Jaci Barnett was invited by the World Intellectual Property Organisation (WIPO) to present lectures on intellectual property, commercialising intellectual property, and setting up a technology transfer office in Lesotho. The lectures, organised by WIPO in conjunction with Lesotho’s Department of Science and Technology, were aimed at empowering academics, government officials, consultants and small business owners with a basic understanding of intellectual property and what it means for their business and country.

The second day of the visit was spent at the National University of Lesotho and Jaci spoke specifically about how to start the process of managing intellectual property at the university. The Pro Vice Chancellor confirmed his commitment to trying to set technology transfer in motion at the NUL. Jaci visited a laboratory and spoke to some of the researchers about possible commercialisation opportunities from their work.

This visit complemented a previous trip by the NMMU’s Research Management and Research Capacity Development departments under a joint project between the NMMU and NUL.

WIPO Summer School on IP & TT



The official group photo of WIPO Summer School 2013 participants, accompanied by the Vice Chancellor, speakers from WIPO and the Department of Science and Technology as well as the NIPMO/CIPC/NMMU organising team.

WIPO (World Intellectual Property Organisation), is an agency that administrates several treaties relating to Intellectual Property (IP), some treaties to which South Africa is signatory. Another WIPO function is to create Intellectual Property awareness to stimulate creativity and innovation. It is in this regard that South Africa is one of the host countries for the annual WIPO Summer School (WSS) on Intellectual Property. Previously held at the University of the Western Cape, this intense two-week course brings together professionals from around the globe with local and international IP experts for an active engagement in IP theory and cases. Speakers included senior attorneys from local firms and professionals from the NMMU's and other technology transfer offices.

The IS&TT department worked closely with the National Intellectual Property Management Office (NIPMO) and the Companies and Intellectual Property Commission (CIPC) to plan the logistics and execution of the WSS which took place from 25th November to 6th December 2013 at the NMMU.

The Summer School was opened by the Vice Chancellor, Professor Derrick Swartz, who welcomed the delegates and sponsors to the NMMU and Port Elizabeth. His key message to the audience was for each participant to think of their role in using intellectual property and the commercialisation thereof as a tool to

bridge the social and economic divide in their own countries.

WIPO representative, Ms Karen-lee Rata, echoed the VC's sentiments and thanked the NMMU for their agreement to host the WSS.

Forty five participants from twenty seven countries around the world eagerly joined in discussions each day to improve their understanding of the various topics. Countries represented included Brazil, Cameroon, Germany, Egypt, Mexico, Namibia, Rwanda, Spain, Zambia and South Africa.

On the first day the participants were treated to an educational tour to the Kragga Kamma Game Reserve where they enjoyed a game drive and interaction with animals. This was followed by a historical tour of Port Elizabeth and included a drive through local townships and a visit to the Donkin Reserve.

“I had the luck of being part of a very interactive summer school and will go back to my country with a fresh view and variety of knowledge,” says participant, Laura Rendón from Mexico.

A WIPO-sponsored reception was held at the Boma. After the formalities and dinner, the group partied on the dance floor until the early hours of the morning. As the evening progressed, it was clear that lifelong friendships were formed around the bonfires, cocktails and good food.



Left: Prof Derrick Swartz delivering his welcome address. Right: Ms Karen-lee Rata delivering an address on the global impact of intellectual property and the role of WIPO.



Summer School participants spotted rhinos at Kragga Kamma Game Reserve.



WSSS participants fascinated by the reptile demonstration at the Boma.



WSSS participant adorned with a 3m python as part of the reptile demonstration at the Boma.

International guests and workshops

Lars Johnson

Professor Lars Johnson, General Director and CEO of Uppsala University Innovation and UUAB Holding Company in Sweden, visited the NMMU in January 2013. He presented a talk on the development of science parks and the impact on the local economy surrounding the university as well as on the country.

His talk was well received by members of the Regional Innovation Forum, the Board of Innovolve (Pty) Ltd and NMMU staff members.

Lars also spent time with IS&TT staff listening to the challenges faced by South African TTOs and projects, offering his own experience as a means to find new solutions.



Prof Lars Johnson (Director of TTO: Uppsala University).

Mike Blum



Mike Blum (Founder and President: Materials Technology Associates Labs).

Mike Blum is the founder and president of MTA Labs which provides materials engineering consulting, failure analysis and laboratory services to companies involved in the design, fabrication and assembly of high technology equipment.

During his visit to the NMMU he met with eNtso and the HRTEM team to discuss the possibility of collaboration. He also delivered two lectures, one on 'Silicon Valley's 100 Years of Innovation' and the other on 'Failure Analysis'.

Mike visited the NMMU as part of our developing partnership with the SABLE (South African Business Link to Experts) Accelerator™.

IASP workshop

The IASP (International Association of Science Parks) Africa Division Workshop was hosted at the NMMU in April. Mr Luis Sanz, the IASP General Director, welcomed more than 60 delegates from over 15 countries. The workshop involved discussions about the role of science and technology parks, areas of innovation and the development of countries through these parks. IASP members could share their knowledge and experiences throughout this 3-day workshop.

The NMMU is an associate member of the IASP because of our incubator initiatives.



From left: **Prof Hendrik Lloyd** (Professor: Economics), **Dr Jo Zeelie** (Senior Lecturer: Management & Entrepreneurship), **Mclean Sibanda** (CEO: The Innovation Hub), **Luis Sanz** (Director: IASP) and **Jaci Barnett**.

A place for technology transfer professionals

South African technology transfer professionals can now be certified as a Registered Technology Transfer Professional (RTTP) under the global Alliance of Technology Transfer Professionals (ATTP) programme. Jaci Barnett is one of the first three RTTPs in South Africa and received her certificate in July 2013.

The programme aims to recognise the experience and expertise of technology transfer professionals while acknowledging they can come from vastly different fields such as law, business, science and engineering.

Applications are assessed by experienced practitioners and take training, experience and involvement into account.

Jaci is also on the Council of ATTP representing SARIMA. The Council, comprised of leading technology transfer association representatives, met in London in February to discuss the future role of ATTP as a global organisation and the professionalisation of technology transfer.

SARIMA is seen as a key player in ATTP to bring a developing country perspective to ATTP.

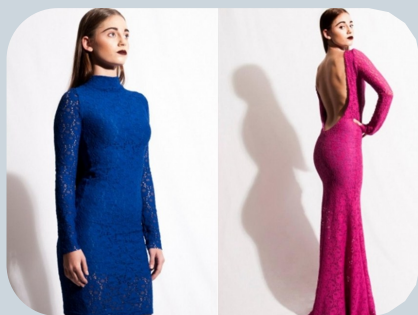


Enjoying the Council dinner. From left: **Jane Muir** (President Elect: AUTM), **Jaci Barnett** and **Christian Stein** (ASTP).

Progress on incubation

The NMMU has established an Arts and Design Incubator (ADI) to assist up-and-coming artists and designers. The first incubatee was Laduma Ngxokolo with his MaXhosa by Laduma™ brand. MooiMooii and Kelly Esterhuyse have joined the ADI. While the ADI is currently run as a limited initiative of IS&TT and the School of Music, Arts & Design, it will shortly be formalised as part of the Propella™ incubator being established by the NMMU. Incubatees get business and technical mentoring as well as assistance with showcasing their work.

MooiMooii



MooiMooii creates easy-to-wear fashion for women of all ages. They have stock in a number of boutiques around Port Elizabeth and are currently reviewing their product range to ensure business sustainability.

Maxhosa by Laduma®



Laduma Ngxokolo continued to develop his business and markets for his knitwear range (www.africanknitwear.com). Laduma currently toll manufactures in Cape Town, but is trying to find funding to move his business to Port Elizabeth. Laduma left the ADI as an incubatee in 2013, but the NMMU continues to play a role in his business.

Kelly E

Kelly Esterhuyse joined the ADI in 2013 after finishing her studies and being chosen to create a range for Mr Price.

Kelly makes use of her geographic competitive advantage by using Eastern Cape wool and mohair in her products. She showcased her collection at the SA International Mohair Summit in October 2013 with the support of Mohair SA.

Kelly's collection consist of classic, modern and classic infusion and modern knitwear designs.



Innovator awards

The NMMU's Innovation and Technology Transfer awards are given annually to staff members who are nominated for their contribution to innovation at the NMMU. This includes patenting, innovative technologies as well as innovations for social impact.



Prof Ben Zeelie (Director: Inno-venton).

Prof Ben Zeelie received the Innovation Award for Continued Innovation Excellence.

Ben is best known as the visionary behind InnoVenton – an internationally recognised Institute for Chemical Technology. As Director of InnoVenton, Ben has spearheaded many applied research projects, including the preserved flowers project (now a commercialised product) and the currently prominent “Algae to Energy” project that was selected by the Technology Innovation Agency for fast-tracking because of its importance to the country. Ben was presented with the Innovation award in recognition of incredible innovation leadership he has displayed over the years. Well done Ben!



Dr Russell Phillips (Senior Lecturer: Mechanical Engineering).

Dr Russell Phillips received the Innovation Award for Outstanding Innovation Achievement.

Russell has been involved with wind and solar energy research projects for a number of years and is continually looking for innovative ways in which to enhance the efficiency of the energy systems he builds and researches. In his spare time he has been involved in social projects in the Transkei, installing wind turbines for schools in areas where there is no grid infrastructure for electricity. Russel was recognised for developing novel blades for turbines and his innovations for social benefit. Well done Russell!

NMMU's involvement in the SKA

The NMMU has recently joined an SKA project consortium focussing on signal and data transport for the SKA. Prof Tim Gibbon from the department of Physics will lead this work.

Jaci accompanied the DVC: Research & Engagement on a special visit to the Square Kilometre Array (SKA) site near Carnarvon in the Northern Cape. The National Research Foundation hosted the visit and guests were flown by charter from Cape Town and Johannesburg to Carnarvon. Guests toured the new site as well as the existing KAT7 array (pictured).



Conferences attended



SARIMA

Mary-Ann and Jaci attended the SARIMA conference in Cape Town in October. This is one of the most important conferences on the department's calendar as it provides an opportunity to connect with other technology transfer offices, discuss issues with funders and government officials, and catch up with the latest issues in the field.

In addition, the staff got involved in the conference by presenting different aspects of tech transfer work: Jaci ran a special interest group in professionalisation of technology transfer, with specific emphasis on the new Registered Technology Transfer Professional programme;

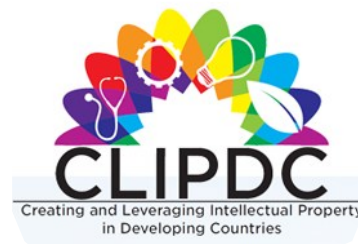


The **SARIMA Conference 2013** was held in Cape Town.

and Mary-Ann gave a lunchtime talk on TIMS, our new in-house built technology information management system.

The conference was attended by over 400 people from more than 20 countries and provided a wonderful opportunity to network and learn.

SARIMA's Biennial General Meeting was held during the conference. Jaci resigned from her position as Vice President which she had held for four years. She remains involved in SARIMA's professionalisation activities.



Jaci Barnett was asked to speak at the CLIPDC conference (Creating and Leveraging Intellectual Property in Developing Countries) in Durban in November 2013 organized by the Companies and Intellectual Property Commission and the National Intellectual Property Management Office under the Department of Science and Technology.

Jaci spoke on "Leveraging Technology Transfer in Developing Countries to Assist with Inventing and Entrepreneurship" and "Educating the Public about the Importance of Strong IP in Developing Countries". The conference was attended by 500 delegates mainly from Africa, the BRICS countries and the US and focused on discussing the role of Intellectual Property in social and economic growth.

AUTM annual meeting



Jaci Barnett in front of the Alamo Mission, site of the famous battle of the Alamo, in San Antonio, Texas.

and so on. Jaci and Zee found the conference very stimulating and networked with a range of people in the profession. In addition, Jaci promoted ATTP at the information stand and attended the ATTP reception.

San Antonio is a fascinating small city based around a river that flows through town that has been beautifully landscaped. The town is also the site of the famous 'Alamo'.

Zee received the AUTM Developing Economies scholarship in 2013. It is the third time that the department has received this award in 5 years! Jaci Barnett received it in 2008, and Mary-Ann Chetty received it in 2012.

“By engaging with AUTM and attending the annual meeting we are looking to both teach our international partners about South African success stories, and learn technology transfer models employed in other countries,” says Jaci.

Jaci Barnett and Zee Dudhia attended the Association of University Technology Managers (AUTM) conference in San Antonio, Texas, in February 2013. AUTM holds an annual meeting which attracts delegates from across the world. The conference dealt with matters such as commercialisation of mobile applications, licensing biotechnology inventions, challenges in commercialising IP in countries outside the US and Europe,

Global Forum



Wilma Maritz (PR Intern: IS&TT).

Wilma Maritz and Zee Dudhia showcased NMMU technologies at 2013's Global Forum on Innovation and Technology Entrepreneurship held in East London. Many companies and individuals were intrigued by the wide range of innovations which NMMU had to show off, from Algae to Energy; the Weld-core® process; long life roses; and renewable energy solutions.

Visit by patent attorney



Patents & Designs Talk. From left: **Sandra Clelland** (Patent Attorney: Von Seidels) with **Mary-Ann Chetty**.

A lunch hour talk and free consultations were presented by Von Seidels' attorney, Sandra Clelland, on the 31st of May 2013.

The audience was intrigued by the talk entitled "Patents & Designs" and contributed to an interactive discussion. These consultations and talks are held each year in an attempt to create greater awareness of intellectual property not only amongst academics, but also post-graduates.

Have a look at our website for more information on the Von Seidel visit.

New staff appointed



Wilma Maritz joined the IS&TT team at the beginning of 2013 to complete her in-service training for her diploma in Public Relations Management. She was awarded a SETA internship during her placement at the department.

She has been appointed as the Public Relations and Marketing Administrator for the remainder of 2014 while undertaking her BTech studies.



Nontando Saki joined the IS&TT team to assist with the WIPO Summer School and will be part of the team for the remainder of 2014. Nontando is completing her BCom at the NMMU.

She will be assisting with managing the finances and company secretarial duties for Innovolve (Pty) Ltd.



Fredrick Matongo will be seconded to the IS&TT team in 2014 as a Chuma commercialization candidate. The Chuma programme is run and funded by TIA to develop skills in technology transfer and commercialization.

Fredrick has spent time at the IDC and at Triumph Venture Capital during his internship. He has an MSc in Biochemistry from the University of Fort Hare.

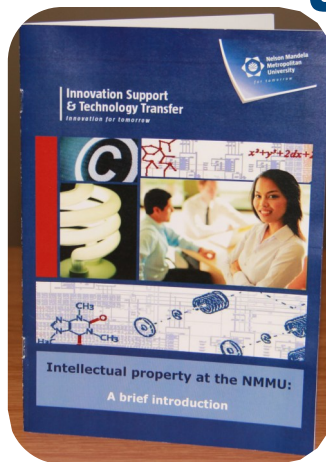
IS&TT marketing & promotion

Think.Innovate.Disclose

Magnetic bookmarks were distributed for the Disclosure Campaign 2013.



IP knowledge



IP booklets were made to create awareness of the IPR Act, the NMMU IP Policy and how it affects researchers. Be sure to get your copy or have a look at the website.

Come visit us

Please drop by for any more information about technology transfer. Don't forget to have a look at the success stories on the way to the offices.

